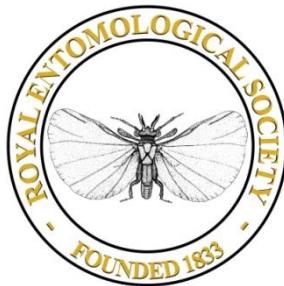


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Handbooks for the Identification of British Insects

Vol. VIII, Part 1(b)

**HYMENOPTERA
CYNIPOIDEA
EUCOILIDAE**

J. QUINLAN



ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

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Identification of British Insects**

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**HYMENOPTERA
CYNIPOIDEA
EUCOILIDAE**

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Cover-illustration: *Trybliographa rapae* ♀ (See also fig. 205.)

HYMENOPTERA CYNIPOIDEA: EUCOILIDAE

JOHN QUINLAN

INTRODUCTION

THE family Eucoilidae is the largest and most widely distributed of the parasitic families in the Cynipoidea. Kloet & Hincks (1945) listed 61 species and 11 genera as British; the revised check list given here lists 52 species and 16 genera. One new generic synonym and seven new specific synonyms are included in the present study. The Eucoilidae form a distinctive natural group and were treated as a family by Eady & Quinlan (1963), who gave keys to families and subfamilies of Cynipoidea. Terminology used in the keys follows Richards (1956) except that older names have been used for certain veins of the forewings where this will make it easier to understand the keys and figures.

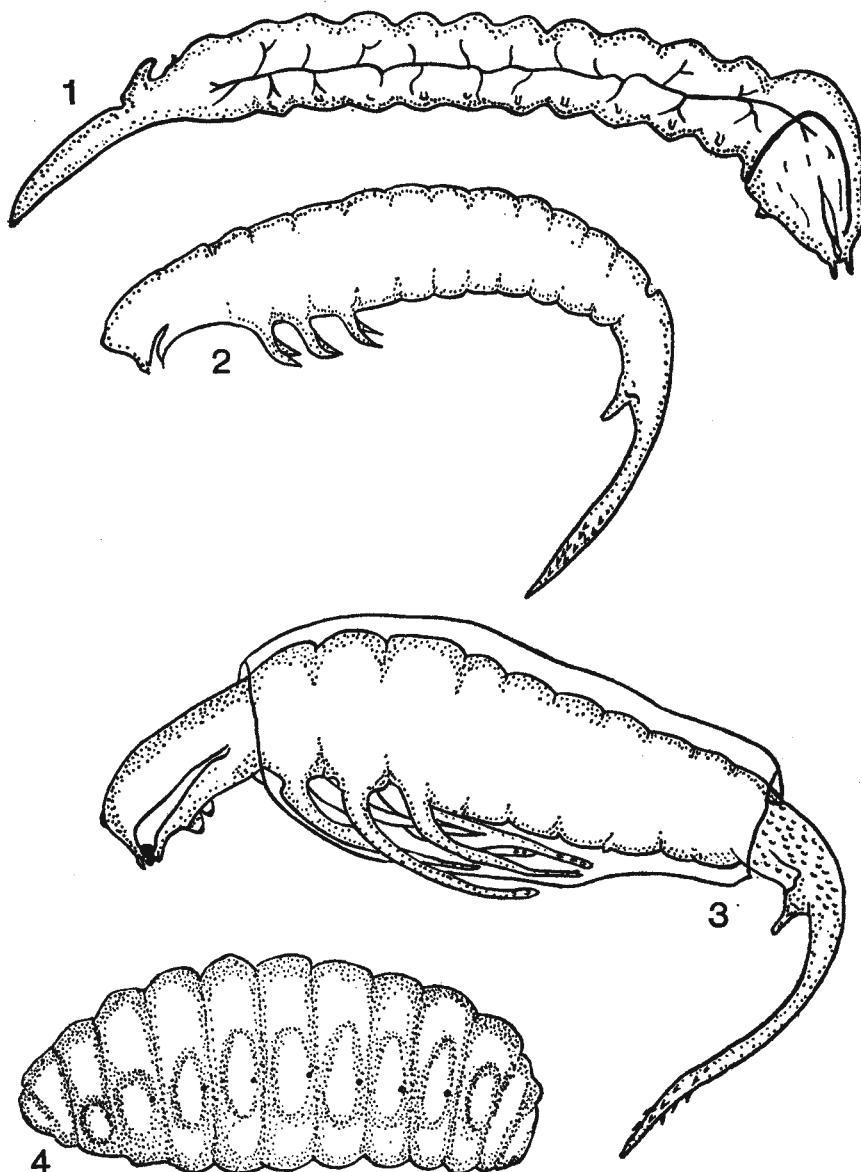
LITERATURE

Cameron (1890) covered the British genera and species, illustrating them with coloured plates. Unfortunately his keys are most unsatisfactory in that they are insufficiently correlated with the figures which are consequently of no real help in interpreting any of the characters used in the keys. Thomson (1861) covered the Swedish species and gave very good keys but no figures. Hellén (1960) published keys to the genera and species of the Finnish Eucoilidae, without figures. Kieffer (1910) gave world coverage to the Cynipoidea but only galls were figured. More recently, Weld (1952) covered Cynipoidea on a world basis giving keys to families and genera with illustrations. Ionescu (1957; 1969) published works on the Roumanian Cynipoidea, illustrated with figures and photographs. Quinlan (1974) provided further information on the Cameron species.

BIOLOGY

Eucoilidae are parasitic on Diptera; they develop as internal parasites of the larvae and emerge from the puparia. The primary larva has three pairs of thoracic appendages and a long cauda (figs 1-4). In the later stages the tracheal system develops and the appendages and cauda disappear. The fully grown larva is usually without legs and has a head and 13 body segments with a pair of spiracles on each of segments three to ten (James, 1928). Some members of this group are of economic importance and justify special study

of their life-histories in that they are parasitic on Diptera attacking cereal crops. Host records where known are listed under the species in the keys. Collecting Eucoilidae by sweeping is not as profitable as with most other



Figs 1-4. Larvae. 1, *Kleidotoma marshalli* polypodeiform larva. 2, *K. marshalli* primary larva. 3, *Trybliographa rapae* eclosion of larva. 4, *T. rapae* full grown larva.

'Parasitica'. This may be because they are parasitic on stem boring and leaf mining larvae of the family Agromyzidae, the plant feeding larvae of Chloropidae and Anthomyiidae as well as larvae in animal excreta. The most satisfactory way to obtain material in any quantity is to develop methods of collecting and rearing series from suspected hosts. Host data, although very few, indicate that the present taxonomic arrangement reflects the biological association of host and prey.

MORPHOLOGY

Adult Eucoilidae are easily distinguishable from all other Cynipoidea by the raised cup on the disc of the scutellum (fig. 206). The cup varies in size and shape, and the sculpture on the disc is extremely variable. In defining sculpture of the scutellar disc I have followed Eady (1968). The adults range in size from 1.5 mm to 5 mm. Most species have black to reddish-black gasters, but the legs and antenna are highly variable in colour—black, reddish or yellowish. Within the family the genera have been distinguished by a variety of characters, the major division being on the presence or absence of a hairy ring at the base of tergite 2. However, this character has never been clearly defined nor has it been correlated with other characters, and species with only a few scattered hairs around the base of tergite 2 have been difficult to place. Of the six European genera without a distinct hairy ring at the base of tergite 2, only two are recorded as occurring in the British Isles. Other characters used include the presence or absence of wings, the shape of wings and antennae, the presence or absence of notaulices, mesopleural furrows and an open or closed radial cell. One character not previously used but of considerable importance if described or figured accurately is the pronotal plate. In the following keys I have figured this character in an attempt to make identification more positive.

In some genera, e.g. *Kleidotoma* Westwood, the key to species is restricted to females; in most other genera both males and females are keyed. Males can be distinguished from females by the number of antennal segments ($\text{♀}13, \text{♂}15$) in addition to the differences in the genitalia. The female antenna is generally club-shaped and the male usually has the third or fourth segment modified. The club segments of the female antenna are here defined as those segments which bear rhinaria and are generally wider than the preceding flagellar segment. The greatest lengths of antennal segments are expressed as ratios, e.g. Segment Numbers (SN) 3, 4, 5, 10 = Antennal Ratio (AR) 14 : 13 : 12 : 18.

Where the term radial cell open or closed is used, this refers specifically to the marginal vein of the cell. In those instances where it is difficult to decide whether the radial cell is open or closed the final decision has been made using transmitted light. In measuring the radial cell veins, the ratio R_2 to R_1 is based on inside measurements. The keys to genera and species are based almost entirely on material in the British Museum (Natural History) unless otherwise stated. The genera are treated alphabetically and distribution records are given by counties under each species. County names are those used prior to the Local Government Act 1972 reorganisation of 1974. Many of the genera found in Britain are represented by only one or two species but the genus may occur in a number of continents.

VIII (1b). HYMENOPTERA

ACKNOWLEDGEMENTS

I should like to thank Dr V. H. Chambers for allowing me to borrow his Eucoilidae during the course of this work and to thank Dr R. Askew, Department of Zoology, Manchester University, for allowing me access to that collection. My sincere thanks are extended to Mr T. Huddleston for advice and constructive criticism in the preparation of both the manuscript and drawings. I am indebted to Mr D. Morgan for the frontispiece and full drawing of *Trybliographa rapae* (Westwood) (fig. 205). I am grateful to Miss V. I. Dick for typing the manuscript.

CHECK LIST OF EUCOILIDAE RECORDED FROM BRITAIN

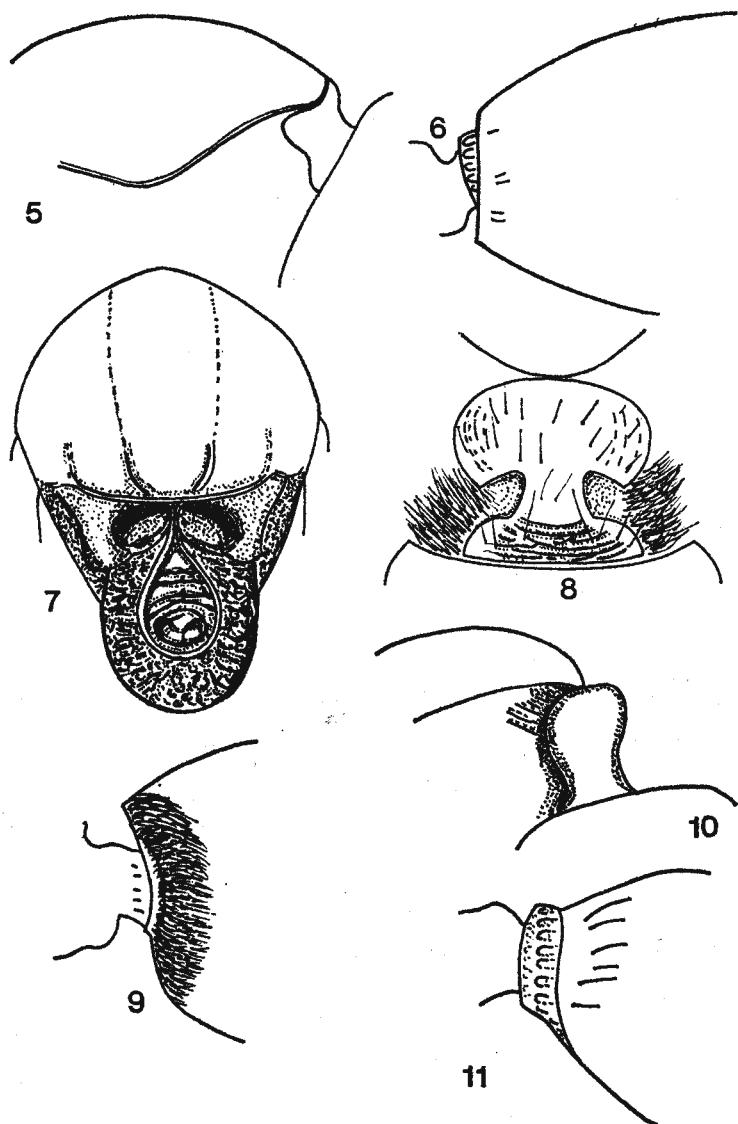
EUCOILINAE	
DIGLYPHOSEMA Foerster, 1869	<i>pentatoma</i> Thomson, 1861
<i>conjugens</i> Kieffer, 1904	<i>abipennis</i> Cameron, 1886 nec Thomson, 1861
MICROSTILBA Foerster, 1869	<i>striata</i> Cameron, 1886
<i>heterogena</i> (Giraud, 1860)	<i>mentososa</i> (Giraud, 1860)
DISORYGMA Foerster, 1869	<i>anisomera</i> Foerster, 1869
ECTOLYTA Foerster, 1869	<i>truncata</i> Cameron, 1889
ERISPHAGIA Foerster, 1869	S. ARHOPTRA Kieffer, 1901
<i>depila</i> (Giraud, 1860)	<i>melanopoda</i> Cameron, 1888
<i>incrassata</i> (Thomson, 1862)	S. KLEIDOTOMIDEA Rohwer & Fagan, 1917
<i>divulgatum</i> Foerster, 1869	<i>hexatoma</i> Thomson, 1862
COTHONASPIS Hartig, 1840	<i>picipes</i> Cameron, 1886
PSILOSEMA Kieffer, 1901	S. HEPTAMERIS Foerster
<i>gracilis</i> Hartig, 1841	<i>halophila</i> Thomson, 1861
<i>langula</i> Nordlander, 1976	<i>pygmaea</i> (Dahlbom, 1842)
<i>pentatoma</i> Hartig, 1840	EUTRIAS Foerster, 1869
<i>giraudi</i> Dalla Torre & Kieffer, 1910	<i>tritoma</i> (Thomson, 1877)
KLEIDOTOMA Westwood, 1833	PSEUDOPSICHACRA Quinlan, 1975
APHILOPTERA Foerster, 1869	<i>sericea</i> (Thomson, 1877)
AGROSCOPA Foerster, 1869	<i>marshalli</i> (Cameron, 1883)
NEDINOPTERA Foerster, 1869	CHRESTOSEMA Foerster, 1869
RHYNCHACIS Foerster, 1869	<i>antennale</i> Kieffer, 1904
syn.n.	EUCOILLA Westwood, 1835
PENTACRITA Foerster, 1869	EUCOELA Agassiz, 1846
S. TETRAHOPTRA Foerster, 1869	LYTOSEMA Kieffer, 1901
TETRATOMA Cameron, 1890	PSILODORA Foerster, 1869
<i>affinis</i> Cameron, 1889	<i>crassinervia</i> Westwood, 1833
<i>dolichocera</i> Thomson, 1817	<i>boeni</i> (Hartig, 1840)
<i>gracilicornis</i> Cameron, 1889	<i>maculata</i> (Hartig, 1840)
?? <i>helgolandica</i> (Foerster, 1869)	GLAURASPIDIA Thomson, 1861
<i>tetratoma</i> Thomson, 1861	AGLAOTOMA Foerster, 1869
S. KLEIDOTOMA Westwood, 1883	<i>microptera</i> (Hartig, 1840)
<i>caledonica</i> Cameron, 1888	<i>codrina</i> (Hartig, 1841)
<i>flicornis</i> Cameron, 1889	<i>subtilis</i> (Dahlbom, 1842)
<i>longicornis</i> Cameron, 1889	HEXACOLA Foerster, 1869
<i>marshalli</i> Cameron, 1889	HEXAPLASTA Foerster, 1869
<i>nigra</i> (Hartig, 1840)	<i>hexatoma</i> (Hartig, 1841)
<i>crassiclava</i> Cameron, 1888 syn.n.	GANASPIS Foerster, 1869
<i>nigripes</i> Cameron, 1888 syn.n.	<i>subnuda</i> Kieffer, 1904
<i>psiloides</i> Westwood, 1833	<i>bochei</i> (Weld, 1944) syn.n.
<i>striaticollis</i> Cameron, 1880	PSICHACRA Foerster, 1869
<i>subaptera</i> (Walker, 1834)	<i>longicornis</i> (Hartig, 1840)
S. PENTAKLEIDOTA Weld, 1951	<i>rufula</i> (Foerster, 1855)
<i>elegans</i> Cameron, 1889	<i>dalei</i> Cameron, 1879
?? <i>gryphus</i> Thomson, 1861	TRYBLOGRAPHA Foerster, 1869
<i>longipennis</i> Cameron, 1889	

COTHONASPIS auctt. nec Hartig,
1840
DIMICROSTROPHIS Ashmead,
1886
DUSMETIOLA Tavares, 1924
EUCOILA auctt. nec Westwood,
1835
PSEUDEUCOILA Ashmead, 1903
albibennis (Thomson, 1861)
spaniandra Kerrich & Quimlan, 1960
syn.n.
atra (Hartig, 1840)
nigricornis Cameron, 1883
ciliaris (Zetterstedt, 1838)
? *floralis* Dahlbom, 1842
? *claripennis* Thomson, 1861
cubitalis (Hartig, 1841)
diaphana (Hartig, 1841)

gloittiana (Cameron, 1883)
proxima (Cameron, 1889)
gracilicornis (Cameron, 1888)
mandibularis (Zetterstedt, 1838)
similia (Cameron, 1883)
testaceipes Cameron, 1883
rapae (Westwood, 1835)
britannica Kieffer, 1908 syn.n.
crassicornis Cameron, 1889 syn.n.
erythrocerca nec Thomson, 1877 sensu
Cameron, 1880
fortinervis Cameron, 1889 syn.n.
scotica (Cameron, 1889)
scutellaris Hartig, 1840
EPISODA Foerster, 1869
xanthoneura Foerster, 1869
RHOPTROMERIS Foerster, 1869
eucera (Hartig, 1841)

KEY TO GENERA OF BRITISH EUCOILIDAE

- 1 Pronotal plate visible in anterodorsal view but not projecting (fig. 5); second tergite of gaster never with a hairy ring, rarely with a few scattered hairs; first tergite of gaster when not obscured by tergite 2, in form of ring or collar, crescent shaped or with longitudinal furrows (fig. 6); mesopleuron shiny, with a distinct suture present or weakly striate (*Microstilba*); mesoscutum shiny, prescutal suture or notaulices present though sometimes aberrant (fig. 7); antenna filiform.....2
- Pronotal plate distinct, visible in both anterodorsal (fig. 8) and lateral views (fig. 10), the plate projected forward on the pronotum; second tergite of gaster either with a dense hairy ring at base (fig. 9), not always complete on dorsal surface, or with only sparse hairs at base not forming a distinct ring (fig. 11); first tergite of gaster sometimes visible in the form of a crescent or collar and crenulate (*Cothonaspis*), usually obscured in other genera by the hairy ring at base of second tergite; mesopleuron shiny or dull, usually with a suture present; mesoscutum smooth; satiny or granulate, prescutal suture or notaulices generally absent; antenna variable.....4
- 2 Notaulices converging at or before reaching scutellum, broader and sculptured at juncture with scutellum (fig. 14); scutellar disc reticulate-rugose, cup large, concave, overhanging the disc (fig. 14), basal margin of cup with fringe of long setae; radial cell of forewing open on front margin, cubitus indistinct; first tergite of gaster distinct, in the form of crenulate ring or collar, second tergite of gaster with a few scattered hairs (fig. 6).....DIGLYPHOSEMA Foerster (p. 18)
- Notaulices either distinct or represented by a row of punctures in a depression (fig. 7) widely separated at juncture with scutellum; scutellar disc coarsely rugose or punctate, rounded on apical margin, cup elliptical, not overhanging the disc (fig. 7); radial cell open or closed on front margin of forewing (figs 12, 13); cubitus almost reaching apex of wing; first tergite of gaster crescent shaped (not always visible). Second tergite of gaster without scattered hairs.....3
- 3 Notaulices distinct and continued to posterior margin of mesoscutum; radial cell completely closed on front margin (fig. 13), pigmentation heavy.....MICROSTILBA Foerster (p. 39)
- Notaulices represented by a row of punctures, the anterior part weak and barely visible; radial cell open on wing margin (fig. 12), pigmentation light.....DISORYGMA Foerster (p. 18)
- 4 First tergite of gaster distinct, in the form of a crenulate or furrowed collar (fig. 11); tergite 2 without a dense hairy ring, with only a trace of hairs on side margins; cup elliptical (fig. 15), disc of scutellum rounded behind, the surface with weak reticulate-rugose sculpture; radial cell of forewing usually closed though indistinctly so on front margin, cubitus weakly indicated; ♀ antenna with or without a distinct club; ♂ antenna filiform.....COTHONASPIS Hartig (p. 16)

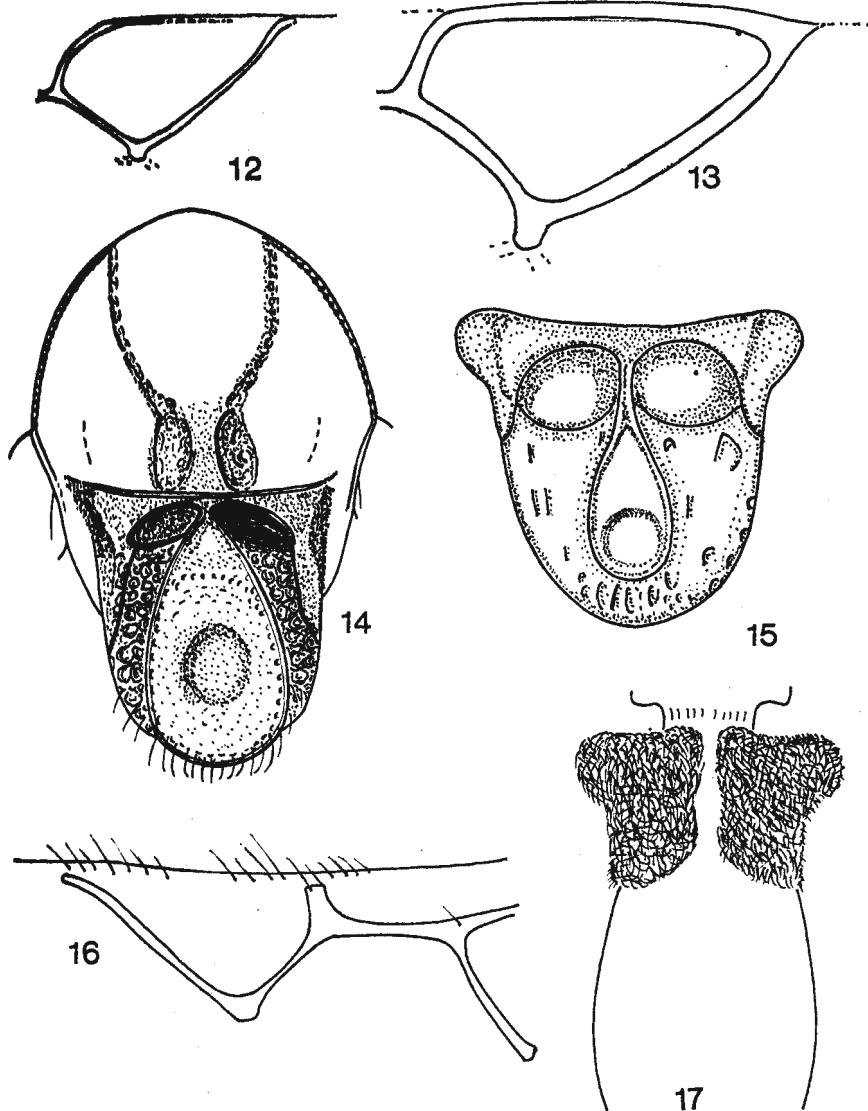


Figs 5-11. 5, *Microstilba heterogena* pronotal plate ♀. 6, *Diglyphosema conjungens* tergite 2 of gaster ♀. 7, *Microstilba heterogena* mesonotum ♀. 8, *Trybliographa rapae* pronotal plate ♀. 9, *T. rapae* base of tergite 2 ♀. 10, *T. rapae* pronotal plate ♀. 11, *Cothonaspis* tergite 2 of gaster ♀.

- First tergite of gaster not always visible, base of tergite 2 either with a distinct hairy ring or with tufts of hair on side margins, not always dense or completed on the dorsal surface 5
- 5 Brachypterous or fully winged; either apex of forewing incised, arcuate or truncate,

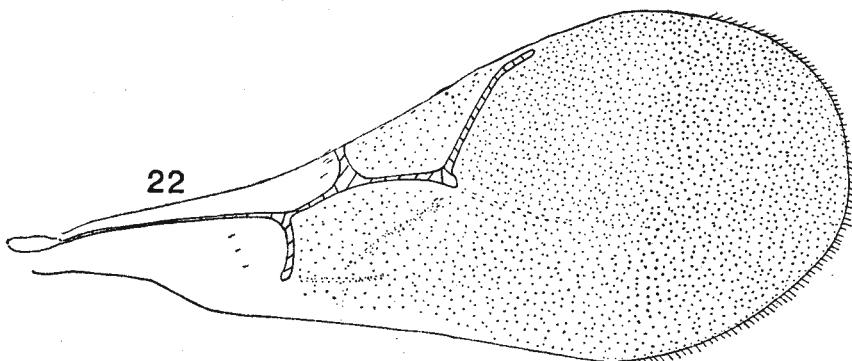
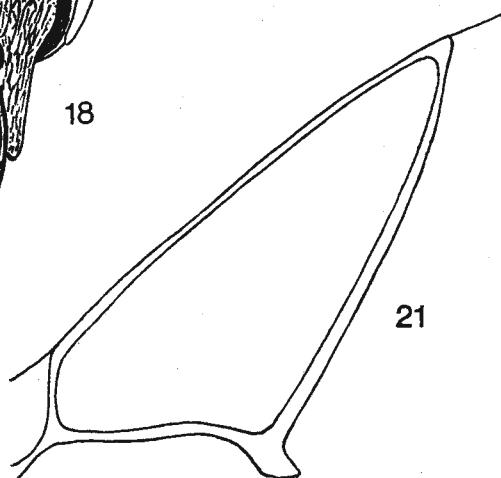
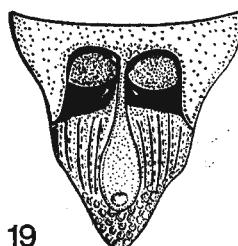
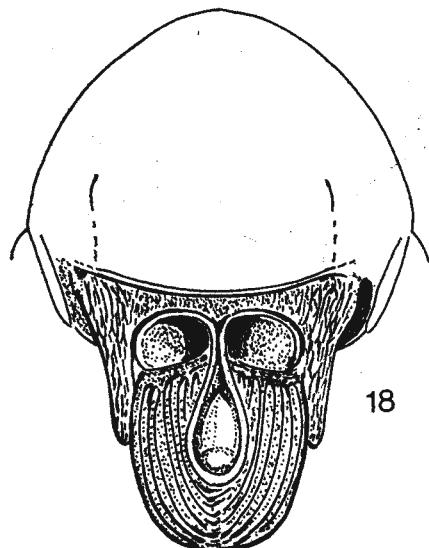
subitus not distinct, radial cell open, R₁ thickened at apex near margin of forewing, 2^{rm} thickened, areolet absent, R₄₊₅M absent usually (fig. 16); or wings short not extending to end of gaster; scutellar cup small, not reaching to end of disc, the disc longitudinally striate, rounded or in form of a beak at apex; hairy ring on base of tergite 2 usually incomplete on dorsal surface (fig. 17)

(*Rhynchosis* Foerster syn.n.) **KLEIDOTOMA** Westwood (p. 25)



Figs 12-17. 12, *Disorygma depile* radial cell ♀. 13, *Microstilba heterogena* radial cell ♀. 14-15, mesonotum ♀. 14, *Diglyphosoma conjungens*. 15, *Cothonaspis gracilis*. 16-17, *Kleidotoma psilooides*. 16, radial cell. ♀. 17, base of tergite 2 of gaster ♀, dorsal view.

- Fully winged; apex of forewing rounded, rarely truncate, venation not as in *Kleidotoma*, radial cell open or closed..... 6
- 6 Scutellar disc striate on lateral margins, apex of disc conical, punctate-reticulate, scutellar cup long and narrow, (fig. 19); radial cell open on front margin, longer

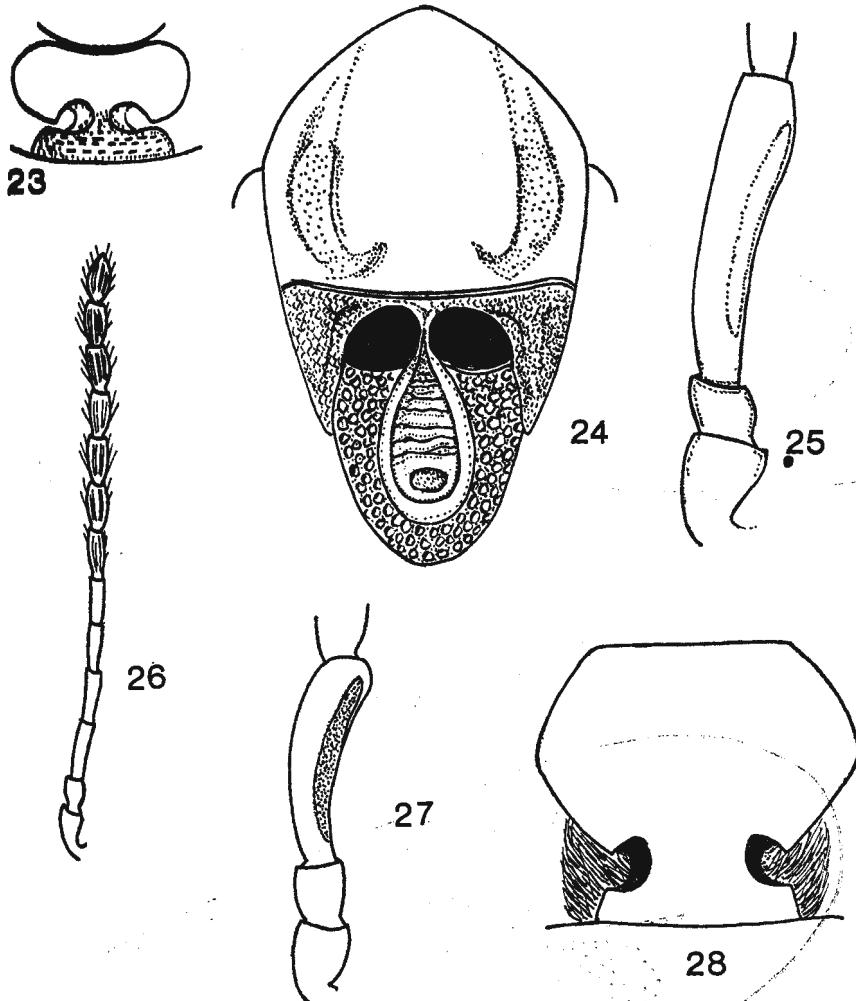


Figs 18-22. 18, *Pseudopsichacra sericea* mesonotum ♀. 19, *Eutrias tetratoma* ♀. 20, *E. tetratoma* pronotal plate ♀. 21, *Pseudopsichacra sericea* radial cell ♀. 22, *Eutrias tetratoma* forewing ♀.

than broad, wing surface dotted in ♀, with short pubescence in ♂, ciliae on the wing margins very fine in both (fig. 22); hairy ring at base of tergite 2 bare on dorsal surface as in *Kleidotoma*; pronotal plate minute and coriaceous (fig. 20)

EUTRIAS Foerster (p. 22)

- Scutellar disc either rugose, punctate or rarely striate, the cup variable in shape; radial cell open or closed, R₁ and 2rm normal, cubitus M+Rs+M indicated, but sometimes very weak; pronotal plate large (cf. fig. 8); wing with a distinct hair fringe, surface generally ciliate (except *Eucoila*) 7
- 7 Mesoscutum with satiny sheen, notaulices weakly indicated (this results from the non-uniform curvature of the mesoscutum), the surface alutaceous-coriaceous or



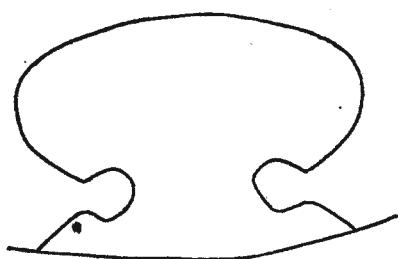
Figs 23-28. 23, *Pseudopsichacra sericea* pronotal plate ♀. 24, *Chrestosema antennale* mesonotum ♀. 25, *Pseudopsichacra sericea* basal antennal segments ♂. 26, *Chrestosema antennale* antenna ♀. 27, *C. antennale* basal antennal segments ♂. 28, *C. antennale* pronotal plate ♀.

closely and finely granulate with weak strigose element (fig. 18); mesopleuron with the same sheen as the mesoscutum, the sculpture alutaceous, the mesopleural suture aberrant or indistinct, sometimes absent; radial cell of forewing cell appearing closed on front margin (fig. 21)..... 8

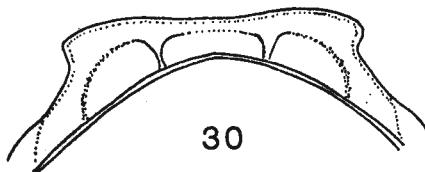
- Mesoscutum smooth and shiny without trace of notaules; mesopleuron smooth and polished, suture usually complete though sometimes weakly indicated; radial cell of forewing open or closed on front margin..... 9

8 Mesoscutum closely and finely granulate, surface semi-matt, notaules weakly indicated, not broad or flat; scutellar cup narrow, elongate, oval at apex, tapering sharply at base (fig. 18), the lateral bars of scutellum long, extending past the middle of the cup, disc finely striate, scutellar foveae widely separated; mesopleural suture absent; pronotal plate viewed anterodorsally rounded on dorsal and lateral margins, basal half striate-coriaceous (fig. 23) with dense tufts of pubescence either side; propodeum with dense woolly pubescence; hairy ring at base of tergite 2 of gaster dense and woolly; ♀ antenna filiform. ♂ antenna with third segment weakly curved on outer margins, with surface partially flattened, weakly thickened at apex (fig. 25) *PSEUDOPSICHACRA* Quinlan (p. 40)

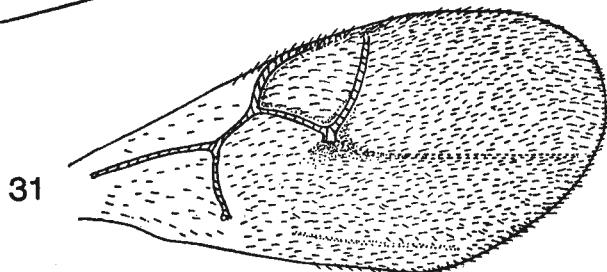
Mesoscutum with satiny sheen, surface alutaceous-coriaceous, notaules weakly indicated but broad and flat; scutellar cup ovate with striations on basal half (fig. 24), lateral bars of scutellum short, extending at most to middle of cup,



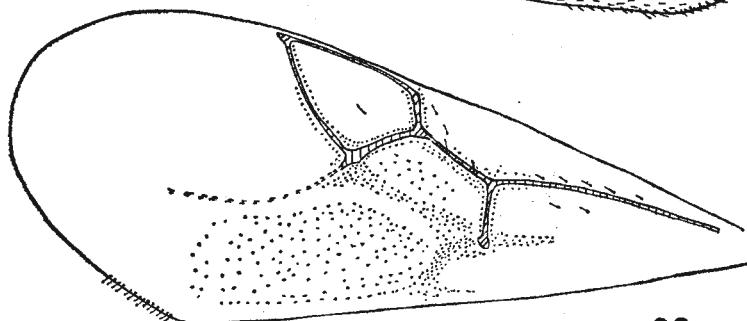
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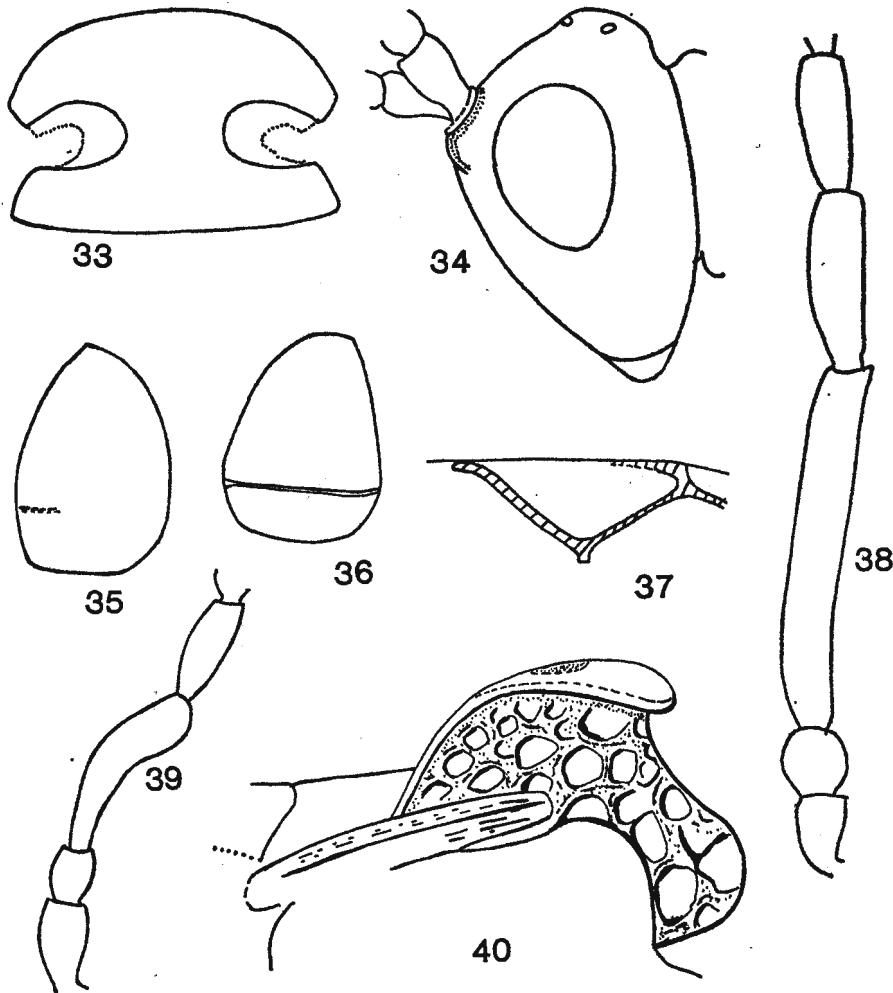
32

Figs 29-32. Pronotal plate. 29, *Eucoila maculata* frontal view ♀. 30, *E. maculata* dorsal view ♀. 31, *Trybliographa cubitalis* forewing ♀. 32, *Eucoila maculata* forewing ♀.

surface of disc reticulate-rugose; scutellar foveae narrowly separated; mesopleural suture complete though weak; pronotal plate viewed anterodorsally with flat dorsal margin, sides rounded, surface weakly sculptured (fig. 28) with sparse pubescence on each side; propodeum normal with only sparse pubescence on each side; hairy ring at base of second tergite of gaster not woolly; ♀ antenna with club very weakly indicated (fig. 18), ♂ antenna with segment 3 strongly curved and swollen at apex, flattened on outer margin (fig. 27)

CHRESTOSEMA Foerster (p. 14)

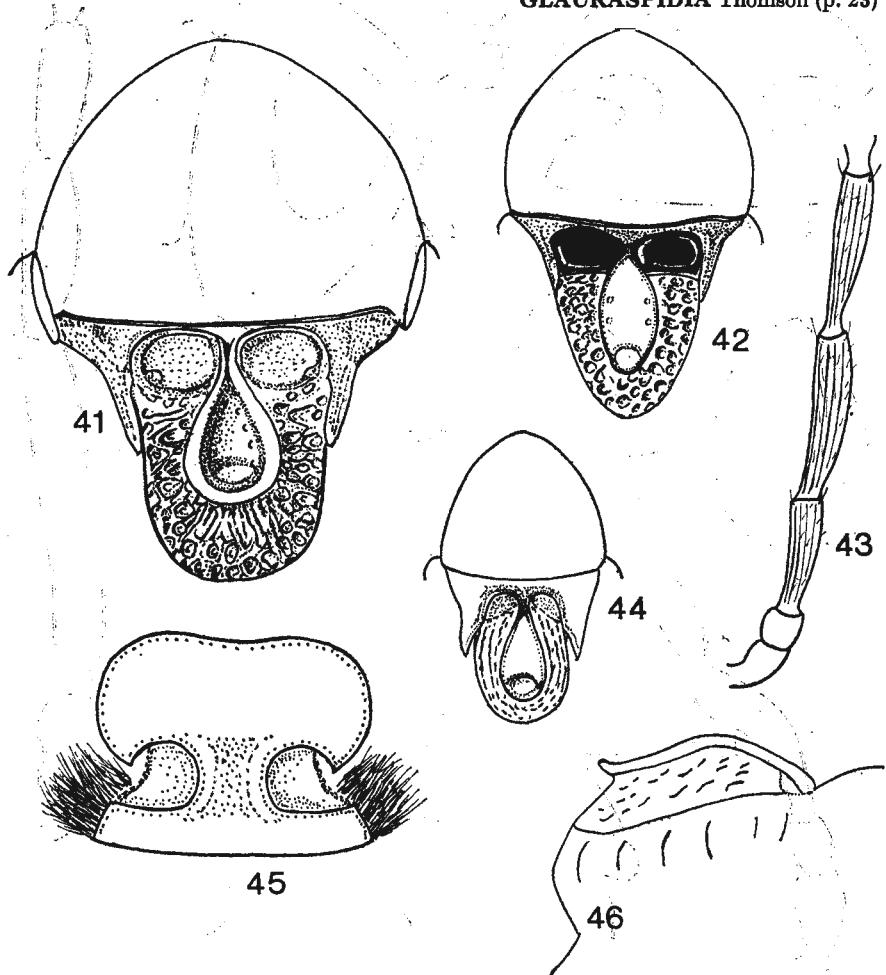
- 9 Surface of forewings bare with only a few sparse hairs on basal half, most prominent on veins, apical half bare on both surfaces but dotted with hair bases on under



Figs 33-40. 33, *Glauraspidia microptera* pronotal plate ♀. 34, *G. microptera* frons ♂ lateral view. 35-36, Mesopleura ♀. 35, *G. microptera* 36, *Hexacola hexatoma*. 37, *H. hexatoma* radial cell of forewing ♀. 38-39, basal segments of antenna ♂. 38, *G. microptera*. 39, *H. hexatoma*. 40, *Glauraspidia microptera* scutellar disc ♀

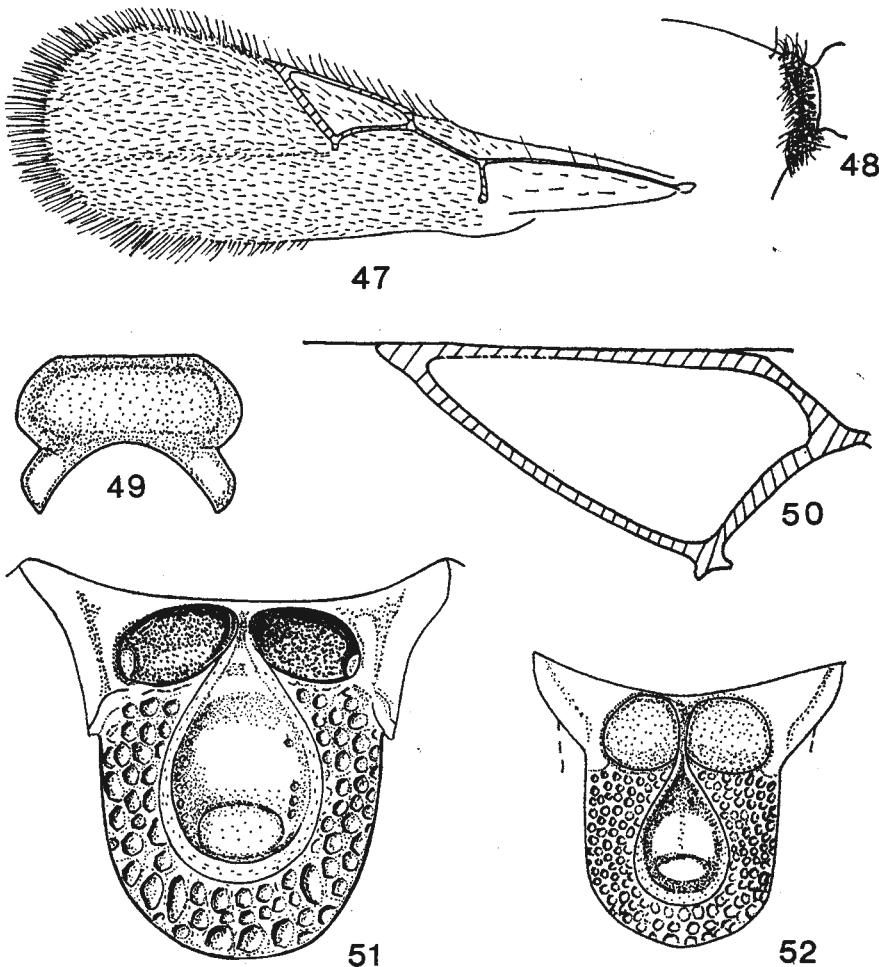
VIII (1b). HYMENOPTERA

- surface, almost always with a short apical fringe on posterior margin, radial cell closed, R₁ thinner on wing margin than R_{s2} or R_{s1} (fig. 32); pronotal plate in the form of a collar viewed dorsally (fig. 30), large, rounded on dorsal surface when viewed anterodorsally (fig. 29). **EUCOILA** Westwood (p. 19)
- Forewings normally pubescent and invariably with a distinct hair fringe on apical margin (fig. 31); pronotal plate variable. 10
- 10 Mesopleural suture incomplete in British specimens (fig. 35); frons distinctly produced in ♂, less so in ♀ (fig. 34); wings short in ♀, not extending further than end of gaster, wings normal in ♂; scutellar cup raised above the level of disc which is reticulate-rugose (fig. 40); sides of pronotal plate and sides of propodeum with dense tufts of woolly pubescence, base of tergite 2 with dense felt-like woolly ring; segment 3 of ♂ antenna longer than 4 plus 5 (fig. 38); pronotal plate (fig. 33) **GLAURASPIDIA** Thomson (p. 23)



Figs 41-46. 41-42, scutellum ♀. 41, *Poischacra rufula*. 42, *Ganaspis subnuda*. 43, *G. subnuda* basal antennal segments ♂. 44, *Hexacula hexatoma* scutellum ♀. 45, *Poischacra rufula* pronotal plate ♀. 46, *Ganaspis subnuda* lateral view of scutellum

- Mesopleural suture complete (fig. 36); frons normal, wings in both sexes normal, extending well beyond the end of gaster; sides of pronotum not densely tufted with pubescence; sides of propodeum weakly pubescent; base of tergite 2 of gaster with ring of pubescence distinct but not felt like or woolly..... 11
- 11 Scutellar disc finely striate-reticulate, apex of disc rounded, scutellar cup elliptical (fig. 44); radial cell of forewing open on front margin (R1 projecting slightly on margin but *not* joining Rs2 to form a closed radial cell) (fig. 37) cubitus indicated; tergite 2 of gaster with hairy ring incomplete in dorsal view (cf. fig. 17); ♀ antenna with a club; ♂ antenna with third segment longer than fourth, sharply curved on outer margin (fig. 39), swollen at apex..... **HEXACOLA** Foerster (p. 24)
- Scutellar disc not striate; radial cell of forewing open or closed..... 12
- 12 Scutellar cup almost flat, mirror-like, broadly elliptical, sometimes raised very slightly above scutellar disc (fig. 42), the rim of cup invariably paler than rest of



FIGS 47-52. *Rhopitromeris eucera* forewing ♀. 48, *Episoda xanthoneura* base of tergite 2. 49, *E. xanthoneura* pronotal plate ♀. 50, *E. xanthoneura* radial cell ♀. 51-52, scutellum ♀. 51, *Trybliographa rapae*. 52, *Episoda xanthoneura*.

cup, viewed dorsally not overhanging apex of disc, viewed laterally the rim projects (fig. 46), base of cup with a large fovea with smaller pits (fig. 42), disc surface punctate to irregularly rugose; radial cell usually closed on wing margin, apex of wing rounded in ♀, blunt in ♂; hairy ring at base of tergite 2 of gaster not completed in dorsal margin; ♀ antenna clavate, ♂ antenna with segment 3 distinctly shorter than 4, weakly curved on outer margins (fig. 43)

GANASPIS Foerster (p. 22)

- Cup not flat or mirror-like, slightly concave in appearance and margined, scutellar cup clearly elevated above disc, surface of disc variable (fig. 41). 13
 - 13 Sides of pronotum, propodeum and base of tergite 2 with dense woolly white hair; pronotal plate (fig. 45); margins of pronotum in form of a rim; scutellar foveae large, lateral bars distinct, cup raised, outer margin black with reddish-yellow depression (fig. 41), disc of scutellum variably rugose with degenerate reticulations on front margin (fig. 41); antenna without a distinct club
- PSICHACRA** Foerster (p. 43)
- Sides of pronotum and propodeum not densely pubescent, only moderately hairy; tergite 2 of gaster with complete hairy ring at base, *not* woolly in appearance; cup large or small, scutellar disc reticulate-rugose, lateral bars smooth or striate . . . 14
 - 14 Radial cell open or closed on front margin; cup large, almost round, well elevated, depressed in the middle, the large pit or fovea at bottom of cup circular with smaller punctures on either side, the disc rugose to rugose-foveolate (fig. 52), rounded posteriorly, lateral bars of scutellum usually striate especially on lateral margins; pronotal plate large (fig. 8); second tergite of gaster with a complete hairy ring; ♀ antenna usually clavate, ♂ antenna sometimes with segment 4 modified **TRYBLIOGRAPHA** Foerster (p. 45)
 - Radial cell closed on front margin; scutellar cup narrow or large the disc punctate or reticulate to smooth; lateral bars smooth. 15
 - 15 Antenna of both sexes filiform (14 segmented in unique ♀ of *Episoda xanthoneura*); radial cell of forewing closed on front margin though sometimes weakly pigmented (fig. 50); scutellar cup almost round, raised, the disc punctate-rugose (fig. 52); base of tergite 2 with tufts of hair on side margins, not forming a dense or distinct ring (fig. 48). **EPISODA** Foerster (p. 19)
 - Antenna of ♀ clavate, the club segments usually distinctly darker than basal segments (fig. 56), ♂ with antennal segment 4 elongate and weakly bent (fig. 54); radial cell of forewing distinctly closed on wing margin the cell long and narrow (Rs₂ at least four to five times longer than the R₁) (fig. 47); scutellar cup elongate, disc weakly punctate-reticulate to almost smooth; base of tergite 2 of gaster with distinct hairy ring, complete on dorsal surface (cf. fig. 9)

RHOPTROMERIS Foerster (p. 43)

Genus CHRESTOSEMA Foerster

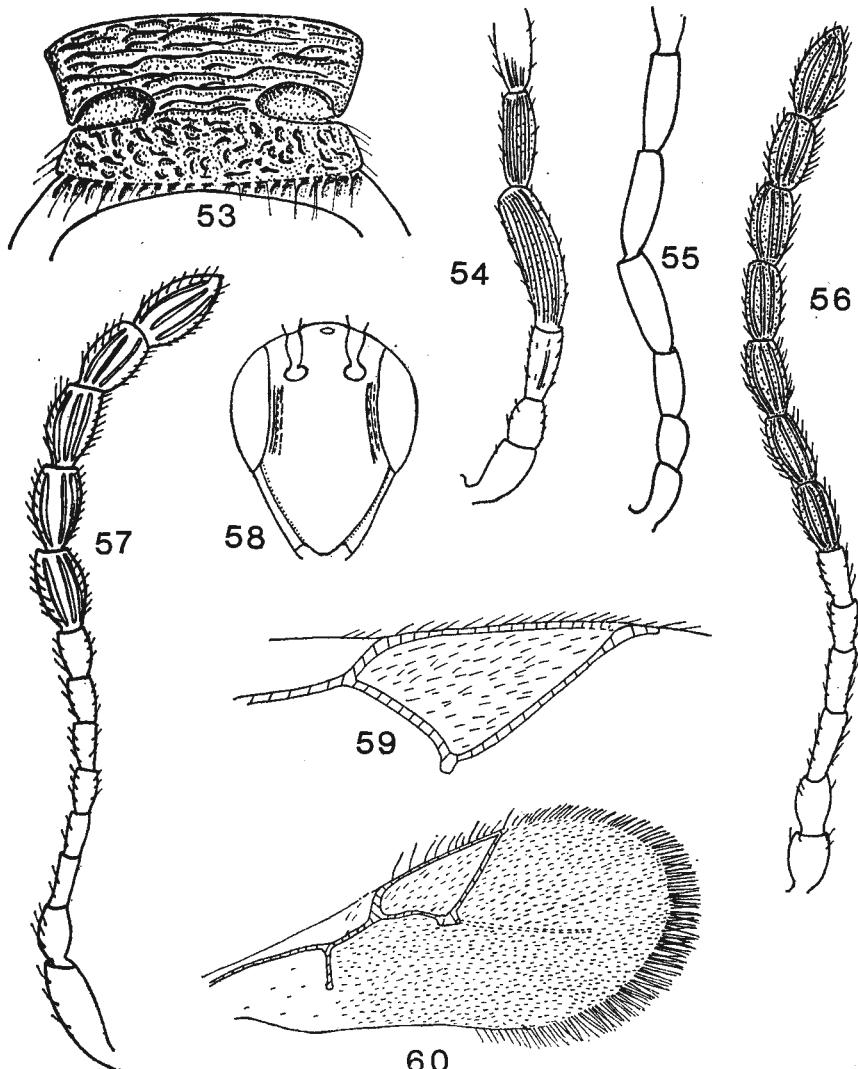
Chrestosema Foerster, 1869: 344. Type-species: *Chrestosema erythropa* Foerster, by monotypy.

There are only five species in this genus, which is known from Europe, Africa and Argentina. Only *antennale* Kieffer is found in the British Isles. The genus is most closely related to *Pseudopsichacra* but distinguished from it by the sculpture of the disc, shape of the cup and pronotal plate.

♀ antenna, filiform to weakly clavate, SN₃, 4, 5 = AR₁₄; 13; 12. ♂ with segment 4 strongly curved on outer margin (fig. 27) SN₄ = 25; 4-15 decreasing in length; face elongate, eyes closer together than height of an eye viewed frontally (fig. 58), inner orbits of eyes coriaceous with one or two faint longitudinal striations; back of head strongly and finely striate-reticulate; malar space with sub-ocular suture distinct; pronotal plate large, dorsal margin straight with large foveae and pubescence on either side (fig. 28); mesoscutum with satiny sheen, surface alutaceous-coriaceous; lateral bars of scutellum with fine reticulate sculpture, not extending past middle of cup, scutellar disc reticulate-rugose, apex rounded; cup ovate with strigose sculpture on basal half, scutellar foveae smooth and shiny, deep; mesopleuron with satiny sheen, finely coriaceous, mesopleural suture complete, sometimes weak, propodeum with pubescence either side; first segment of abdomen crenulate, sometimes obscured by hairy ring at base of tergite 2, apical half of tergite 2 with small scattered punctures; wings extending beyond

end of abdomen, ciliate, with apical hair fringe, radial cell triangular, completely closed on wing margin (faint in some specimens) (fig. 59), cubitus indistinct; legs shiny, pale yellow, antenna reddish yellow, head and thorax blackish, abdomen dorsally reddish brown, laterally and basally orange-brown, apical half brownish
antennale Kieffer

England: Cornwall; Devonshire; Hampshire; Kent; Oxfordshire; Somerset; Surrey. Host unknown.



Figs 53-60. 53, *Cothonaspis pentatoma* pronotal plate ♀. 54-55, basal antennal segments ♂. 54, *Rhoptromeris eucera*. 55, *Cothonaspis gracilis*. 56-57, antenna ♀. 56, *Rhoptromeris eucera*. 57, *Cothonaspis pentatoma*. 58, *Chrestosema antennale* head anterior ♀. 59-60, radial cell ♀. 59, *Chrestosema antennale*. 60, *Cothonaspis pentatoma*.

Genus COTHONASPIS Hartig

Cothonaspis Hartig, 1840: 200. Type-species: *Cothonaspis pentatomae* Hartig, by subsequent designation of Foerster 1869: 348.

This genus occurs in Europe and North America. Three of the European species in this genus are known to occur in Britain. Cameron (1903: 215) recorded only one and Nordlander (1976: 65) added two more. Hartig (1840) gave characters for *Cothonaspis* as follows 'first segment of abdomen longer than the rest, radial cell short, broad, areolet midway; face and sides of thorax smooth; abdomen with a protruberant hairy neck'. Hartig listed 14 species but designated no type. These species are part of what we now recognise as Eucoilidae. In a second paper (1841) Hartig gave as the chief character a cup-shaped elevation on the scutellum, added other species and included a key to 28 species, some with a closed and others with an open radial cell; these species are now in several genera. Foerster (1869) divided the genera of Eucoilidae into two groups. One of these groups contained those species without a hairy ring at the base of the gaster, a mesonotum without parapsidal furrows and with a closed radial cell. This group of genera included *Cothonaspis*, and *Cothonaspis pentatomae* Hartig was designated the type-species of this genus. Weld (1952: 242) recognized five subgenera which are distinguished from each other on the number of club segments in the antenna. Nordlander (1976: 65) synonymized one of them, *Erisphagia*, Foerster with *Disorygma* Foerster.

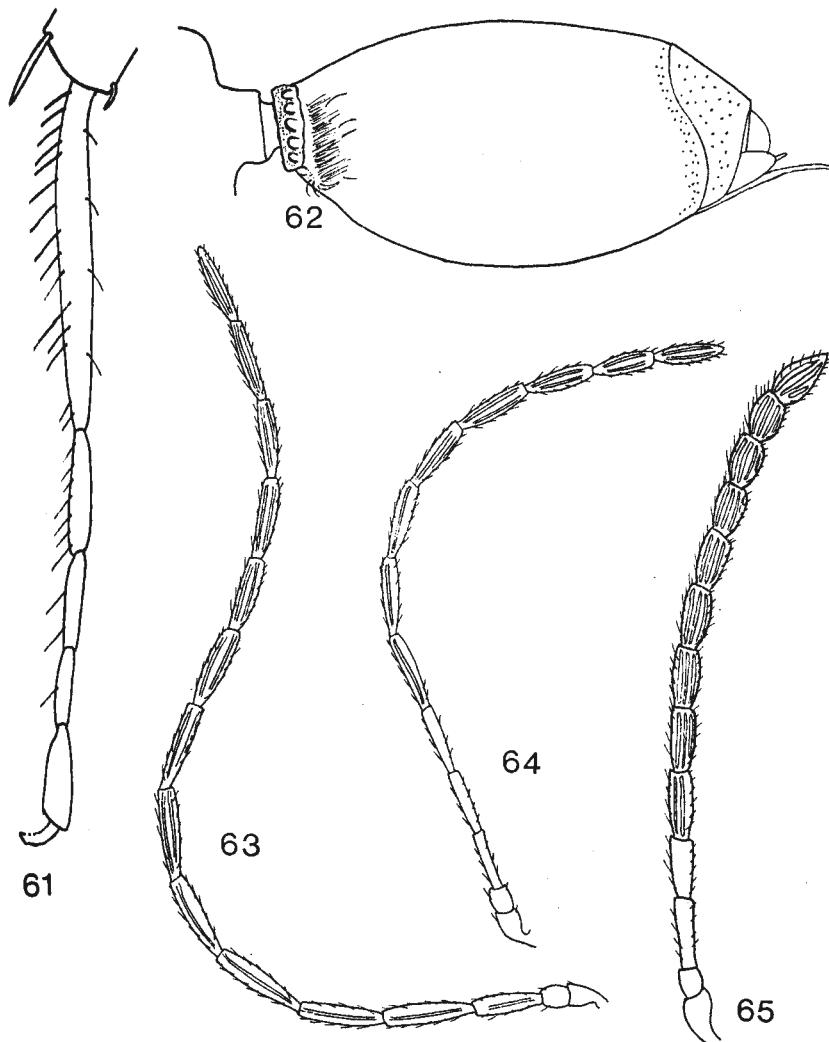
Cothonaspis Hartig is distinguished from closely related genera by the absence of a hairy ring at the base of tergite 2 of the gaster, tergite 1 being in the form of a collar (cf. fig. 11) with longitudinal furrows and by the radial cell being closed on the front margin (sometimes difficult to appreciate in the females due to a very weakly pigmented marginal vein); ♀ antenna in British species with a 5-segmented club (fig. 57) all with distinct rhinaria, ♂ antenna with segment 4 usually curved and swollen, longer than either segment 3 or 5.

KEY TO SPECIES

- 1 Head weakly strigose on hind parts of genae and vertex; mesoscutum weakly rugulose on outer margins; hind coxae distinctly longitudinally strigose; lateral bars of scutellum distinctly striate on dorsal and lateral margins, disc sculpture in the form of radiating striae from cup towards rim viewed dorsally; metapleuron heavily sculptured on most of its surface; ♂ antenna with segment 4 strongly swollen distally, longer than 3 or 5; segment 1 of gaster, when viewed laterally, moderately curved inwards on the lower and middle front margins; base of segment 2 of gaster without a dense hair-patch at anterior ventral corners
pentatomae Hartig
England: Bucks; Scotland: Argyll. Host unknown.
- Head smooth on genae and vertex; mesoscutum completely smooth; hind coxae smooth; lateral bars of scutellum smooth or weakly striate, disc sculpture either more longitudinally directed on the side margins or very weak and irregular (fig. 15); metapleura either sculptured near hind margin and in lower part or sculptured along the hind and ventral margins, rest shiny; base of segment 2 of gaster either with or without a dense patch of hairs at anterior ventral corners.....2
- 2 Face with longitudinal grooves extending from the antennal sockets to the clypeus; scutellar disc with broken longitudinal striations, apex of disc rugose-punctate, cup viewed laterally not conspicuously raised above the disc, posterior margin of disc raised and angled; metapleuron sculptured near hind margin and in lower part, rest shiny; ♂ antennal segment 4 weakly curved (fig. 55), subcylindrical,

longer than 3 or 5; 1st segment of gaster, viewed laterally, almost straight on front margin (fig. 11). *gracilis* Hartig
England: Hertfordshire. Host. Sepsis cynipsea (Linnaeus, 1758).

Face without grooves, but with a row of hairs extending from antennal sockets to clypeus; scutellar disc with irregular broken reticulate sculpture; cup, viewed laterally, conspicuously raised above level of disc which slopes gradually away from cup rim posteriorly; metapleuron sculptured along hind and ventral margin,



Figs 61-65. 61, *Cothonaspis pentatoma* hind tarsal segments ♀. 62, *Episoda xanthoneura* gaster ♀. 63, *E. xanthoneura* antenna ♂. 64-65, antenna ♀. 64, *E. xanthoneura*. 65, *Diglyphosema conjungens*.

VIII (1b). HYMENOPTERA

rest shiny; ♂ antennal segment 4 thickened in distal half; segment 1 of gaster viewed laterally sharply curved inwards from middle to ventral part of front margin segment 2 with a patch of short dense hairs at anterior ventral corners
longula Nordlander

England: Hertfordshire. Host unknown. Ex 'Fresh cow dung'.

Genus DIGLYPHOSEMA Foerster

Diglyphosema Foerster, 1869: 342. Type-species: *Diglyphosema eupatoriæ* Foerster, by monotypy.

This distinctive genus is separated from other genera by the large scutellar cup which overhangs the scutellar disc, the deep notaulices which converge at the juncture with the scutellum but do not merge, and the radial cell which is distinctly open on the front margin. Six species are recorded in Europe but only *conjugens* Kieffer is known from Britain. It was recorded originally under the name *Gronotoma nigricornis* Kieffer (Box, 1921) but this is here recognized as a misidentification.

♀ antenna filiform, without a club, segment 3 longer than 4, 4 and 5 subequal, 5–10 gradually decreasing in length, 11–13 slightly longer than broad (fig. 65) rhinaria present on 6–13. ♂ antenna filiform, segment 3 strongly curved on outer margins and swollen at apex, SN 3, 4, 5, 6–15 = AR 3.5: 2: 2: 2: 1.6 each, 6–15 subequal in length, of equal breadth; pronotal plate, viewed anterodorsally, large but not produced forward, the plate and lateral margins of pronotum with long setæ; sides of pronotum with wide crenulate sculpture; notaulices on mesoscutum deep, with scattered fine hairs, converging and becoming broader and sculptured at a point half-way towards the scutellum and remaining separate at juncture with scutellal suture (fig. 14); mesopleuron smooth, shiny, the suture distinct and complete; lateral bars of scutellum shiny, the scutellar foveæ deep, widely separated; cup large, 1.5 times as long as wide, shiny, overhanging the scutellar disc, outer edge with foveolate hair bases, centre of disc with an elliptical depression (fig. 14); scutellar disc reticulate-rugose; nucha at apex of propodeum sculptured, 1st segment of gaster in the form of crenulate ring, sometimes not visible due to compression of segments, only segments 2–3 usually visible, base of 2 sometimes with sparse hairs, the apical third with distinct band of punctures on lateral margins; apical margin of forewing rounded and ciliate, surface ciliate; radial cell open on front margin, twice as long as maximum breadth; cubitus absent; antennæ, head and thorax blackish, gaster black basally, reddish chestnut at apex; legs reddish yellow on femora, tibiae and tarsi yellow; tarsal claws simple

conjugens Kieffer

England: Buckinghamshire; Cambridgeshire; Middlesex; Norfolk; Surrey; Ireland: Dublin. Hosts: Melanagromyza aeneiventris (Fallen) [= cirsii (Rondani)]; M. nibletti Spencer; M. dettmeri Hering; M. eriolepidus Spencer; M. tripolii Spencer (BMNH coll.).

Genus DISORYGMA Foerster

Disorygma Foerster, 1869: 342. Type-species: *Disorygma divulgatum* Foerster, by original designation.

Only one species has been described in this genus. Hellén (1960: 6) treated *Disorygma* as a subgenus of *Microstilba* Foerster and inadvertently transposed the subgenera and their respective species. Nordlander (1976: 65) synonymized *Disorygma*, *Ectolyta* and *Erisphagia* of Foerster and made *Disorygma* the senior synonym on page precedence. *Disorygma* is most probably a senior synonym of *Microstilba* Foerster.

Radial cell open on wing margin, 1.5 times as long as the width, pigmentation light, cubitus distinct, wing surface closely ciliate, hair margins short on apex of wing

not tinged with yellow (fig. 152); malar space with subocular suture usually distinct, sculpture weak; ♀ antenna without a distinct club, segments 3 and 4 subequal, 4 longer than 5, 8-12 decreasing in length gradually, all segments longer than broad, 13 1.5 times the length of 12 (fig. 147); ♂ antenna filiform, segments, 3 and 4 subequal in length, 3 weakly curved on outer margins (fig. 150); pronotum either side of plate with sparse pubescence; sculpture, if present, weak; notauleces on the mesoscutum barely visible, fading completely on the anterior margins; lateral bars of scutellum smooth and shiny, abrupt, scutellar foveae normal, disc rugose-foveolate, rounded behind, cup nearly round, the centre depressed with small pits anteriorly; mesopleura with generally smooth to aberrant coriaceous sculpture, meopleural suture distinct; tergite 1 of gaster not generally visible, base of tergite 2 with a few sparse hairs; antenna, head, thorax and gaster black; tibiae and tarsi yellowish red.....*diple* (Giraud)

England; Hampshire; Hertfordshire; Lancashire; Surrey; Yorkshire. Hosts *Agromyza nigrociliata* Hendel and *Cephalemyia* sp. indet. (ex Germany, British Museum, Natural History).

Genus EPISODA Foerster

Episoda Foerster, 1869: 343. Type-species: *Episoda xanthoneura* Foerster, by monotypy.

The single ♀ specimen on which this genus is based has 14-segmented antenna. This is regarded as aberrant as those female specimens which appear to be conspecific have the normal 13 segments. This genus is here recorded in Britain for the first time and distinguished from related genera by the raised cup and punctate-reticulate disc. The genus has been recorded from continental Europe and the Pacific and includes four species.

♀ antenna (13-segmented) filiform, brownish, SN 3, 4 = AR 15: 17: 3 thinner than 4, weakly curved on outer margins (fig. 64); ♂ with antenna, filiform (fig. 63); radial cell closed, twice as long as wide measured at the maximum distances (fig. 50); pigmentation on wing margin very pale, cubitus weak, visible almost to apex of wing; pronotal plate shiny, with large foveae and tufts of pubescence on either side; pronotum at juncture with pronotal plate smooth; lateral bars of scutellum short, shiny, cup oval elevated above the disc, concave in centre with anterior fovea, disc with dense punctate-rugose surface (fig. 52); base of tergite 2 with sparse hairy ring, not complete on dorsal margins, apical quarter of tergite 2 with band of distinct punctures when viewed laterally (cf. fig. 62); head, thorax and abdomen brownish black, legs brownish yellow.....*xanthoneura* Foerster

England: Essex; Gloucestershire; Hertfordshire; Northamptonshire; Surrey. Host: Unknown.

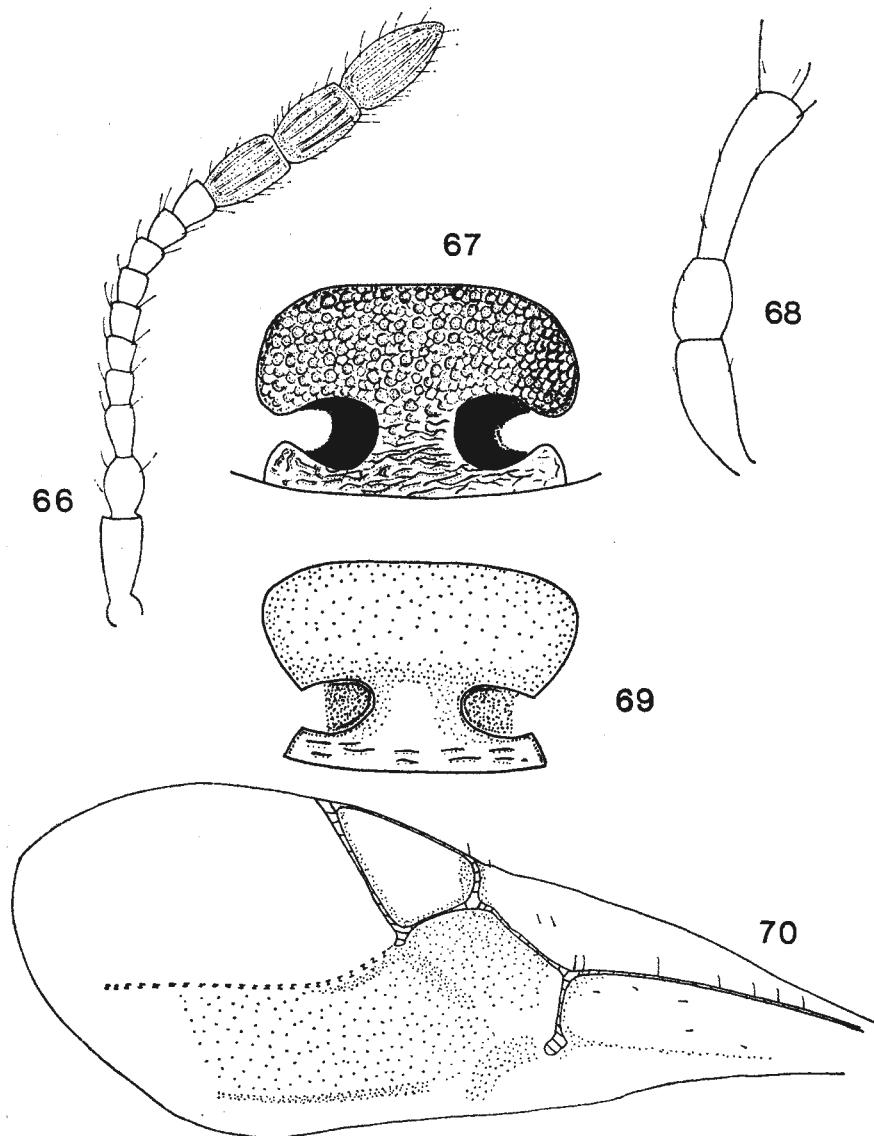
Genus EUCOILA Westwood

Eucoila Westwood, 1833: 494. Type-species: *Eucoila crassinervia* Westwood, by monotypy.

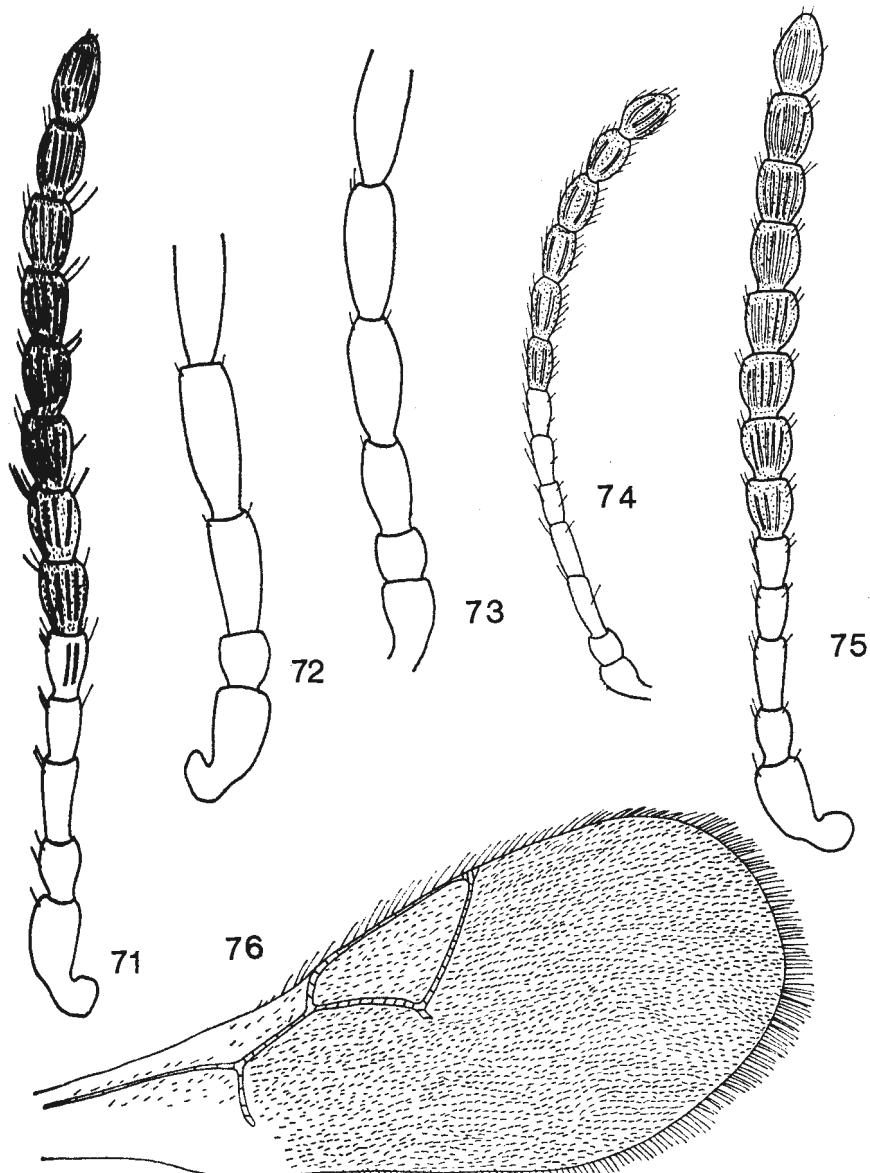
This genus occurs in both the Palaearctic and Nearctic regions. Two species in this genus are known to occur in Britain. *Eucoila* is easily distinguished from other genera by the almost bare wings, having only hair bases present, except for a few prominent hairs on the veins. Generally no apical hair fringe is present on the margins. In the males the under surface of the wing may have a few sparse hairs.

KEY TO SPECIES

- 1 Cubitus not pigmented, but with infuscation around the base; vein Rs2 curved (fig. 32); ♀ antenna with club segments moniliform (fig. 75), ♂ antenna with



Figs 66-70. 66, *Eutrias tritoma* antenna ♀. 67, *E. tritoma* pronotal plate ♀. 68, *E. tritoma* basal antennal segments ♂. 69, *Ganaspis subnuda* pronotal plate ♀. 70, *Eucoilà crassinervia* forewing ♀.



Figs 71-76. 71, *Eucoila crassinervra* antenna ♀. 72-73, basal antennal segments ♂. 72, *E. crassinervra*. 73, *E. maculata*. 74-75, antenna ♀. 74, *Ganaspis subnuda*. 75, *E. maculata*. 76, *G. subnuda* forewing ♀.

segment 4 slightly but distinctly swollen (fig. 73). *maculata* (Hartig)

Scotland. Only known from Cameron material.

- Cubitus distinctly pigmented, usually continued to apex of wing but at least for half its length, vein $R_s 2$ almost straight (fig. 70); ♀ antenna segments more cylindrical, barely swollen (fig. 71), ♂ antenna with segment 4 not swollen (fig. 72)

crassinervia Westwood

England: Devonshire; Hertfordshire; Middlesex; Surrey; Ireland: Dublin; Scotland: Host unknown in Britain, foreign specimens have been bred from Sarcophaga species (Sarcophagidae).

Genus EUTRIAS Foerster

Eutrias Foerster, 1869: 344, 357. Type-species: *Eucoela tritoma* Thomson, by original designation and monotypy.

Only one species has been described in this genus. Although it was first taken in southern Sweden, Weld (1952: 211) states that it has been reared from dipterous puparia, family Sepsidae, taken from cow dung in the U.S.A. It resembles *Kleidotoma* Westwood in many respects, having a striate conical scutellar disc, but differs on the wing, the surface being dotted with hair bases, not ciliate in the ♀, as in *Eucoela* Westwood but with short cilia in the ♀. The apex of wings rounded unlike *Kleidotoma* and the radial cell different. The hairy ring at base of tergite 2 is distinct in the ♀, very sparse in the ♂. *Eutrias* might well be synonymous with *Kleidotoma* but further material needs to be seen before reaching this decision.

Antenna of ♀ with abrupt 3 segmented club, segment 3 less than 4+5, 4-10 oboconical, dilated at apex, SN 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 = AR 25: 15: 14: 8: 8: 8: 8: 9: 10: 21: 22: 30, (fig. 66); ♂ antenna segment 3 curved on outer margins, weakly swollen at apex (fig. 68), 4-15 filiform; head with striations behind occiput; pronotum strongly striate on side margins at juncture with the mesoscutum; pronotal plate large, the surface sculptured on upper and lower parts (fig. 67); mesoscutum with weak traces of notaulides at base; scutellar cup long, elliptical, the sides of disc with widely spaced striations, apex conical, punctate-reticulate (fig. 19); tergite 2 of gaster in ♀ with a distinct hairy ring, not complete on dorsal surface; radial cell of forewing open on front margin, vein $R_s 1$ thin (fig. 22); apex of wing normally rounded, hair fringe not usually present in ♀, very short in ♂, surface of wing dotted with dense hair bases with few ciliae arising from them, in ♂ surface with very short ciliae, cubitus very weakly indicated in both ♀ and ♂. *tritoma* (Thomson)

England: Buckinghamshire; Cambridgeshire; Devonshire; Hertfordshire. Host records: On Brassica juncea L. infested with Mellgethes aeneus (Fabricius) (Nitidulidae) and Ceuthorhynchus sp. (Curculionidae). Ex diptera on day old cow dung.

Genus GANASPIS Foerster

Ganaspis Foerster, 1869: 355. Type-species: *Ganaspis mundata* Foerster, by monotypy.

This genus has not been recorded previously from the British Isles. It is known from the Nearctic, Neotropical, Oriental, Ethiopian and Palaearctic regions. Masner (1958) referred to 29 known species and compared the genus to *Leptopolina* Foerster, *Rhoptromeris* Foerster, *Pseudeucoila* Ashmead and *Odontoeucoila* Ashmead. *Ganaspis* is a difficult genus to separate from those mentioned above. The radial cell is similar to *Psichakra* Foerster, and the nearly flat, broad, elliptical cup also occurs in some species of *Rhoptromeris* Foerster and *Pseudeucoila* Ashmead. Most species in *Ganaspis* have a flat

unmargined mirror-like elliptical cup (fig. 42). Host records are known for only four of the described species.

♀ antenna with club indistinct, the apical six segments bearing rhinaria (fig. 74), SN 3, 4, 5 = AR 17: 14: 10; ♂ antenna filiform, segment S 3, 4 = AR 30: 43 (fig. 43); frons, viewed laterally, protruding, viewed frontally, transverse; malar groove distinct, back of head smooth and shiny; pronotal plate viewed anterodorsally flat on dorsal margin, rounded at sides, foveae small (fig. 69); mesoscutum smooth and polished, mesopleuron smooth, suture distinct; lateral bars of scutellum short and smooth, scutellar foveae large, shallow and smooth, disc of scutellum reticulate-rugose, weakly conical, rounded behind; scutellar cup elongate, its broadest point above the middle (fig. 42), the apex tapering and bearing a round fovea, depressed in profile; propodeum ciliate; tergite 1 of gaster crenulate, visible from dorsal and lateral views, tergite 2 of gaster with hairy ring at base restricted to lateral margins, not completed on dorsal surface (cf. fig. 17) (in ♂ the ring dense but smaller), apex of the gaster finely punctate (cf. fig. 201); apex of wing rounded in ♀, truncate in ♂, surface ciliate, hair fringe normal, radial cell distinctly closed on front margin, vein R₁ short less than one-third the length of R₂ which is curved (fig. 76). (syn: *bochesi* (Weld)) *subnuda* Kieffer

Europe: England: Dorset; Ireland: Co. Wicklow; U.S.A.: probably as cosmopolitan as its host. Host: Drosophila (Sephophora) melanogaster Meigen.

Genus GLAURASPIDIA Thomson

Glauraspidea Thomson, 1861: 307, 401. Type-species: *Eucoela subtilis* Dahlbom, 1842 by monotypy.

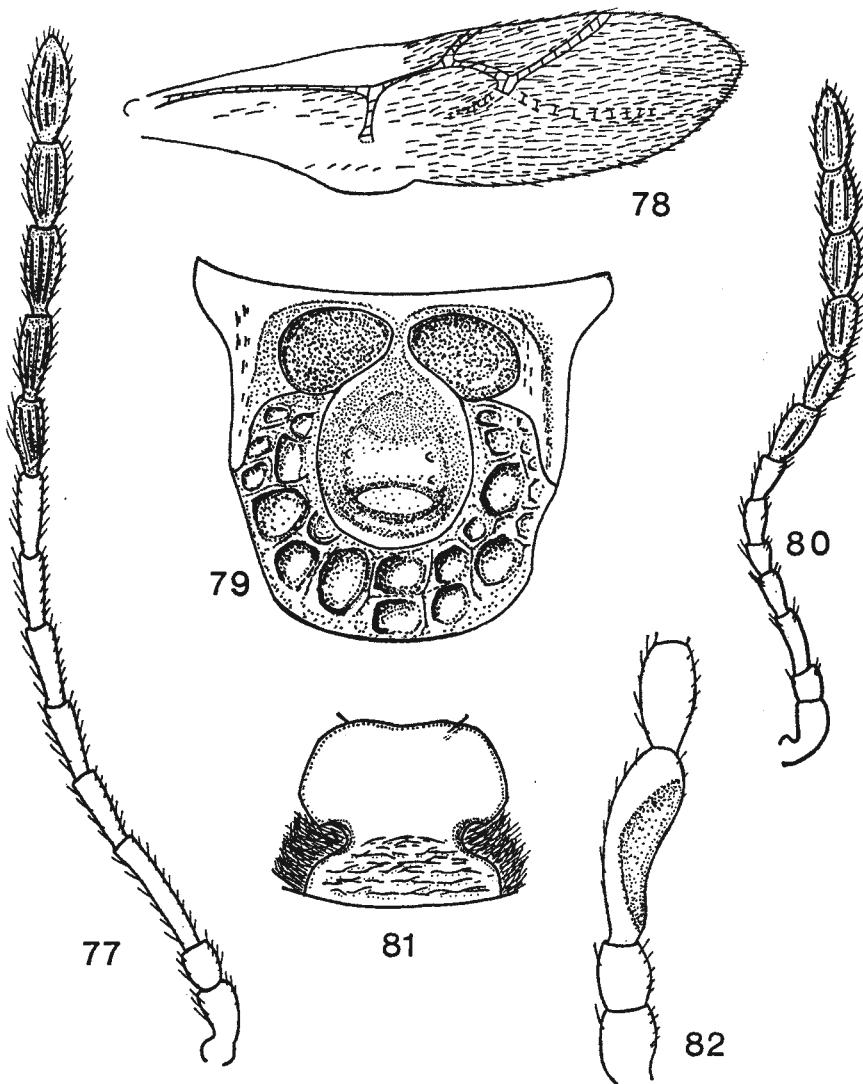
Aglaotoma Foerster, 1869: 334. Type-species: *Cothonaspis codrina* Hartig, by monotypy.

This genus is only known from Europe. Only one species is at present known in the British Isles. The protruding frons and aberrant or absent mesopleural suture are the most striking characters separating this genus from all others. Hellén (1960: 9) synonymized *Glauraspidea* and *Aglaotoma* thereby making *subtilis* the senior synonym of *codrina* Hartig. Hartig's description is based on a male and Dahlbom's *subtilis* is based on a female. In Weld (1952) both species would key to their then respective genera purely on the wing length, radial cell characters and distinctive antennal and frons characters.

♀ antenna weakly clavate, 3rd segment weakly curved on outer margin (fig. 77) SN 3, 4, 5 = AR 31: 20: 18, basal segments yellow, apical four segments slightly darker, rhinaria present on the apical five; ♂ antenna flagelliform, SN 3, 4 = AR 96: 45, 3 weakly curved, remaining segments decreasing in length and breadth (fig. 38); face viewed frontally longer than wide, frons viewed laterally protruding to form an angle (fig. 34); back of head smooth and shiny; pronotal plate viewed anterodorsally large, rounded on top margin with one large fovea on either side and dense woolly pubescence (fig. 33); mesopleuron smooth, the suture absent; lateral bars of scutellum weakly sculptured, reaching to middle of cup, scutellar foveae deep, disc reticulate-rugose, cup oval with a large fovea in middle (fig. 79); propodeum with dense woolly pubescence on each side; tergite 1 of gaster obscured by dense woolly ring at base of tergite 2; ventral spine of gaster broad with long, basal hairs; head black, mesonotum dark chestnut brown, gaster blackish brown, basal parts in lateral view reddish; wings barely reaching apex of gaster, in ♀ (extending well past end of gaster in ♂), forewing ciliate, rounded at apex, hair fringe short, radial cell open on front margin 3 times longer than wide in ♀ (fig. 78)

microptera (Hartig)

England: Buckinghamshire; Hertfordshire; Northamptonshire; Somerset; Surrey; Ireland. Host: Unknown.



Figs 77-82. 77, *Glauraspidia microptera* antenna ♀. 78, *G. microptera* forewing ♀. 79, *G. microptera* scutellum ♀. 80, *Hexacola hexatoma* antenna ♀. 81, *H. hexatoma* pronotal plate ♀. 82, *H. hexatoma* basal antennal segments ♂.

Genus HEXACOLA Foerster

Hexacola Foerster, 1869: 342. Type-species: *Eucoela picicrus* Giraud, by monotypy. *Hexaplasta* Foerster, 1869: 345. Type-species: *Cothonaspis hexatoma* Hartig, 1841: 357, by original designation.

Closely related to *Kleidotoma* Westwood but easily separated from it by

the radial cell and the apex of the forewing. Only one British species is known. This genus extends throughout Europe, and North and South America.

♀ antenna with apical 6 segments forming a club and bearing rhinaria, SN 3, 4, 5 = AR 15: 11: 8 (fig. 80); ♂ antenna filiform, SN 3, 4, = AR 50: 26, segment 3 curved (fig. 82), swollen at apex, flattened on outer margin; back of head weakly striate; pronotal plate large, flattened on lateral margins, foveae distinct with tufts of pubescence each side (fig. 81); mesoscutum smooth and shiny, notaulices absent but indicated by sparse hairs along the surface; mesopleuron smooth and shiny, suture distinct; lateral bars of scutellum shiny, barely reaching to half the length of the cup which is narrowly elliptical, disc of scutellum finely striate (fig. 44); propodeum pubescent; segment 1 of gaster obscured by dense hairy ring at base of tergite 2; wings normal, forewing rounded at apex, ciliate with a hair fringe, radial cell open on margin, cubitus weakly pigmented, almost reaching apex of wing, head and thorax shiny black to brown, antenna yellowish basally, dark at apex **hexatoma** (Hartig)

England: Berkshire; Oxfordshire. Host: Oscinella frit (L.).

Genus KLEIDOTOMA Westwood

Kleidotoma Westwood, 1833: 494. Type-species: *Kleidotoma psilooides* Westwood, by monotypy.

Rhynchacis Foerster, 1869: 344. Type-species *Cothonaspis nigra* Hartig, by monotypy. **syn.n.**

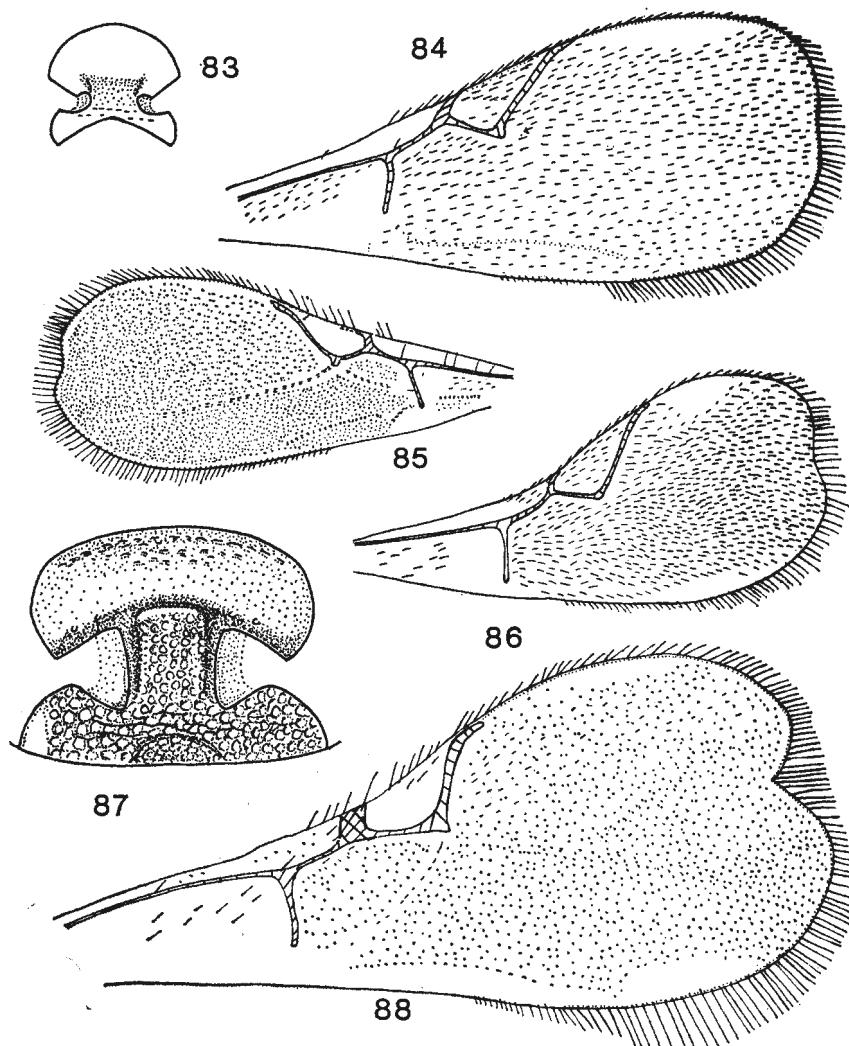
This genus is very distinct and readily separated from all others by the striate scutellar disc (fig. 90), the venation and the arcuate, incised or truncate distal margin of the forewing (figs 84, 85, 86, 88). Tergite 2 of the gaster has a distinct hairy ring, usually incomplete on the dorsal surface. The only difference between *Rhynchacis* Foerster and *Kleidotoma* Westwood is the elongated beak-shaped scutellar disc of *Rhynchacis*. I do not regard this as sufficient reason to retain the two genera as distinct. In the keys to world species, subgenera have been defined on the number of club segments in the ♀ antenna. I have not used the subgeneric names in this key but they are indicated in the check list. Males cannot be identified satisfactorily at present. Males of the following species have been referred to in the literature: *pentatoma* Thomson, *nigra* Hartig (Thomson, 1861); *caledonica* Cameron, *marshalli* Cameron (Ionescu, 1969); *pygmaea* Thomson, *psilooides* Westwood, *marshalli* Cameron (Hellén, 1960); *marshalli* Cameron, *subaptera* Walker, *halophila* Thomson (Cameron, 1890).

KEY TO FEMALES

- 1 Scutellar disc elongated at apex, in the form of a conical beak-shaped protrusion, flattened in dorsal view (fig. 92), ♀ antenna with 3-segmented club in British specimens; radial cell closed at base, weakly open at apex, the cell elongate, wing margin weakly inwardly curved upwards, hair fringe on margin of wing long at base and apex but shorter on front margin, surface of wing dotted with hair bases (fig. 85); back of head strongly striate; pronotal plate small with distinct foveae each side (fig. 83); sides of pronotum with strong, widely spaced striations; lateral bars of scutellum strigose, disc striate on lateral margins, apex rugose foveolate, cup long and tapering at base; antenna black, segment 1 curved on outer margins, swollen at apex, shorter than 2+3, 6 to 10 moniliform (fig. 89), segment 11 (first club segment) shorter than 12 which in turn is shorter than 13, coxae dark brownish black, generally shiny, only rarely with weak alutaceous sculpture, tibiae and tarsi reddish brown to yellow

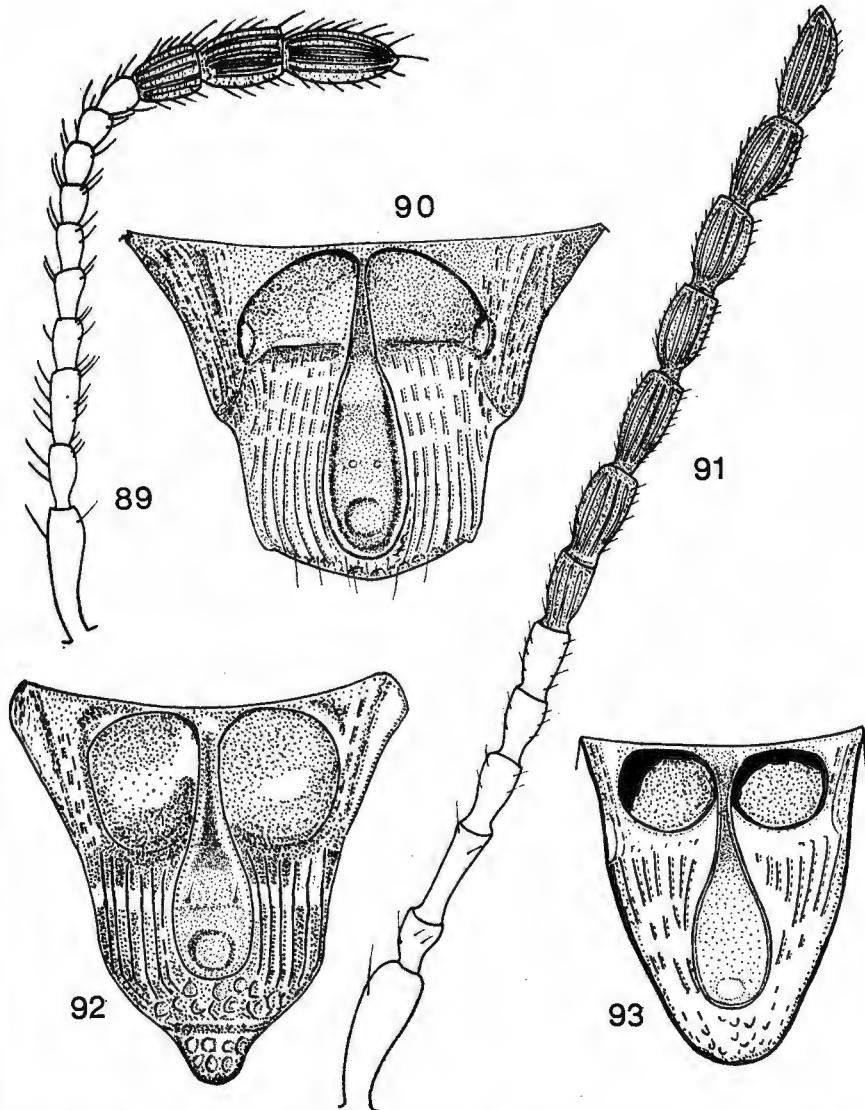
(*nigripes* Cameron **syn.n.**; *crassiclava* Cameron **syn.n.**). **nigra** (Hartig)

Locally common throughout England: Scotland: Ireland. Host unknown.



Figs 83-88, *Kleidotoma*. 83, *nigra* pronotal plate ♀. 84-86, forewings ♀. 84, *elegans*. 85, *nigra*. 86, *longipennis*. 87, *melanopoda* pronotal plate ♀. 88, *caledonica* forewing ♀.

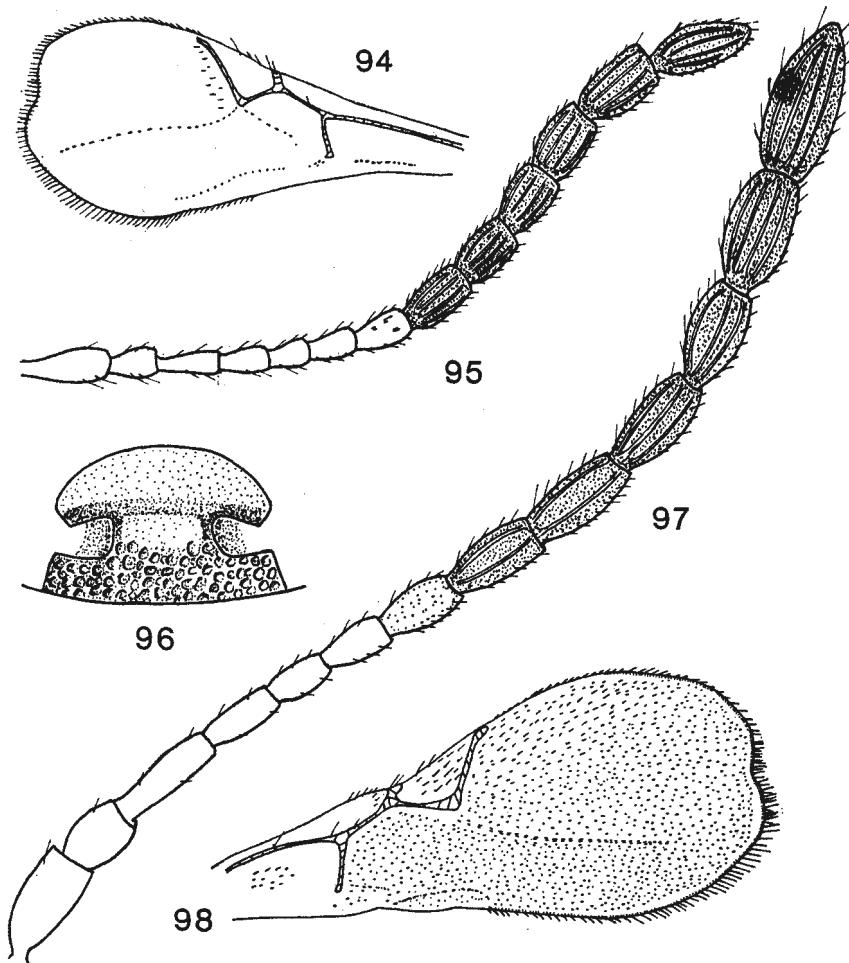
- Scutellar disc rounded, truncate or conical at apex, sometimes projecting but never in the form of a beak, ♀ club segments variable in number.....2
- 2 Antenna without a distinct club, more than twice the length of thorax, segment 3 almost 1.5 times length of 4; 3 = 20: 4 = 15 (the apical 7 segments bearing rhinaria, and darker) (fig. 91); back of head striate; pronotum strongly striate on lateral margins at juncture with mesoscutum; pronotal plate large with very weak scattered sculpture on upper half, strigose on lower half (fig. 87); scutellum strongly



Figs 89-93, *Kleidotoma*. 89, *nigra* antenna ♀. 90, *melanopoda* scutellum ♀. 91, *melanopoda* antenna ♀. 92-93, scutellum ♀. 92, *nigra*. 93, *striaticollis*.

striate, irregularly rounded behind, the cup lanceolate (fig. 90) extending to apex of scutellum, lateral bars of scutellum strongly striate; apex of forewing arcuate, the radial cell triangular; wing surface with short sparse cilia, hair fringe on wing margin short (fig. 94), cubitus weakly indicated; femora, tibiae and tarsi reddish brown, mid and hind coxae blackish, coriaceous-striate. ♂ not known
melanopoda Cameron

England : London : (Rev. T. A. Marshall). Host unknown.



Figs 94-98, *Kleidotoma*. 94, *melanopoda* forewing ♀. 95, *hexatoma* antenna ♀. 96, *hexatoma* pronotal plate ♀. 97, *picipes* antenna ♀. 98, *hexatoma* forewing ♀.

- Antenna with a distinct club 3
- 3 Antennal club six- to seven-segmented 4
- Antennal club three- to five-segmented 7
- 4 Antennal club six-segmented 5
- Antennal club seven-segmented, segment 2 of gaster with dense matted hairy ring .. 6
- 5 Antennal club distinct (fig. 95), SN 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 = AR 16: 13: 11: 13: 14: 17: 17: 17: 18: 22: 28; back of head strongly striate, pronotal plate viewed anterodorsally large, rounded on dorsal surface with large foveae (fig. 96), basal half strongly sculptured with dense tufts of hair either side; pronotum strongly striate at juncture with mesoscutum; scutellar cup small elliptical, disc strongly striate; radial cell of forewing weakly elongate, apex of forewing arcuate (fig. 98), hair fringe short, surface with very short cilia, sometimes indistinct. ♂ not known *hexatoma* Thomson

England: Gloucestershire; Kent; Suffolk: Yorkshire: Scotland: Clydesdale; Sutherland: Gen Clova. Host unknown, taken in mole's nest.

- Antennal club indistinct (fig. 97) SN 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, = AR 15: 10: 8: 9: 10: 12: 14: 14: 16: 21, back of head with obsolete sculpture, pronotal plate large, angled on side margins, upper surface smooth and shining basal half sculptured (fig. 99), without dense tufts of hair either side; pronotum on side margins smooth and shining; scutellar cup long and thin, the disc with broken aberrant coriaceous-striate sculpture; radial cell of forewing weakly elongate (fig. 100), apex of forewing incised, hair fringe long. ♂ not known

picipes Cameron

Scotland: Clydesdale. Host unknown.

- 6 Wings short, extending to just beyond apex of gaster; antennal club indistinct, segment 3 of antenna longer than 4; back of head striate; pronotum striate on lateral margins at juncture with mesoscutum; scutellar foveae large, the disc striate on side margins, rugulose on apex, lateral bars short, striate, not reaching middle of cup, legs brownish black, hind tibia with weak longitudinal furrow on inner side. ♂ referred to by Cameron (1890: 232). halophila Thomson

Cameron (1890) records this species as having been found at Polperro, Cornwall, by T. A. Marshall. (Not represented in British Museum (Natural History).) The above description is based on the holotype.

- Wings normal, extending well past apex of gaster, radial cell of forewing slightly elongate, apex of wing weakly truncate, the surface dense ciliate, the hair fringe on apex moderate (fig. 102); antennal club distinct, SN 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 = AR 16: 11: 11: 11: 13: 16: 17: 17: 16: 17, 28; back of head coriaceous; pronotum strongly striate on side margins at juncture with the mesoscutum; scutellar disc striate on side and apex, lateral bars striate and extending past the middle of cup, scutellar foveae weakly sculptured; legs reddish testaceous, the hind tibia without trace of longitudinal furrow. ♂ not known. pygmaea (Dahlbom)

England: Yorkshire: Scarborough; Ireland: County Dublin. Host unknown.

- 7 Antennal club three-segmented. 8

- Antennal club four- to five-segmented. 14

- 8 Wings brachypterous, at most reaching to just beyond tip of gaster, radial cell incomplete (fig. 103) antennal segment 3 almost as long as 4+5, 5 longer than 6, 7-10 subequal in length, each segment broader than the preceding, 11-12 subequal, the apical segment longer than 12 (fig. 101); ♂ antenna (fig. 104) 4-15 with rhinaria; back of head striate, malar groove area striate; pronotal plate as in fig. 105; scutellar foveae large, lateral bars of scutellum polished dorsally; disc variable, from smooth to very weakly striate, cup extending to apex of disc (cf. fig. 90). ♂ described by Walker (1834: 117). subaptera (Walker)

This species is always associated with seaweeds among rocks. England: Cornwall; Devonshire; Dorset; Somerset; Wales: Pembrokeshire.

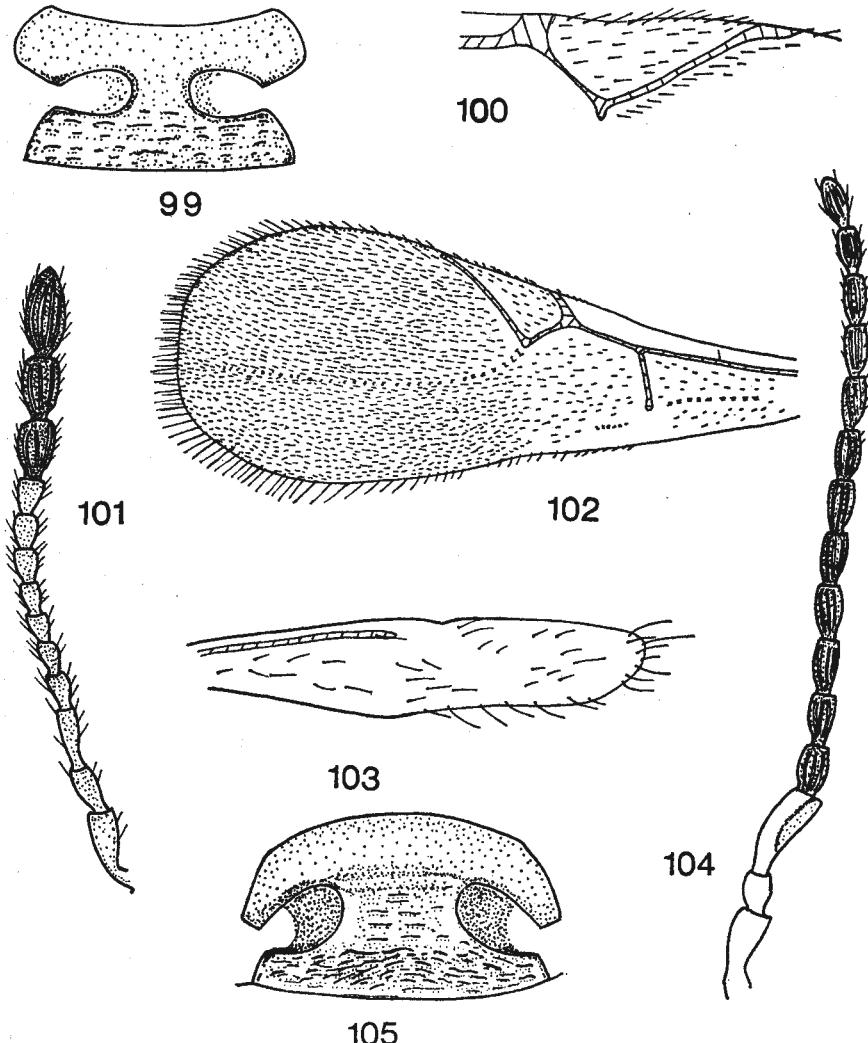
- Wings reaching beyond gaster, radial cell distinct and complete. 9

- 9 Club segments together longer than flagellar segments 3-10; segment 3 three times length of 4; 4-10 as broad as long, transverse trapezoid (fig. 109); segment 11 shorter than 12; segment 13 1.5 times as long as 12; disc of scutellum strongly striate, rounded behind, cup long and narrow (fig. 107); lateral bars of scutellum strongly striate; radial cell of forewing as in fig. 110, apex of wing margin incised, hair fringe on margins long, surface dotted with hair bases (pulverous). ♂ described by Cameron (1889) but no specimens in British Museum (Natural History). marshalli Cameron

England: Buckinghamshire; Devonshire. Host unknown.

- Club segments together shorter than flagellar segments 3-10, club segments longer than broad (fig. 106). 10

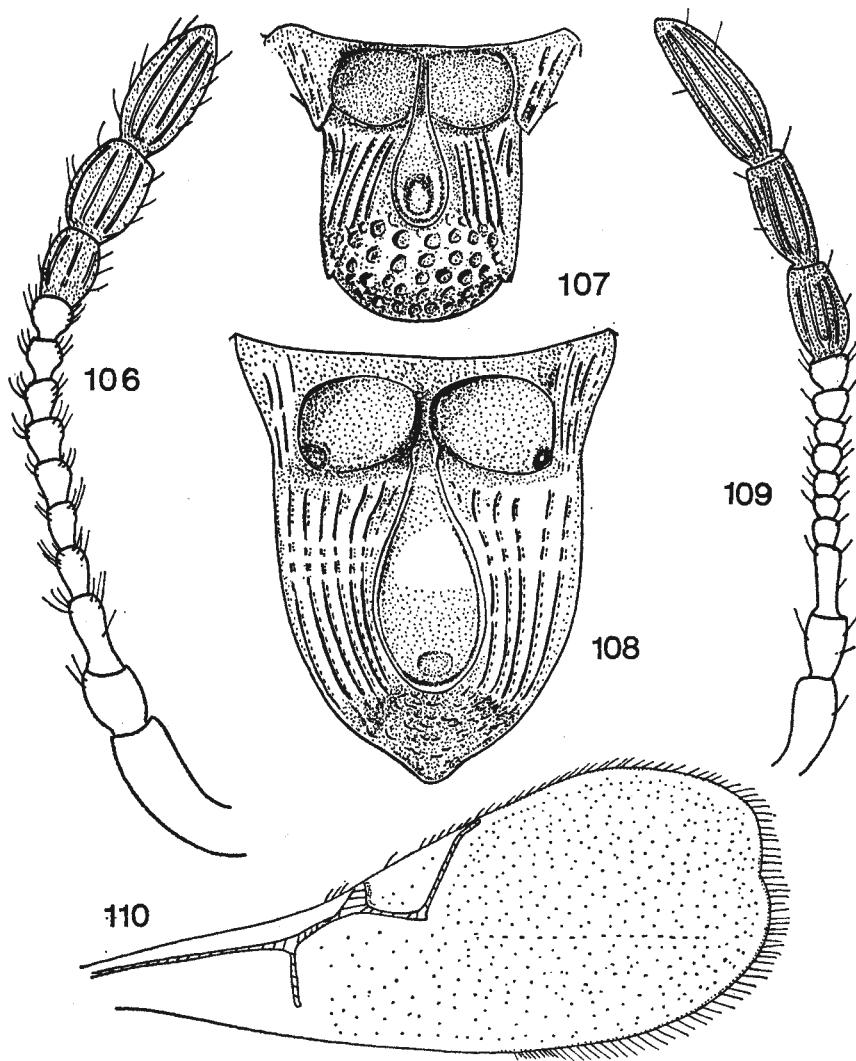
- 10 Scutellum broadly projecting, not in the form of a beak, conical posteriorly (fig. 108) with strong striations widely spaced, cup narrow at apex and elongate, scutellar foveae large; back of head finely but distinctly striate; lateral margins of pronotum with widely spaced striations, pronotal plate large, smooth on upper margins, sculptured on lower half (fig. 115); 3rd segment of antenna almost twice length of 4, 4-5 subequal, 6-10 trapezoid, 11-13 forming a distinct club, 11 shorter and narrower than 12 or 13, 13 distinctly longer than 12, the apex conical (fig. 106); radial cell of forewing arcuate (fig. 113), cubitus weakly represented not pigmented, surface of wing dotted with hair bases, hair fringe on margins moderate, apex of wing incised. ♂ not known. longicornis Cameron



FIGS 99-105, *Kleidotoma*. 99, *picipes* pronotal plate ♀. 100, *picipes* radial cell ♀. 101, *subaptera* antenna ♀. 102, *pygmae* forewing ♀. 103, *subaptera* forewing ♀. 104, *subaptera* antenna ♂. 105, *subaptera* pronotal plate ♀.

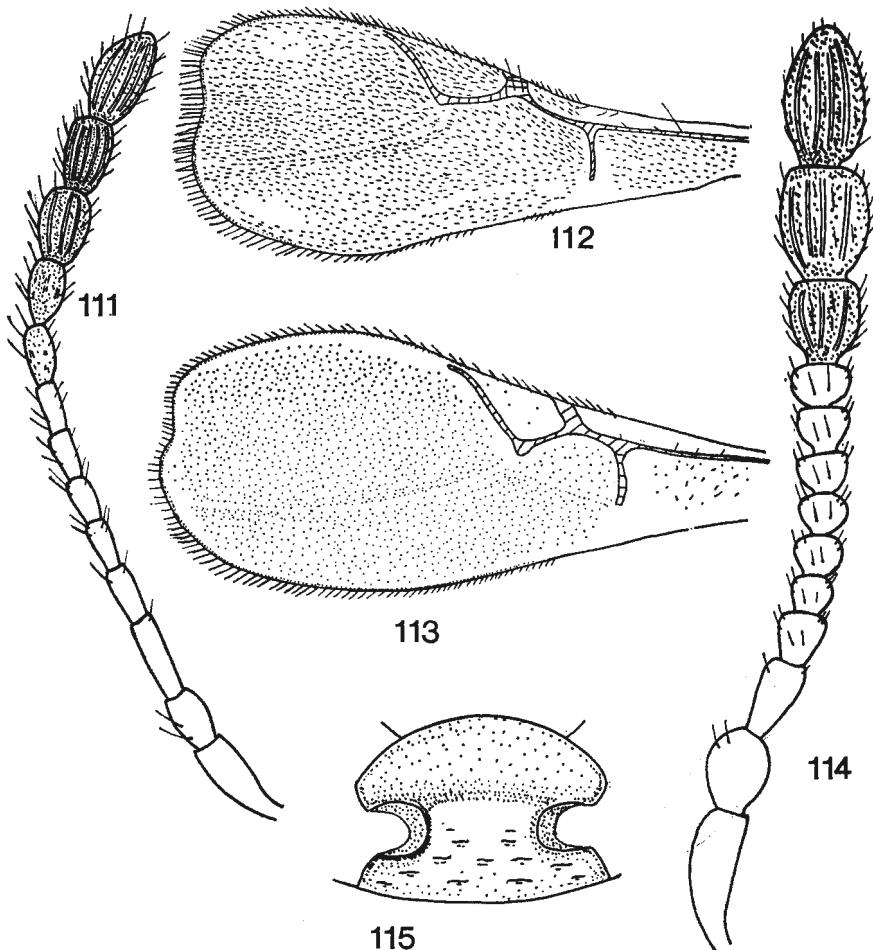
England: Devonshire; Hertfordshire; Scilly Is.: Tresco; Yorkshire; Scotland.
Host unknown.

- Scutellum rounded or truncate posteriorly (fig. 119) not projecting..... 11
- 11 Segments 5-10 of antenna distinctly longer than broad (fig. 111), club not always abrupt or distinct, scutellum rounded posteriorly..... 12
- Segments 5-10 of antenna almost as broad as long, sometimes closely adpressed (fig. 114), club distinct; scutellum rounded or conical at apex..... 13



Figs 106–110, *Kleidotoma*. 106, *longicornis* ant. ♀. 107–108, scutellum ♀. 107, *marshalli*. 108, *longicornis*. 109, *marshalli* ant. ♀. 110, *marshalli* forewing ♀.

- 12 Flagellar segments, preceding the club of antenna, at least twice as long as wide or longer, club not abrupt (fig. 111); length of segment SN 3, 4, 11, 12, 13 = AR 10.5: 7.5: 10: 10: 12.5; segments 9 and 10 with indication of obsolete rhinaria; antenna dark brownish yellow basally, the apical four segments blackish brown with hairs on apical segments long; pronotum on side margins smooth; scutellum rounded behind, disc finely striate, cup elliptical elongate; radial cell of forewing elongate (Rs₂ longer than R₁), apex of forewing weakly arcuate (fig. 112), hair fringe long at apex normal on remainder, surface of wing densely ciliate, pronotal



Figs 111-115, *Kleidotoma*. 111, *filicornis* antenna ♀. 112-113, forewing ♀. 112, *filicornis*. 113, *longicornis*. 114, *striaticollis* antenna ♀. 115, *longicornis* pronotal plate ♀.

plate viewed anterodorsally with large elongated foveae either side, the lower surface rugose (fig. 117); hind coxae smooth and shiny. ♂ not known

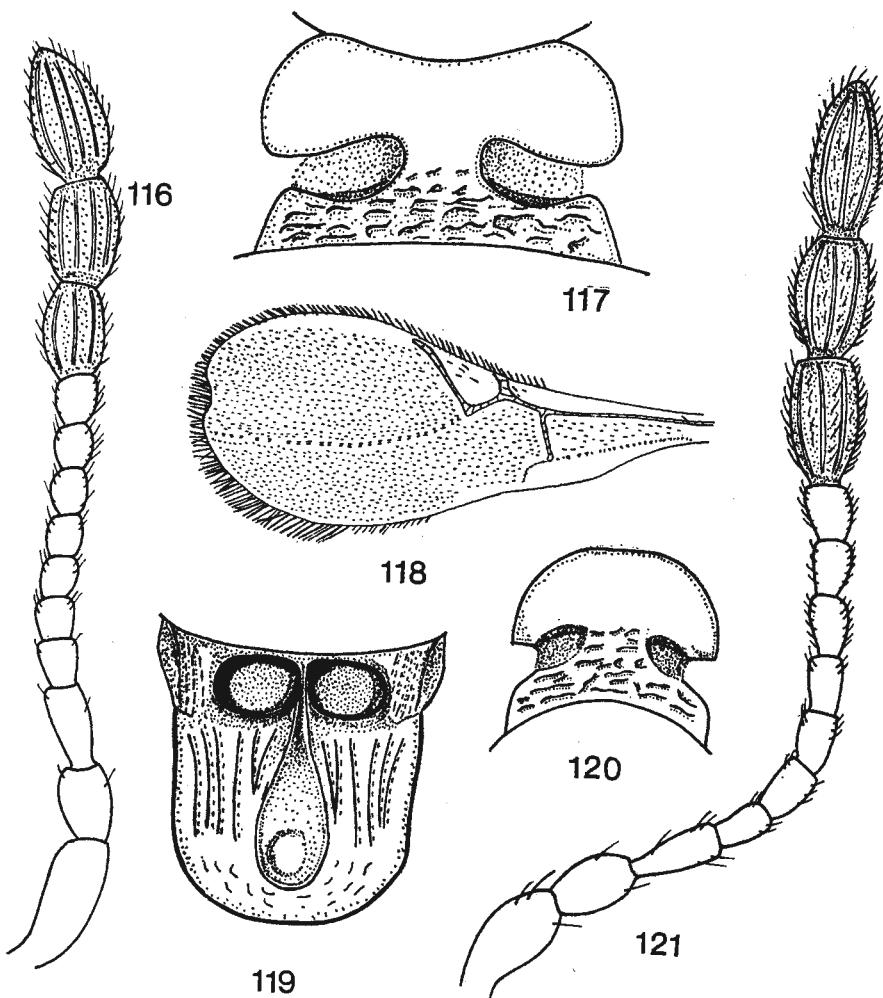
filicornis Cameron

England: Buckinghamshire; Devonshire; Hertfordshire; Kent; Norfolk; Surrey.
Host unknown. Some specimens in British Museum (Natural History) collection have been taken at low tide under scallop shells and others in association with ants.

- Flagellar segments, preceeding the club of antenna, less than twice as long as broad, club abrupt (fig. 121), SN 3, 4, 11, 12, 13 = AR 23: 14: 32: 31: 40, segments 9 and 10 without rhinaria, segment 1 reddish yellow, remaining segments dark yellow, with dense hairs on apical segments; pronotum on side margins striate (cf. fig. 122); pronotal plate viewed anterodorsally flattened on dorsal margin with large rounded foveae either side, the upper surface smooth, lower weakly rugose (fig.

120); scutellar foveae large, disc rounded behind and distinctly striate, cup elongate, narrow; radial cell of forewing elongate (R_2 longer than R_1), apex of forewing strongly arcuate, surface densely dotted with hair bases with only a few scattered ciliae present, hair fringe normal (sparse in some specimens) (fig. 118); ♂ referred to by (Hellén, 1960).....**psiloides** Westwood

England: Berkshire; Wales. Hosts: *Leptocera manicata* Richards; *L. clavipes* Verrall. The holotype is very faded due possibly to age, head yellowish, mesonotum and gaster dark brown. More recently collected specimens are darker.



Figs 116-121, *Kleidotoma*. 116, *caledonica* antenna ♀. 117, *filicornis* pronotal plate ♀. 118, *psiloides* forewing ♀. 119, *caledonica* scutellum ♀. 120, *psiloides* prontal plate ♀. 121, *psiloides* antenna ♀.

VIII (1b). HYMENOPTERA

- 13 Segments 4–10 of antenna not closely adpressed, the sides almost parallel, SN 3, 4+5, 11, 12, 13 = AR 22: 22: 24: 26: 35 (segment 3 as long as 4+5) (fig. 116); pronotal plate with large foveae, the surface on basal half rugose (fig. 123), scutellar disc rounded behind, cup elliptical elongate, tapering towards base (fig. 119), striations on disc distinctly furrowed, deep and widely spaced, lateral bars of scutellum weakly sculptured; apex of forewing sharply emarginate (fig. 88), radial cell weakly elongate ($Rs_2 = 30$, $R_1 = 15$) (fig. 88), hair fringe on hind margin longer and evenly distributed, surface dotted with hair bases and a few ciliae; hind coxae striate at base. ♂ referred to by Ionescu (1969)

caledonica Cameron

England: Berkshire; Buckinghamshire; Hertfordshire; Ireland: Scotland.

Hosts: Bred from Leptocera manicatum Richards, also collected from a heron's nest.

- Segments 4–10 of antenna closely adpressed, SN 3, 4+5, 11, 12, 13 = AR 20: 24: 21: 29: 36, (segment 3 shorter than 4+5) (fig. 114); dorsal surface of head and thorax with sparse hairs; side margins of pronotum at juncture with mesoscutum strongly straite (fig. 122); pronotal plate weakly rugose on lower basal half, small (fig. 124); apex of scutellar disc weakly conical (fig. 93), cup elliptical elongate, scutellar disc striations distinct, closer together, lateral bars of scutellum weakly striate; apex of forewing sharply arcuate-emarginate (fig. 125), hair fringe on hind and front margin long and even, radial cell more distinctly elongate ($Rs_2 = 38$, $R_1 = 18$); hind coxae with aberrant weak sculpture to almost smooth. ♂ unknown *striaticollis* Cameron

England: Hertfordshire; Norfolk; Scotland. Host unknown, found on cow dung.

1 ♂ from Mugdoch (Scotland, Stirlingshire) and 1 ♀ no data stand under brevicornis Thomson in the collection. The ♀ is damaged, it is close to striaticollis but without more information I cannot place it on the British list.

- 14 Antenna with 4-segmented club 15
 — Antenna with 5-segmented club 18
 15 Club not sharply defined (fig. 129) 16
 — Club sharply defined (fig. 126) 17
 16 Antenna basally clear yellow, apical segments brownish yellow, club segments distinct though not abrupt, segment 3 of antenna 1.5 times the length of 4, distinctly shorter than 4+5, SN 3, 4, 5, = AR 15: 10: 9: flagellar segments 4–9 filiform, more than twice as long as broad (fig. 129); back of head striate; pronotal plate large, the foveae small (fig. 128); sides of pronotum at juncture with mesoscutum weakly sculptured to smooth; scutellar disc strongly striate, rounded at apex, cup ovate, lateral bars of scutellum striate; radial cell of forewing elongate triangular ($Rs_2 = 25$, $R_1 = 5$), apex of wing arcuate, apical fringe long, wing surface ciliate (fig. 130); legs clear yellow. ♂ unknown... *dolichocera* Thomson

England: Buckinghamshire; Ireland: Ratoath; Wales. Host unknown.

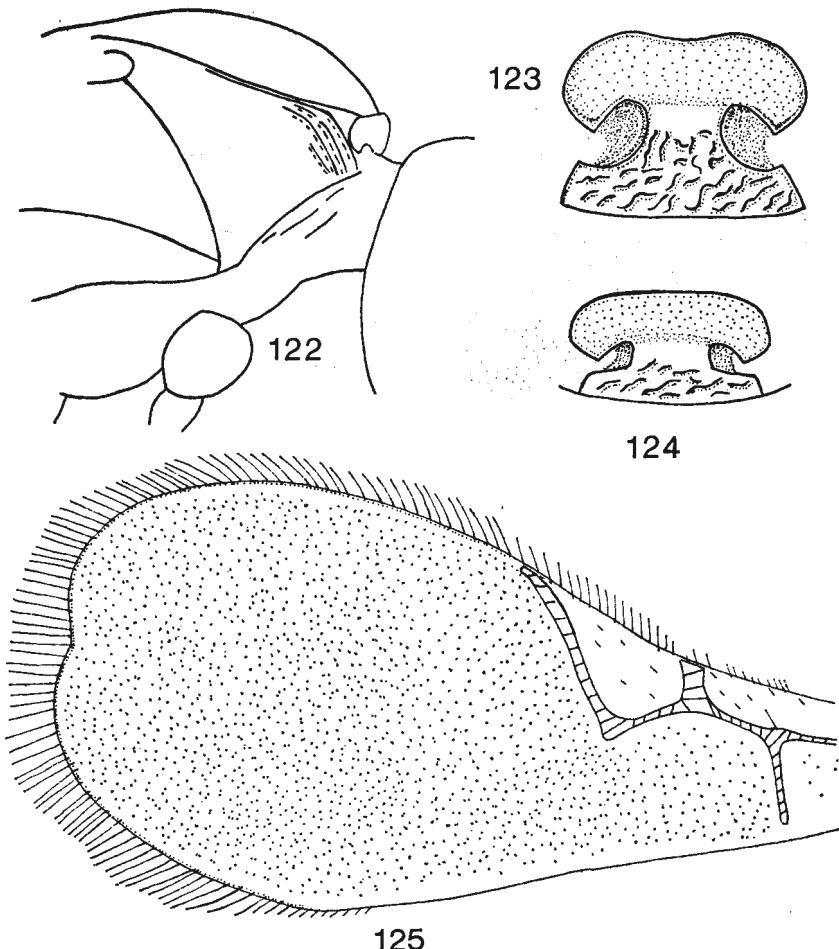
- Antenna blackish, filiform, club not distinct, segment 3 of antenna 1.5 times length of 4, 4–8 wider than long, 9 oval, thicker, nearly twice as long as 8 and 0.75 times the length of 8, club not abrupt, the basal three of equal width and length, segment 13 longer and sharply conical at apex; scutellar disc aciculate; radial cell subtriangular (Rs_2 and R_1 subequal), apex of forewing weakly incised.

gracilicornis Cameron

[*Gracilicornis* was described from ♀'s taken at Nunton, Wiltshire, England and collected by Rev. T. A. Marshall. I have not seen specimens of this species. The couplet above is included to cover the possibility of its existence and the description is taken from Cameron 1889: 637]. Ionescu (1969: 141) described a species with the same name which is a junior primary homonym.

- 17 Segment 3 of antenna less than twice the length of 4, subequal to 4+5, SN 3, 4, 5, 10, 11, 12, 13 = AR 14: 8: 7: 18: 18: 19: 24; flagellar segments 5–9 sub-elevate to truncate, dilated towards apex; 10–13 abrupt (fig. 126); side margins of pronotum at juncture with the mesoscutum striate (cf. fig. 122); back of head striate, pronotal plate large, finely coriaceous (fig. 139); scutellar disc finely striate, rounded at apex; lateral bars of scutellum finely striate; radial cell of forewing triangular ($Rs_2 = 20$, $R_1 = 4$), apex of wing strongly arcuate, apical fringe normal, wing surface ciliate and partially dotted with hair bases (fig. 127); legs blackish brown. ♂ unknown *tetratoma* Thomson

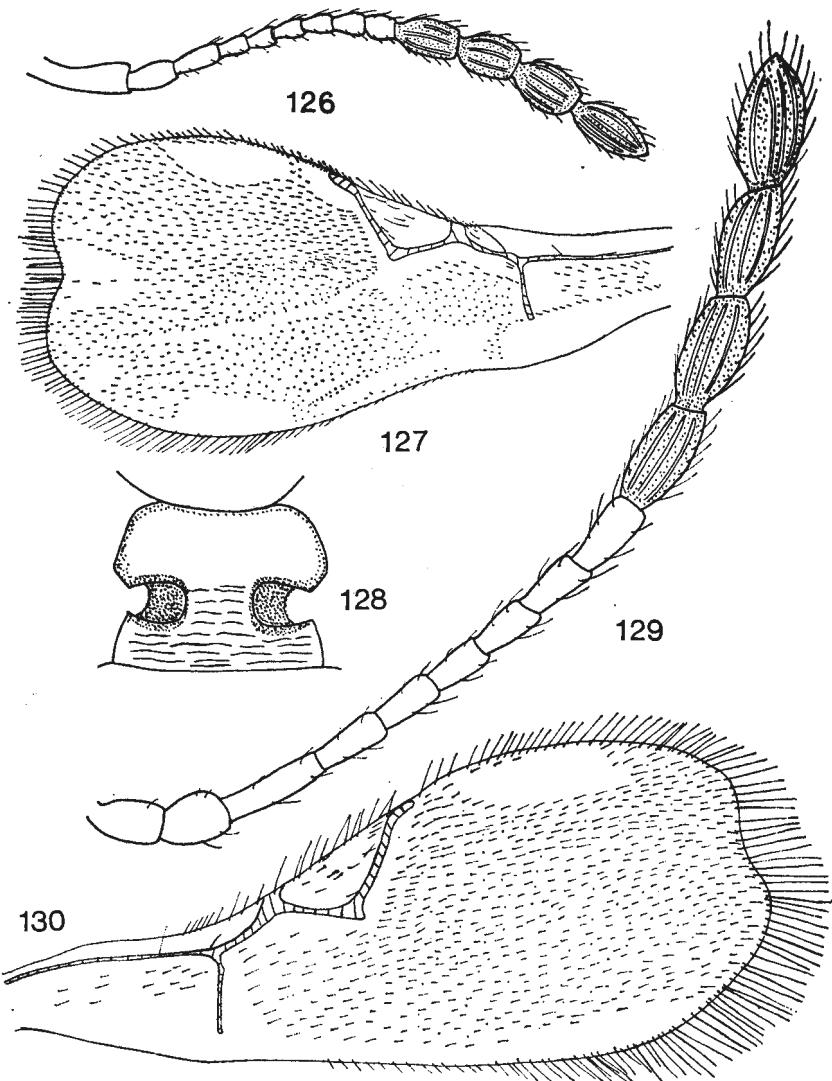
[England: Gloucestershire; Hertfordshire; Northumberland; Scotland. Host unknown.]



FIGS 122-125, *Kleidotoma*. 122, *striaticollis* pronotum lateral view ♀. 123-124, pronotal plate ♀. 123, *caledonica*. 124, *striaticollis*. 125, *striaticollis* forewing ♀.

— Segment 3 of antenna twice the length of 4, equal to 4+5, SN 3, 4, 5, 10, 11, 12, 13 = AR 20: 10: 8: 20: 25: 25: 30; 5-9 clavate, dilated at apex, 10-13 abrupt (fig. 136); side margins of pronotum at juncture with mesoscutum striate; back of head strongly striate; pronotal plate (cf. fig. 139); scutellar disc broadly striate, rounded at apex, lateral bars of scutellum finely sculptured; radial cell of forewing triangular ($Rs_2 = 20$, $R_1 = 4$), apex of wing strongly arcuate, apical fringe normal, surface ciliate and dotted with hair bases in part (cf. fig. 127); legs blackish brown. ♂ unknown. *affinis* Cameron

Scotland. Host unknown. Known only from the holotype in the British Museum (Natural History). When further material of this species is seen it might prove to be synonymous with *tetratoma* Thomson. It differs from *tetratoma* only in relative lengths of the antennal segments.

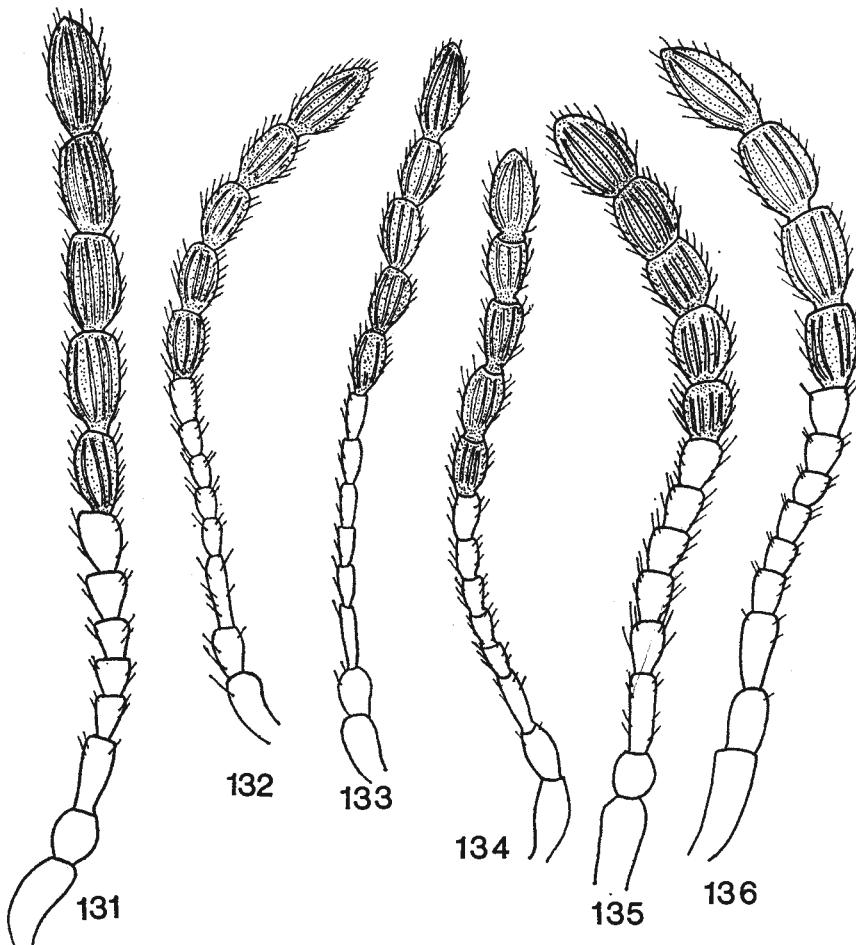


FIGS 126-130, *Kleidotoma*. 126, *tetratoma* antenna ♀. 127, *tetratoma* forewing ♀. 128, *dolichocera* pronotal plate ♀. 129, *dolichocera* antenna ♀. 130, *dolichocera* forewing ♀.

- 18 Antennal segment 3 twice the length of 4, equal to $4+5$ or longer..... 19
 — Antennal segment 3 less than twice the length of 4, less than $4+5$ 20
 19 Club segments not sharply defined, antennal segments 4-8 oboconical, dilated at apex,
 SN 3, 4, 5, 6, 9, 10, 11, 12, 13 = AR 20: 10: 10: 20: 20: 25: 25: 30 (fig. 131);
 side margins of pronotum at juncture with mesoscutum weakly striate; apex of
 forewing moderately incised (cf. fig. 141), radial cell elongate, ♂ described by
 Thomson (1861: 398) *pentatoma* Thomson

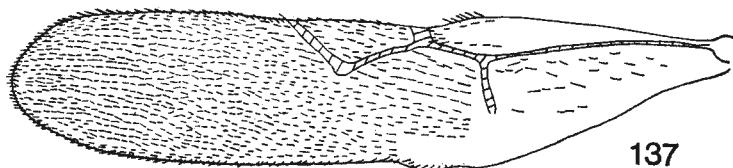
England: Hertfordshire; Norfolk; Scotland: Dumfriesshire; Sutherland. Host unknown.

- Club segments weakly or sharply indicated, remaining segments 4–7 moniliform (figs 133, 135) not obconical 21
- 20 Club segments sharply defined, 9–12 equal in length, SN 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 = AR 19: 10: 8: 8: 9: 11: 17: 17: 17: 25 (fig. 132); mesoscutum smooth and shiny; side margins of pronotum weakly sculptured; scutellar cup small almost oval, not extending to the apex of the striate disc; disc rounded at apex; radial cell of forewing triangular, apex of forewing nearly truncate (fig. 84), hair fringe short on front margin. ♂ unknown elegans Cameron
England: Hertfordshire; Warwickshire; Scotland: Stirlingshire. Host unknown.
 1♀ in B.M. collection taken from a *Hylurgops* (Scolytidae) gallery.

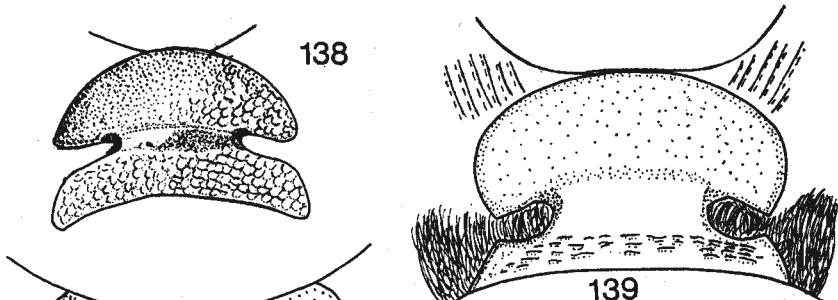


FIGS 131–136, *Kleidotoma* antenna ♀. 131, *pentatoma*. 132, *elegans*. 133, *longipennis*.
 134, *truncata*. 135, *tomentosa*. 136, *affinis*.

- Club weakly defined, 9–12 not equal in length, SN 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 = AR 16: 8: 8: 9: 10: 11: 14: 18: 18: 15: 24 (fig. 134); mesoscutum smooth and shiny, side margins of pronotum smooth and polished; scutellar cup long and narrow not extending to apex of the striate disc; disc rounded at apex; radial cell of forewing elongate, apex of forewing arcuate (fig. 142), hair fringe normal. ♂ unknown *truncata* Cameron
England: Buckinghamshire; Herefordshire; Warwickshire; Scotland: Renfrewshire. Host unknown.
- 21 Wings short and narrow not extending much beyond apex of gaster, radial cell of forewing complete, apical hair fringe short (fig. 137); 3rd segment of antenna twice length of 4, SN 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 = AR 21: 13: 12: 12: 10: 10: 16: 17: 17: 18: 24, club segments 9–13 distinct, black (fig. 135), remainder dark reddish black; pronotal plate large with dense tufts of pubescence either side (fig. 139). ♂ unknown *tomentosa* (Giraud)

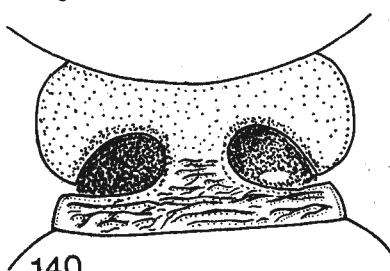


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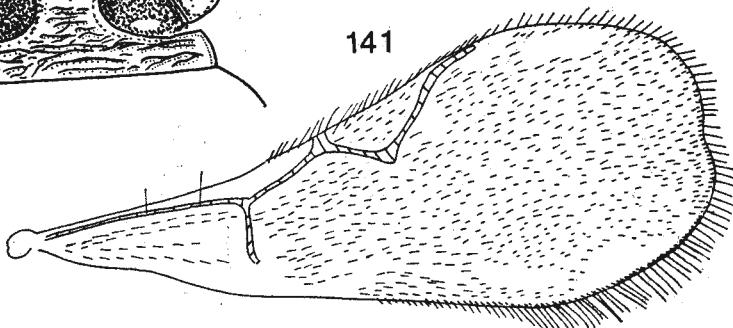
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141



Figs 137–141, *Kleidotoma*. 137, *tomentosa* forewing ♀. 138–140, pronotal plates ♀.
 138, *tetratoma*. 139, *tomentosa*. 140, *longipennis*. 141, *truncata* forewing ♀.

- England: Hertfordshire; Yorkshire.* Host unknown, puparum on *Taraxacum L.* 1♀, in British Museum (Natural History), from starling's stomach. 22
- Wings normal, extending well beyond the end of gaster. 22
- 22 Antennal club abrupt, distinct, flagellar segments 4–8 moniliform, SN 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 = AR 16: 10: 10: 11: 11: 17: 17: 17: 17: 25 (fig. 133); pronotal plate large, the side margins weakly rounded, foveae large and shallow, lower half weakly strigose (fig. 140); pronotum at juncture with mesoscutum with only aberrant sculpture; scutellar disc rounded at apex, margins with widely spaced striations, lateral bars of scutellum shiny, cup long elliptical, lateral bars of scutellum shiny, cup long elliptical, not reaching apical margin of disc (fig. 142); radial cell of forewing elongate, apex of wing arcuate (fig. 86), hair fringe normal, surface of wing with long dense cilia. ♂ unknown *longipennis* Cameron
- England: Warwickshire; Scotland: Lanarkshire; Outer Hebrides.* Host unknown.
- Antennal club not abrupt; SN 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 = AR 17: 11: 11: 11: 12: 11: 14: 17: 25: 32, flagellar segments 4–8 weakly dilated at apex (fig. 145); pronotal plate rounded on side margins (fig. 146); foveae small and deep, the lower half strongly strigose; pronotum at juncture with mesoscutum strongly striate (cf. fig. 122); scutellar disc semi-truncate at base, side margins finely striate, lateral bars of scutellum weakly striate, cup long elliptical almost reaching apical margin of disc (fig. 143); radial cell of forewing elongate, apex of wing weakly arcuate, hair fringe normal, surface of wing with short cilia, not dense. ♂ not described by Cameron, 1♂ labelled *striata* (Cameron specimen) in BMNH *striata* Cameron

England: Hertfordshire; Scotland: Lanarkshire. Host unknown.

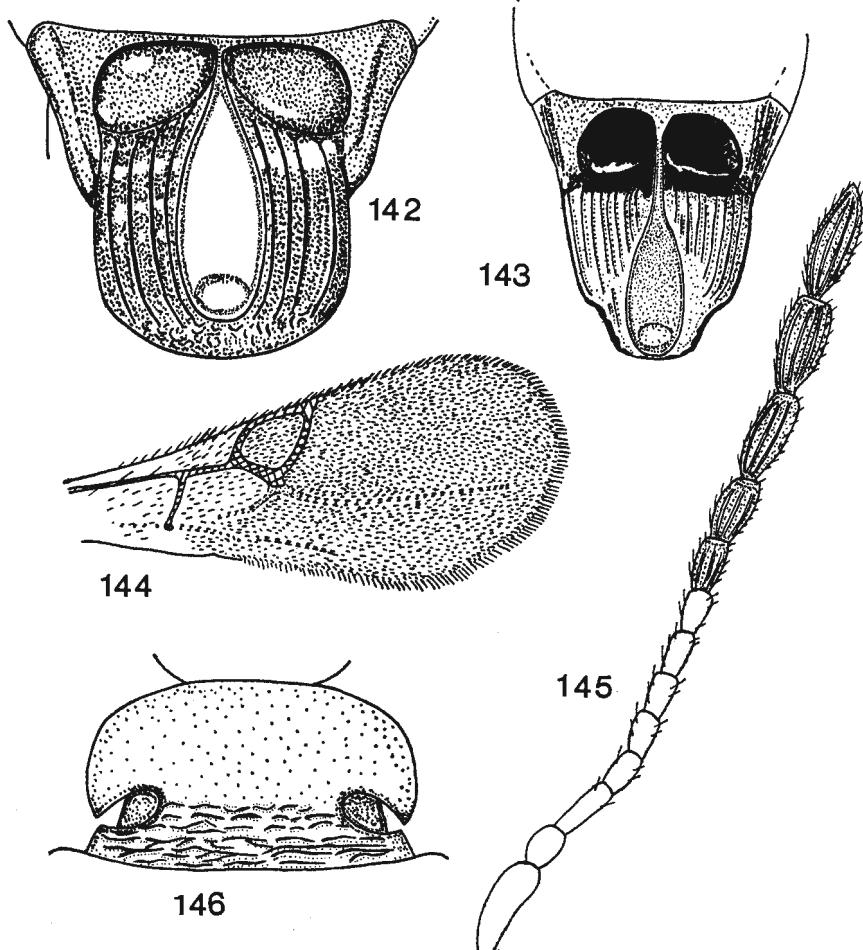
Genus MICROSTILBA Foerster

Microstilba Foerster, 1869: 342. Type-species: *Microstilba bidentata* Foerster, by original designation.

Kieffer (1910: 237) recorded seven European species under *Microstilba* but some are wrongly placed. Hellén (1960: 6) treated *Disorygma* Foerster as a subgenus of *Microstilba*, inadvertently transposing the subgenera with their respective species. Only one species in this genus is known to occur in the British Isles. *Microstilba* is distinguished from *Diglyphosema* Foerster by the almost parallel notaulices and the normal cup not overhanging the disc of the scutellum (fig. 7). At present it is separated from *Disorygma* Foerster by the short closed radial cell and the indistinct notaulices.

Radial cell of forewing completely closed on wing margin, as long as wide, the pigmentation heavy, cubitus distinct, wing surface closely ciliate, hair margins on apex short, wing suffused with smoky tinge (fig. 144); malar space with sub-ocular suture obscured by striate sculpture (fig. 149); ♀ antenna filiform, 3 and 4 sub-equal, 4 shorter than 5, 6 and 7 subequal, 8–12 decreasing gradually in length, all segments longer than broad (fig. 151); ♂ antenna filiform, segment 3 longer than 4, strongly curved on outer margins and swollen at apex (fig. 148); pronotal plate viewed anterodorsally large, not produced forward; pronotum either side of plate pubescent and with crenulate foveolate sculpture; notaulices on mesonotum parallel, not always clearly defined, sometimes with crenulate sculpture; lateral bars of scutellum shiny, abrupt, scutellar foveae deep, disc rugose, rounded posteriorly, cup large, oval with strong transverse carinae, the cup raised above the disc with a large foveae at apex, rim of cup a lighter colour than inside; mesopleura with weak transverse sculpture above and below the mesopleural suture; tergite 1 of gaster, when visible, in the form of a crenulate ring, tergite 2 without a ring of pubescence; antennae, head and thorax black, gaster dark chestnut red, legs with femora dark reddish black, tibiae and tarsi dark brown, the knees yellowish. *heterogena* (Giraud)

England: Buckinghamshire; Kent; Middlesex; Surrey; Yorkshire; Scotland: Dumbartonshire.

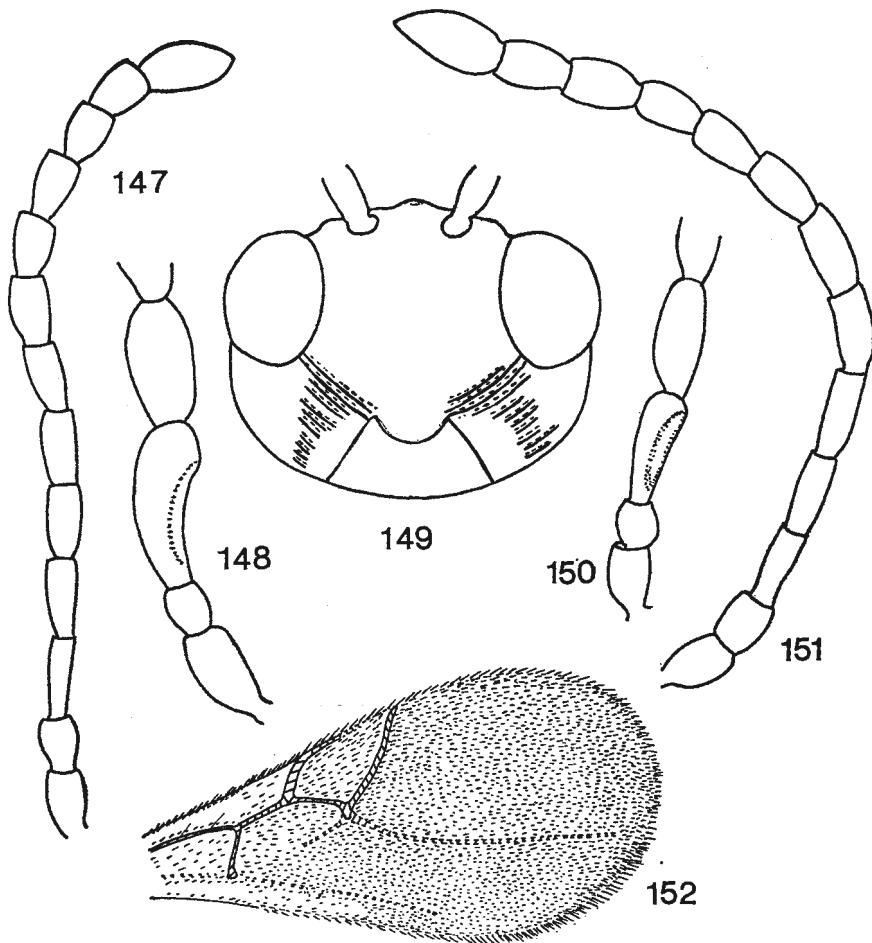


Figs 142–146. 142–143, *Kleidotoma scutellum* ♀. 142, *longipennis*. 143, *striata*. 144, *Microstilba heterogena* forewing ♀. 145, *Kleidotoma striata* antenna ♀. 146, *K. striata* pronotal plate ♀.

Genus PSEUDOPSICHACRA Quinlan

Pseudopsichacra Quinlan, 1976: 67. Type-species: *Glauraspidea sericea* Thomson, 1877: 818, by original designation and monotypy.

Only one species is at present known in this very distinctive genus. Recently (Quinlan, 1976), *sericea* Thomson was shown to be a senior synonym of *Psichacra marshalli* Cameron. Cameron (1883) previously placed *marshalli* in *Psichacra* but it is distinguished from other species in the genus by the sculpture of the mesoscutum and form of the disc which is striate, the cup tapering sharply at base (fig. 18).



Figs 147-152. 147, *Disorygma depile* antenna ♀. 148, *Microstilba heterogena* basal antennal segments ♂. 149, *M. heterogena* malar space ♀. 150, *Disorygma depile* basal antennal segments ♂. 151, *Microstilba heterogena* antenna ♀. 152, *M. depile* forewing ♀.

♀ antenna filiform, SN 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 = AR 19: 17: 20: 19: 17: 15: 16: 14: 15: 15: 19; rhinaria present on segments 7-13 (fig. 153), ♂ antenna filiform, segment 3 weakly swollen at apex and curved on outer margins (fig. 25), segments 4-15 gradually decreasing in length; face elongate, eyes further apart than the height of an eye, inner orbits of eye with longitudinal striations, supra clypeal area bordered with fine striations, back of head striate-aciculate, malar space with subocular suture faintly indicated; pronotal plate large, very distinct, rounded on dorsal margin, with large foveae and dense tufts of pubescence either side (fig. 23); mesoscutum dull, closely and finely granulate with weak longitudinal strigose element, surface semi-matt with silky sheen; lateral bars of scutellum extending past middle of cup, with fine granulate sculpture without trace of striations, scutellar disc striate, rounded behind, cup narrow with thickened margins, the centre concave with a foveae at apex (fig. 18), scutellar foveae deep;

mesopleuron with a dull sheen, mesopleural suture absent; carinae on propodeum bowed with dense tufts of pubescence each side (fig. 157); segment 1 of the gaster in form of small ring or collar, crenulate, usually obscured by a dense woolly ring of pubescence at the base of tergite 2, apex of tergite 2 with fine network of punctures (fig. 154); wings extending beyond apex of gaster, ciliate with apical hair fringe, rounded at apex, radial cell elongate (fig. 21), completely closed on wing margin, cubitus distinct, not reaching margin; legs dull, hind coxae coriaceous, dark yellow; colour of antenna dark yellow in ♀, reddish yellow in ♂, head dark brown, thorax and abdomen chestnut brown, legs yellow

sericea (Thomson)

England: Bedfordshire; Buckinghamshire; Devonshire; Somerset; Surrey. Host unknown.

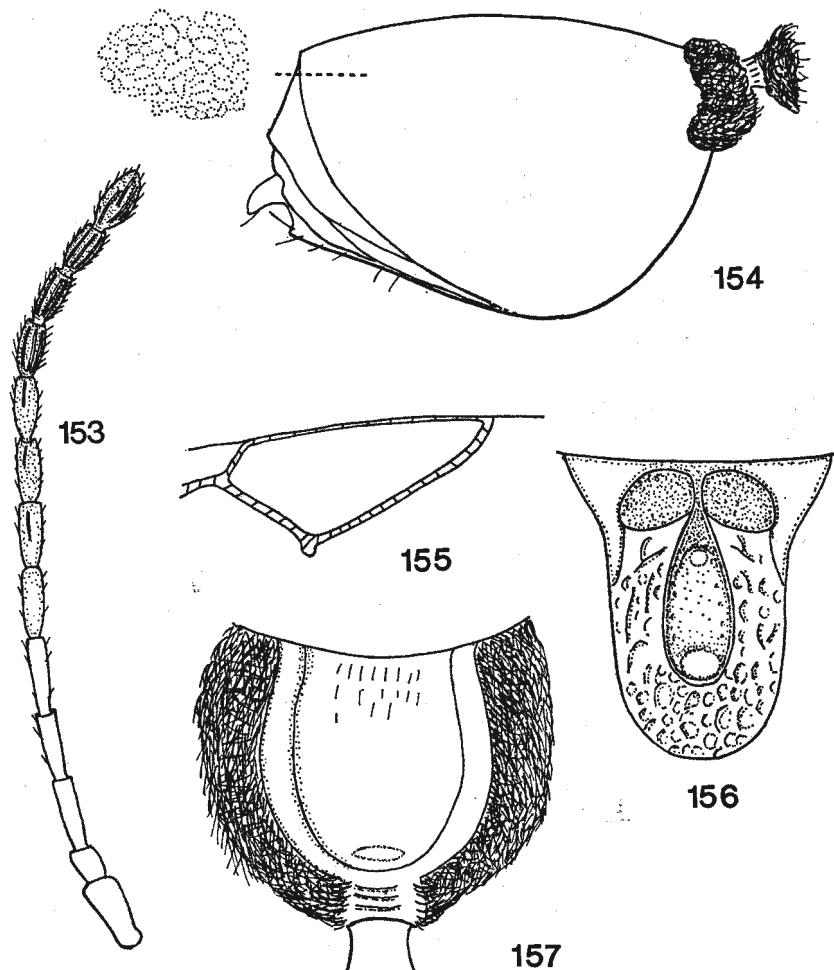


FIG. 153-157. 153, *Pseudopsichacra sericea* antenna ♀. 154, *P. sericea* gaster ♀. 155, *P. sericea* radial cell ♀. 156, *Rhoptromeris eucera* scutellum ♀. 157, *Pseudopsichacra sericea* propodeum ♀.

Genus PSICHACRA Foerster

Psichaora Foerster, 1869: 348. Type-species: *Cothonaspis longicornis* Hartig, 1840: 201, by monotypy.

Only two species in this genus are known from Britain, one is recorded here for the first time. The genus is characterized principally by the dense woolly propodeum and ring at the base of tergite 2 of the gaster.

KEY TO SPECIES

- 1 Mesonotum and front half of pronotum red; ♀ antennal segments 3-5 subequal in length, filiform, the six apical segments with rhinaria present (fig. 163), ♂ antenna filiform, segment 3 equal in length to 4, weakly swollen on outer margin (fig. 161); back of head dull with weak coriaceous sculpture; pronotal plate large, viewed anteriodorsally with dense woolly pubescence either side (fig. 45); side margins of pronotum at juncture with mesoscutum forming a flat rim (fig. 41); mesoscutum smooth and shiny; mesopleuron shiny, suture distinct; lateral bars of scutellum coriaceous, extending past middle of cup, scutellar foveae deep and large, weakly sculptured, cup raised, small and oval with raised marginal rim, disc coarsely irregular reticulate (fig. 41), with one or two long stout setae; carinae of the propodeum bowed, with strong dense woolly pubescence at each side; tergite 1 of gaster weakly crenulate, base of tergite 2 with a dense woolly ring (cf. fig. 154); wings pubescent and ciliate, radial cell elongate, open on front margin (fig. 159); antenna and legs yellow..... *rufula* (Foerster)

England: London; Dorset; Surrey. Host unknown.

- Mesonotum and pronotum black, scutellum reddish; ♀ antenna filiform, segments 3 and 4 subequal, ♂ antenna filiform, segment 3 shorter than 4, weakly swollen (fig. 160); back of head smooth and shiny; pronotal plate large, viewed anterodorsally with dense woolly pubescence either side (fig. 164); lateral margins of pronotum at juncture with mesoscutum forming flat rim; mesoscutum smooth and shiny, mesopleuron shiny, suture distinct; lateral bars of scutellum finely striate, short and broad at base, scutellar foveae large, smooth, cup raised, oval with raised rim on the margins, disc strongly reticulate-rugose without setae on the surface (fig. 162); carinae of propodeum bowed, with strong dense woolly pubescence each side (cf. fig. 157); segment 1 of gaster weakly sculptured, base of tergite 2 with dense woolly ring; wings pubescent and ciliate, radial cell open on front margin, short, triangular (fig. 158); hair fringe short, antenna and legs yellow

longicornis (Hartig)

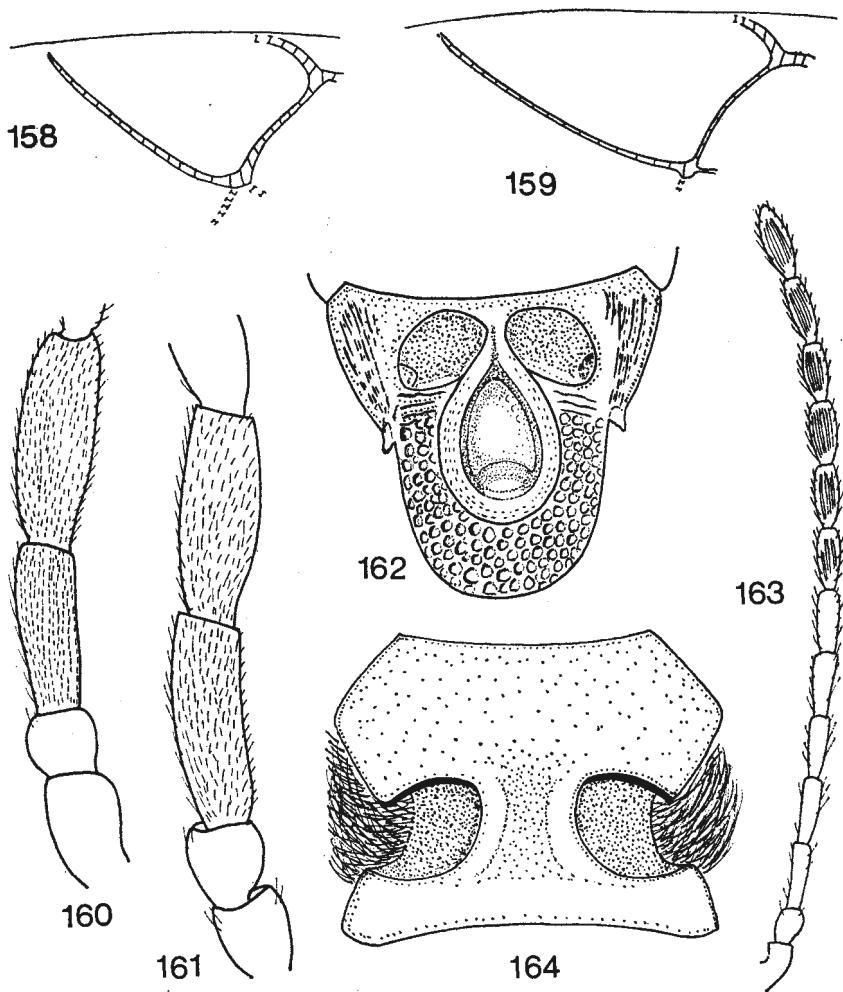
England: Norfolk; Surrey; Ireland: Dublin. Host unknown.

Genus RHOPTROMERIS Foerster

Rhoptromeris Foerster, 1869: 344. Type-species: *Cothonaspis eucera* Hartig, 1841: 357, by original designation.

Rhoptromeris extends through North America and Europe, but only one species occurs in the British Isles. It is separated from related genera by the distinctive radial cell, narrow cup on the scutellum and punctate-smooth scutellar disc. The ♀ antenna are distinguished by having a distinct club which is darker coloured than the basal segments; the ♂ antenna has a distinctive segment 4 which is elongate and weakly bent.

♀ antenna with 7-segmented club darker than basal segments which are yellowish, club segments with rhinaria, 3 longer than 4, (fig. 56), ♂ antenna, SN 3, 4 = AR 18: 38, segment 4 weakly bent curved on outer margin (fig. 54); radial cell of forewing completely closed (fig. 47), cubitus obsolete, weakly indicated by pigmentation basally, wing surface ciliate, apical hair fringe long (fig. 47); eyes viewed frontally further apart than height of eye; pronotal plate reduced; mesonotum smooth with a row of hairs on either side; scutellar disc weakly punctate-reticulate, cup narrow elliptical with apical fovea and smaller foveae



Figs 158-164, *Poichacra*. 158-159, radial cell ♀. 158, *longicornis*. 159, *rufula*. 160-161, basal antennal segments ♂. 160, *longicornis*. 161, *rufula*. 162, *longicornis* scutellum ♀. 163, *rufula* antenna ♀. 164, *longicornis* pronotal plate ♀.

around the margin (fig. 156); scutellar disc round behind, and overhanging propodeum; propodeum with pubescence either side; segment 1 of the gaster visible, crenulate (cf. fig. 6), segment 2 of gaster with a complete hairy ring (visible on dorsal surface); apex of tergite 2 viewed laterally with a band of punctures, ventral spine of ♀ long, with distinct sub-basal hairs, colour, shining black-brown. Legs yellowish brown.....*eucera* (Hartig)

Common throughout Southern England, extends to Northern England and Ireland.
Host: *Oscinella frit* (*Linnaeus*).

Genus TRYBLIOGRAPHA Foerster

Trybliographa Foerster, 1869: 359. Type-species: *Cothonaspis scutellaris* Hartig. 1840: 200, by original designation.

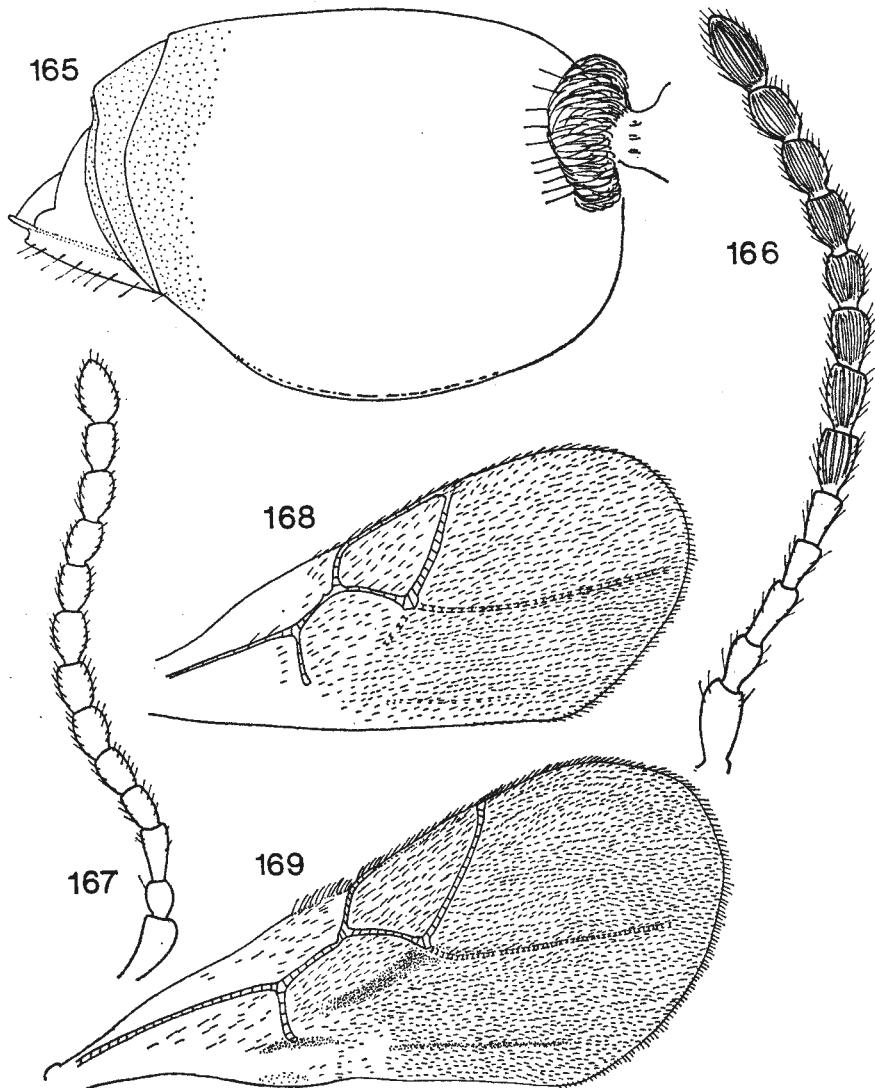
This genus is worldwide in distribution and one of the largest eucoilid genera. It is represented in Britain by 11 species. Most of these species have been recorded in Britain before in other genera or subgenera. Four new synonyms are published here. *Trybliographa* is readily distinguished by the large raised cup which is almost round, its surface depressed in the middle, the large fovea with punctures on each side continued round the rim (fig. 51). According to Weld (1952: 216) the disc in the type-species is punctate, but in specimens in the British Museum (Natural History) collection, which were compared with the type-specimen in 1960, the sculpture of the disc was found to be a mixture of punctate, reticulate and rugose. One of the characters previously used at generic level to separate *Trybliographa* from related genera has been the radial cell being open on the front margin. I have only used this character at the species level. It is particularly difficult to decide whether in some species the radial cell is either open or closed and specimens are best examined for this using transmitted light. In the males the pigmentation of the front margin of the forewing is much stronger and can appear to be closed.

KEY TO SPECIES

- 1 Antenna 13-segmented, with or without a distinct club; hypopygium usually visible (fig. 165) Females (p. 45)
- Antenna 15-segmented, filiform or flagellate, segment 3 or 4 usually elongated, curved or swollen (cf. figs. 196-200) Males (p. 51)

KEY TO FEMALES

- 1 Antenna with either a 8- or 9-segmented club, moniliform, or apical segments forming a very weak club and at most little more than twice as long as broad, rhinaria present on club segments (fig. 166); radial cell open or closed on front margin (figs 169, 168) 2
- Antenna without a distinct club and apical segments at least twice as long as broad and cylindrical; radial cell open or closed on front margin 9
- 2 Radial cell of forewing distinctly closed on front margin, cubitus distinct, aberrant or absent 3
- Radial cell of forewing open or partially closed on the front margin, cubitus distinct, aberrant or absent 5
- 3 Cubitus distinct, pigmented, extending almost to edge of wing (fig. 168), radial cell distinctly closed on front margin of wing, though sometimes weakly pigmented on wing margin; shape of pronotal plate viewed anterodorsally with strigose sculpture on lower half and scattered hairs on upper half (fig. 171), the plate larger on top than bottom with dense pubescence on each side of pronotum; lateral bars of scutellum striate, disc of scutellum rounded posteriorly, reticulate-rugose with foveae, cup raised with concave surface having large foveae at apex and small irregular shaped foveae around the rim of cup, scutellar foveae shallow and weakly sculptured; antenna dark brownish black, the eight apical segments forming a distinct club (fig. 167) and bearing rhinaria; base of tergite 2 of gaster with thick hairy ring, gaster smooth and shiny with only isolated punctures on the apical half *cubitalis* (Hartig)
England: Hampshire; Hertfordshire; Kent; Scotland. Host: Pegohylemyia fugax (Meigen).
- Cubitus generally absent; if present, not extending to edge of wing and very weakly pigmented 4



FIGS 165-169, *Trybliographa*. 165, *rapae* gaster ♀. 166-167, antenna ♀. 166, *rapae*.
167, *cubitalis*. 168-169, forewing ♀. 168, *cubitalis*. 169, *rapae*.

- 4 Antenna predominantly dark red suffused with black, the eight apical segments with rhinaria and forming a distinct club (fig. 170); pronotal plate large (fig. 175); pronotum each side of plate with weak striations; lateral bars of scutellum striate, disc of scutellum reticulate-rugose, rounded posteriorly, cup large with a large fovea on apex, inner margins with smaller foveae round rim of cup; base of

tergite 2 of gaster with dense hairy ring, apex of tergite 2 smooth and shiny, with a few scattered punctures present..... *ciliaris* (Zetterstedt)

England: Buckinghamshire; Hampshire; Herefordshire; Westmorland; Scotland: Banffshire. Host ex *Chirostia parvicornis* (Zetterstedt).

- Antenna completely black without trace of red on basal segments, the eight apical segments bearing rhinaria and forming an indistinct club (fig. 173); pronotal plate large, viewed anterodorsally with strong strigose lower half (cf. fig. 171), upper half smooth and shiny with very few hairs, a dense tuft of pubescence at each side of the plate; lateral margins of the pronotum strongly striate; lateral bars of scutellum striate, disc of scutellum reticulate-rugose, rounded posteriorly, cup ovate, large with light shaded rim, apex with large fovea, inner margins with smaller foveae along edge of rim (cf. fig. 189); tergite 2 of gaster with dense hairy ring at base, apex of tergite 2 viewed laterally with band of fine punctures extending to remaining tergites (cf. fig. 165)..... *scotica* (Cameron)

England: Buckinghamshire; Hampshire; Herefordshire; Surrey; Wales: Dol-gelley; Scotland: Ayrshire; Dumfriesshire Kirkcudbrightshire; Stirlingshire; West Lothian. Host unknown.

- 5 Wings very slightly infuscated in area of junction of cubitus and basal vein (fig. 169), $Rs+M$ pigmented, cubitus of forewing distinct, the pigmentation very weak pale yellow, visible to almost the edge of wing, surface of wing with long scattered cilia; antennal segments 3-13 completely reddish yellow, club 8-segmented (all with rhinaria), 1-2 dark brown-black, antenna slightly longer than head plus thorax, segment 3 longer than 4 (fig. 166); pronotal plate large with strigose sculpture on lower half and with long scattered setae over whole surface (fig. 8); pronotum with dense tuft of hairs on each side of pronotal plate; lateral bars of scutellum rounded posteriorly with strong reticulate-rugose sculpture, cup large (fig. 51); tergite 2 of gaster with dense hairy ring of hairs at base; apex of tergite 2 and remaining visible segments (viewed laterally) with fine punctures varying in density (fig. 165); legs reddish brown to yellow..... *rapae* (Westwood)

Synonyms: *britannica* Kieffer, 1905; *crassicornis* Cameron, 1889; *fortinervis* Cameron, 1889. (Cameron, 1880, misidentified specimens of *rapae* as erythrocera Thomson, 1887.)

Common in British Isles. Host: *Erioschia brassica* Bouché, the cabbage root fly larva.

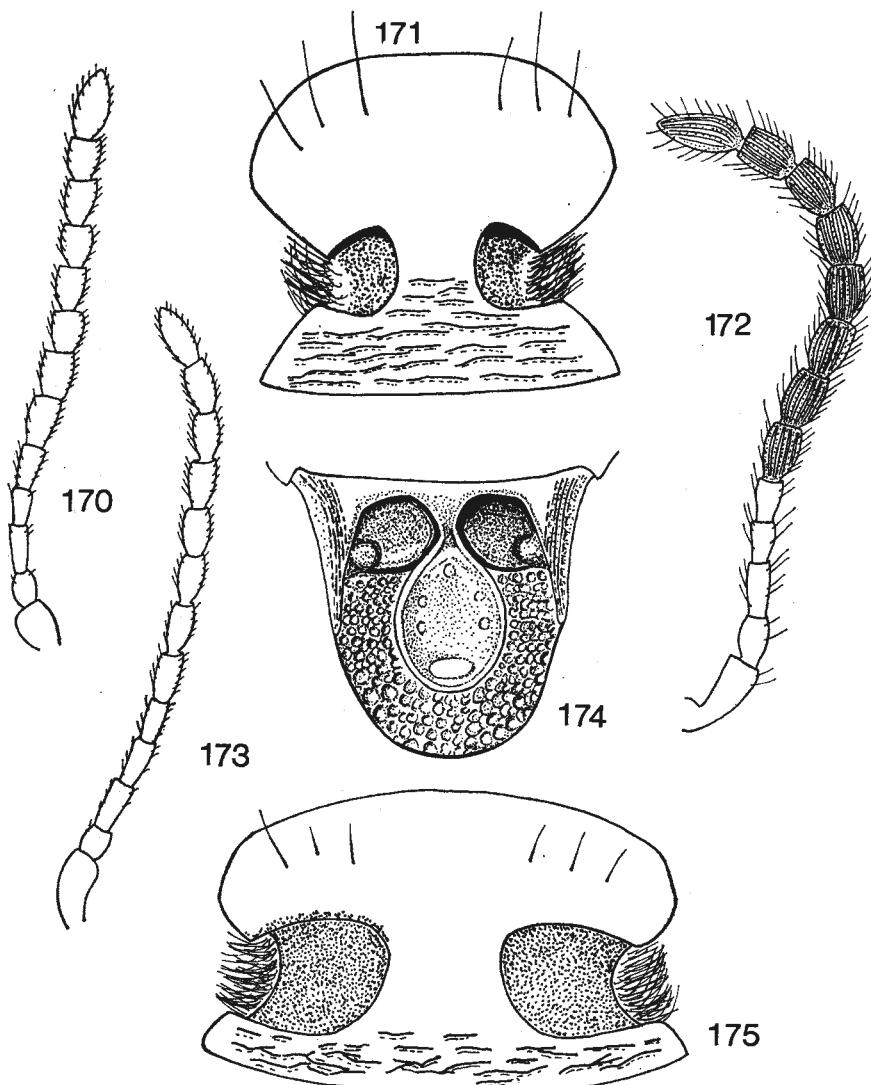
- Wings hyaline, usually without infuscation; cubitus obsolete or faintly indicated but not visible in apical quarter; if wing infuscate $RS+M$ indicated; antennal segments 3-13 never completely reddish yellow, either completely black or segment 1 and apical segments of antenna dark brown to black, segments 2-6 reddish brown to dark yellow; femora either brownish black or reddish yellow; lateral bars of scutellum smooth or striate, disc of scutellum rounded posteriorly, finely reticulate-rugose (fig. 174)..... 6
- 6 Antennal segments 3 and 4 subequal (fig. 180), club 8-segmented, brownish black; pronotal plate large (cf. fig. 171), lower half rugose, upper half smooth with scattered hairs, pronotum with tufts of pubescence on each side of plate; sides of pronotum smooth at juncture with mesoscutum; lateral bars of scutellum strongly striate, scutellar disc rounded posteriorly with reticulate-rugose sculpture (fig. 174); cubitus obsolete, sometimes faintly indicated but absent in the apical quarter; apex of tergite 2 and visible following segments with very sparse scattered punctures, sometimes completely absent; mid and hind femora dark brownish basally..... *atra* (Hartig)

England: Devonshire; Dorset; Lancashire; Yorkshire; Ireland: Dublin. Host unknown.

- Antennal segment 3 distinctly longer than 4 (fig. 179), antenna variable in colour from black to brown to yellowish brown, femora reddish yellow or blackish..... 7

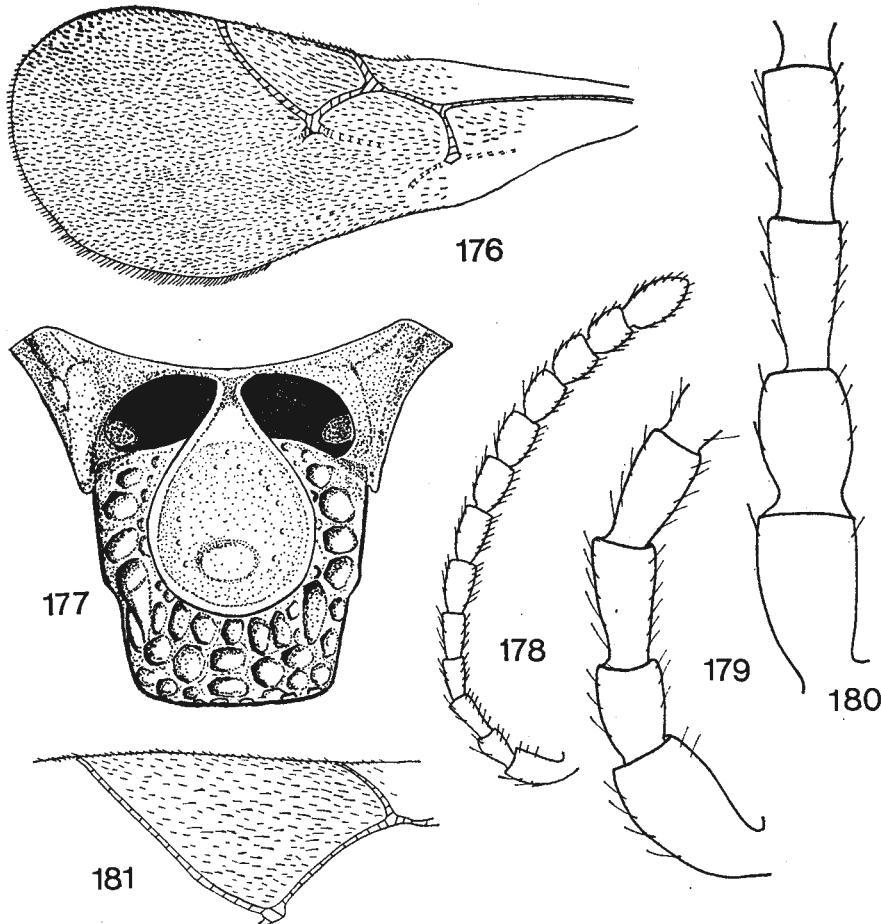
- 7 Radial cell completely open on the front margin (fig. 181), cubitus obsolete or very weakly pigmented, extending almost to margin of wing; scutellar disc weakly rounded posteriorly, almost quadrate, its surface with large reticulate-rugose sculpture with longitudinal strigose sculpture on lateral margins, lateral bars of scutellum shiny (fig. 177); antennal segments 1 and 2 blackish, remainder dark yellowish brown, antenna with distinct 8-segmented club (fig. 178), the club segments sub-cylindrical; femora black

(syn: *spaniandra* Kerrich & Quinlan) *albipennis* Thomson



Figs 170-175, *Trybliographa*. 170, *ciliaris* antenna ♀. 171, *cubitalis* pronotal plate ♀. 172-173, antenna ♀. 172, *diaphana*. 173, *scotica*. 174, *atra* scutellum ♀. 175, *ciliaris* pronotal plate ♀.

- England: Hertfordshire. Host: ex Pegomya nigritarsis (Zetterstedt) on Rumex obtusifolius, ex Delia coarctata (Fallén).*
- Radial cell partially closed on front margin of wing (fig. 176), cubitus either weakly pigmented or obsolete; scutellar disc rounded posteriorly, surface more finely reticulate-rugose, lateral bars of scutellum striate; apex of tergite 2 of gaster, viewed laterally, with distinct band of punctures extending to remaining visible tergites; femora reddish yellow..... 8

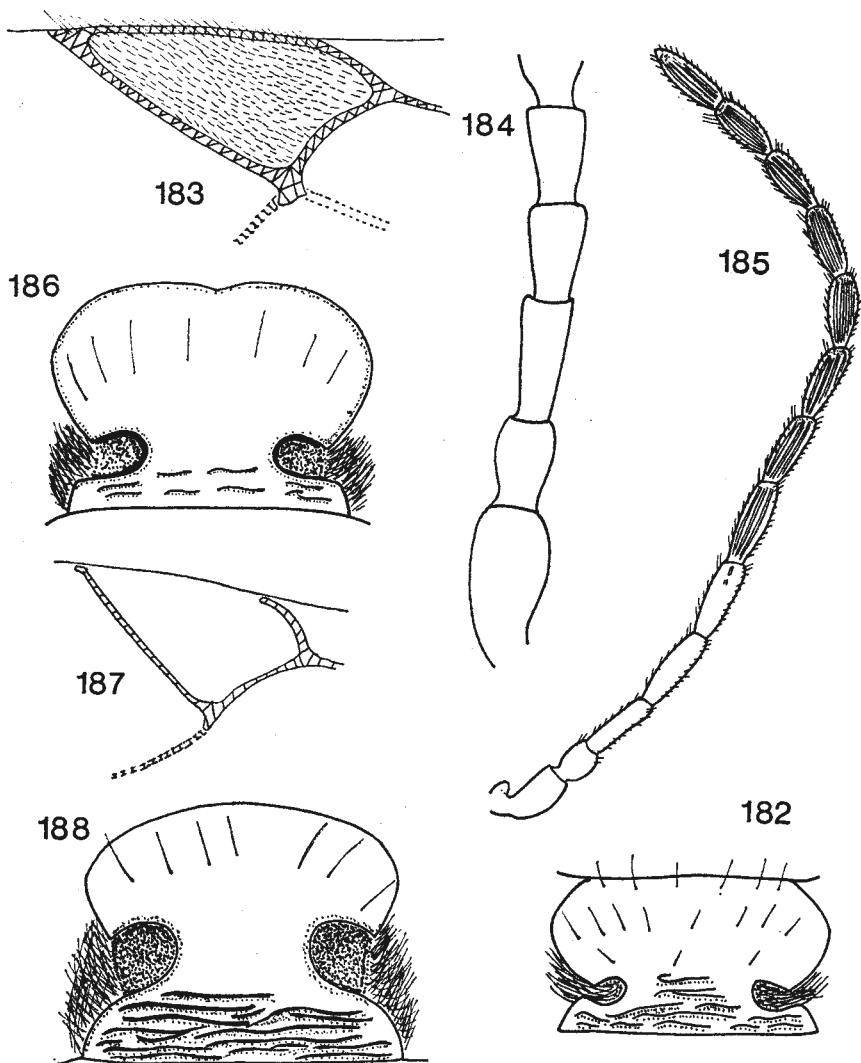


Figs 176-181, *Trybliographa*. 176, *diaphana* forewing ♀. 177, *albipennis* scutellum ♀. 178, *albipennis* antenna ♀. 179-180, basal antennal segments ♀. 179, *albipennis*. 180, *atra*. 181, *albipennis* radial cell ♀.

- 8 Cubitus obsolete, only weakly indicated, not pigmented, radial cell partially open on front margin (fig. 176) (Rs₂ three times length of R₁, giving an elongate appearance); lateral bars of scutellum conspicuously striate on dorsal and lateral surfaces; scutellar disc regularly reticulate-rugose on apical margins (cf. fig. 174); pronotal plate with strigose sculpture on bottom half, top half shiny, foveae small (fig. 182); apex of tergite 2 with only sparse scattered punctures, tergites 3, 4 and 5, when visible, with sparse punctures; antenna dark brown to black, the eight club segments of antenna bearing rhinaria and sharply distinct, segment 3 almost 1.5 times length of 4 (fig. 172)..... *diaphana* (Hartig)
England: Scotland: Wales. Host: ex Delia platura (Meigen) = Chortophila cilicrura (Rondani).
- Cubitus distinct, weakly pigmented, radial cell not appearing elongate (Rs₂ almost four times length of R₁) (fig. 187); lateral bars of scutellum shiny on dorsal surface, striate laterally, scutellar disc reticulate-rugose; pronotal plate with

strong strigose sculpture on bottom half, top half shiny (fig. 188), foveae large; apical third of tergite 2 and whole of tergites 3, 4 and 5 with dense punctures (cf. fig. 165); antennal segments 1 and 2 dark brown, flagellar segments 3 to 5 dark reddish yellow, the eight club segments of antenna bearing rhinaria, dark brown to black, elongate moniliform, segment 3 distinctly less than 1.5 length of 4 (fig. 184) *scutellaris* (Hartig)

England: Scotland. Host unknown.



Figs 182-188, *Trybliographa*. 182, *diaphana* pronotal plate ♀. 183, *gracilicornis* radial cell. 184, *scutellaris* basal antennal segments ♀. 185, *gracilicornis* antenna ♀. 186, *gracilicornis* pronotal plate ♀. 187, *scutellaris* radial cell ♀. 188, *scutellaris* pronotal plate ♀.

- 9 Radial cell distinctly and completely closed on front margin and pigmented (fig. 183) (Rs2 twice length of R1); cubitus distinct, pigmented, extending almost to apex of wing; antennal segments 3 to 13 each more than twice as long as broad (fig. 185), 1 and sometimes 2 blackish, 3 shorter than 4, 3-13 yellowish red; pronotal plate large, foveae small (fig. 186); lateral bars of scutellum strongly and coarsely striate, scutellar disc with coarse reticulate-rugose sculpture on lower margins, more regular around margin of cup, cup large and concave with large apical fovea and a ring of small foveae around rim of cup (fig. 189); apex of tergite 2 of gaster and apical visible tergites (viewed laterally) with dense punctures (of. fig. 165) *gracilicornis* (Cameron)

England, Scotland, Wales. Host: ex *Pegomya nigritarsis* (Zetterstedt).

- Radial cell partly open on front margin, Rs2 at least 3 times length of R1 (figs 203, 191); segment 3 of antenna fractionally longer than 4, SN 3, 4 = AR 32, 30 . . . 10
- 10 Antenna deep yellowish red; legs completely deep yellowish red; coxae deep orange-yellow, femora, tibia and tarsi entirely orange-yellow; tergite 2 of gaster (viewed dorsally) chestnut red, apically reddish orange; pronotal plate shape as in fig. 190, with weak strigose sculpture on lower half and reticulate sculpture on outer margins, foveae small; cubitus weakly pigmented, extending two-thirds of way towards apex *mandibularis* (Zetterstedt)

England: Herefordshire; Kent; Scotland. Ayrshire; Lanarkshire. Host unknown.

- Antennal segments dark brownish black, 2 to 4 reddish, remaining segments becoming gradually darker to almost black on the 13; coxae blackish brown, femora yellowish tinged with brown, tibia and tarsi pale yellow; gaster dark chestnut brown with a few scattered aciculations on the middle and basal parts of tergite 2; pronotal plate shape as in fig. 192, with strong rugose sculpture on the middle lower half and sparse reticulate sculpture on outer margins, foveae large; cubitus of forewing extending to at most the middle of wing, weakly pigmented

glottiana Cameron

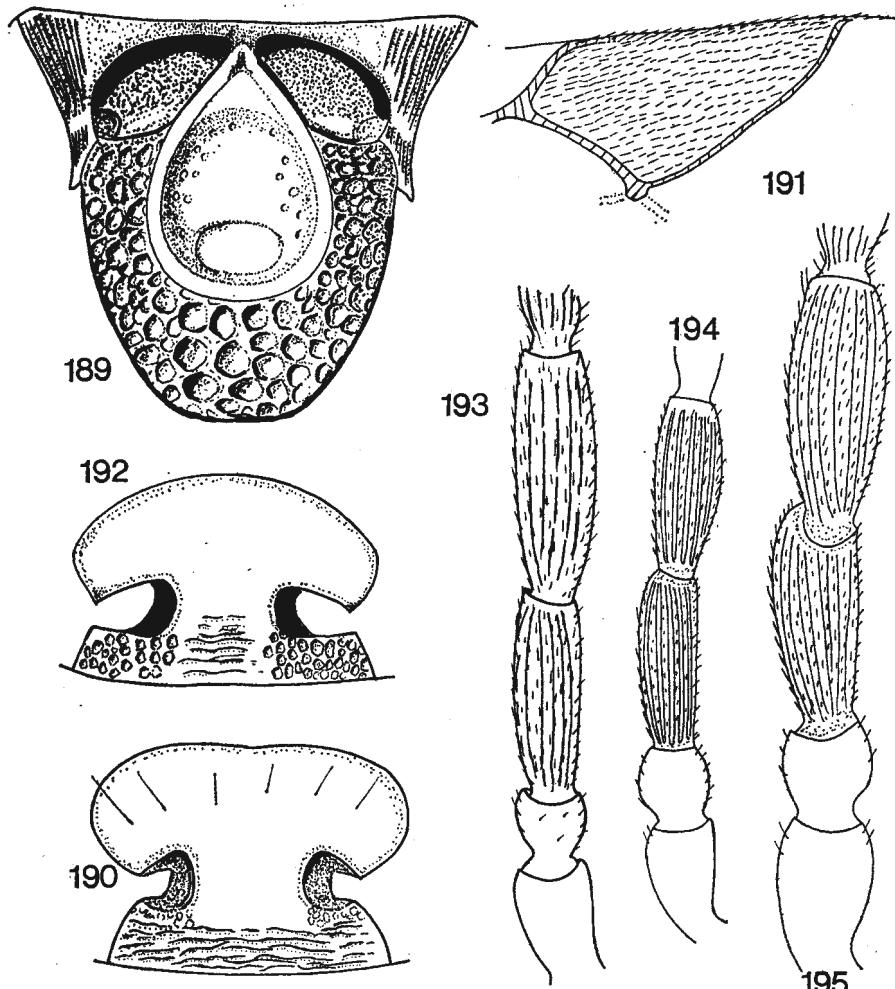
England: Devonshire; Herefordshire; Scotland: Lanarkshire. Host unknown.

KEY TO MALES

The main differences between species are in the form and colour of the antenna and in the radial cell. Two species *ciliaris* (Zetterstedt) and *cubitalis* (Hartig) are omitted from the key and at present cannot be identified easily. (Cameron (1890), Kieffer (1910) and Hellén (1960) refer to these species.)

- 1 Antenna bright reddish yellow, at most the two basal segments tinged with brownish black; radial cell open or closed on front margin of forewing 2
- Antenna blackish brown, sometimes pale brown, never reddish yellow; radial cell open or closed on front margin of forewing 4
- 2 Radial cell distinctly closed on front margin (Rs2 twice length of R1) (of. fig. 183); cubitus distinct, extending almost to edge of wing; antennal segment 3 shorter than 4, SN 3, 4 = AR 50, 63 (fig. 193) *gracilicornis* (Cameron)
- Radial cell open on front margin of forewing (fig. 203), cubitus obsolete or extending almost to edge of forewing 3
- 3 Cubitus pigmented, extending almost to wing margin; antennal segment 3 shorter (fig. 195) than 4, SN 3, 4 = AR 50, 70, segment 4 weakly swollen
- *mandibularis* (Zetterstedt)
- Cubitus obsolete or barely visible, segments 3 and 4 of antenna equal in length, 4 strongly swollen on outer margins (fig. 194) *glottiana* (Cameron)
- 4 Radial cell partially open on front margin of forewing; segment 3 of antenna equal to or fractionally shorter than 4 (fig. 196) 5
- Radial cell distinctly closed on front margin of forewing; segment 3 of antenna slightly longer than 4 (fig. 199) 9
- 5 Segment 4 of antenna swollen on outer margins (fig. 196); radial cell partially closed on front margin of forewing (fig. 189) 6
- Segment 4 of antenna not swollen, cylindrical (fig. 200), basal segments sub-cylindrical, segment 3 shorter than 4; radial cell open along entire length of front margin, cubitus obsolete (fig. 181); pronotal plate large (fig. 204); lateral bars of scutellum smooth and shiny, scutellar disc longitudinally strigose-reticulate, apex

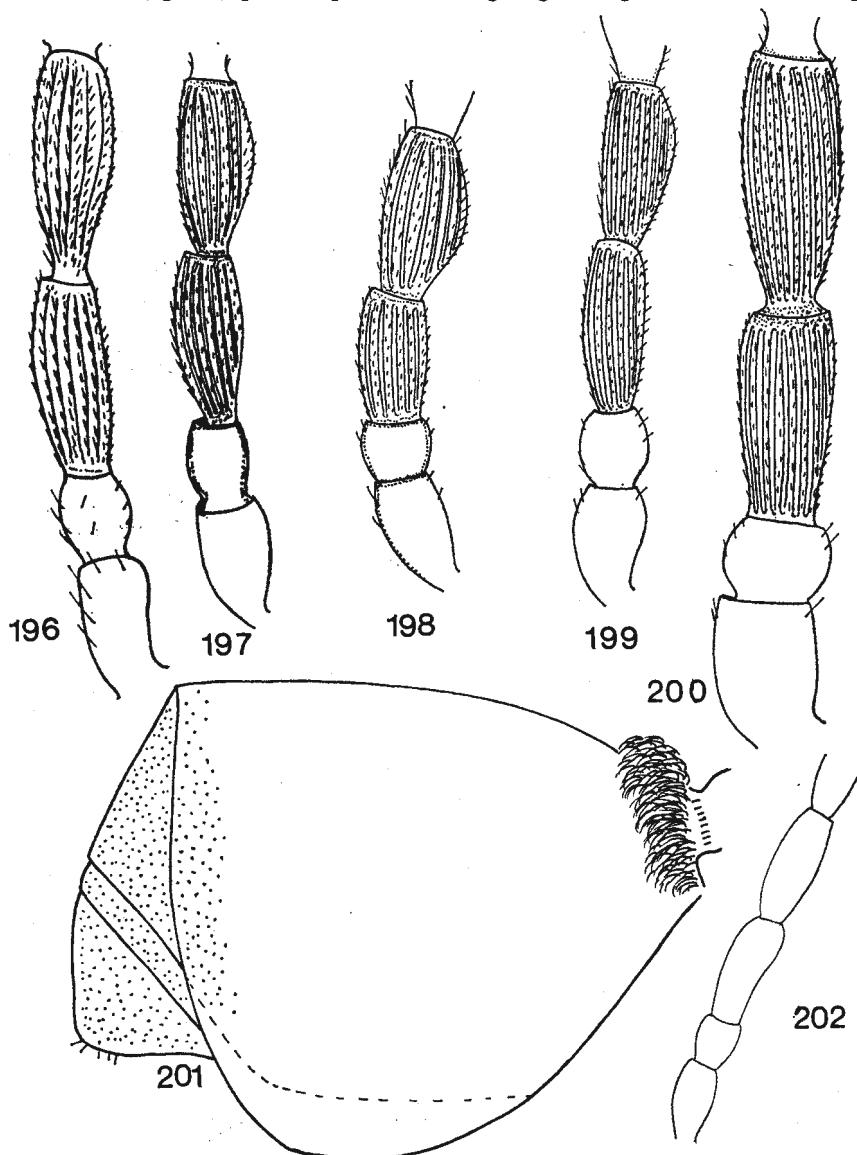
- rounded posteriorly, cup oval, concave with large fovea at apex and small foveae around rim (fig. 177);..... *albipennis* (Thomson)
- 6 Cubitus pigmented and extending almost to apex of wing margin, veins $Rs+M$ indicated (fig. 169), forewing sometimes infuscated..... 7
- Cubitus obsolete, visible at most in first quarter of forewing (fig. 176), veins $Rs+M$ not indicated, forewing not infuscated..... 8
- 7 Forewing weakly infuscated; segment 3 of antenna slightly curved and segment 4 strongly swollen on outer margin (fig. 196); pronotal plate viewed anterodorsally sculptured (fig. 8); mesonotum with lateral lines indicated posteriorly; lateral bars of scutellum generally shiny in dorsal aspect, weakly striate laterally,



Figs 189-195, *Trybliographa*. 189, *gracilicornis* scutellum ♀. 190, *mandibularis* pronotal plate ♀. 191, *glottiana* radial cell ♀. 192, *glottiana* pronotal plate. 193-195, basal antennal segments ♂. 193, *gracilicornis*. 194, *glottiana*. 195, *mandibularis*.

scutellar disc strongly reticulate-rugose, cup broadly elliptical, concave with larger fovea at apex (fig. 51); apex of tergite 2 of gaster with a fine band of punctures
rapae (Westwood)

- Forewing hyaline; segment 3 of antenna distinctly curved, segment 4 only slightly swollen (fig. 202); pronotal plate with strong strigose sculpture on bottom half, top

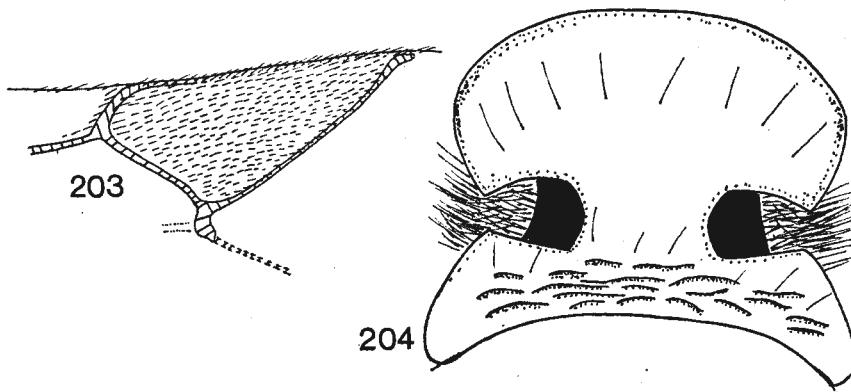


FIGS 196-202, *Trybliographa*. 196-200, basal antennal segments ♂. 196, *rapae*. 197, *diaphana*. 198, *atra*. 199, *scotica*. 200, *albipennis*. 201, *diaphana* gaster ♀. 202, *scutellaris* antenna ♂.

half polished (fig. 188) foveae large; scutellar disc reticulate-rugose; apical 3rd of tergite 2 and whole of tergites 3, 4 and 5 with dense punctures (cf. fig. 201)

scutellaris (Hartig)

- 8 Segment 3 of antenna distinctly shorter than 4 which is strongly swollen on outer margin (fig. 198); pronotal plate sculptured on lower half (cf. fig. 182); lateral bars of scutellum strongly sculptured on lateral margins, scutellar disc reticulate-



FIGS 203-204. 203, *Trybliographa mandibularis* radial cell ♀. 204, *T. albipennis* pronotal plate ♀.

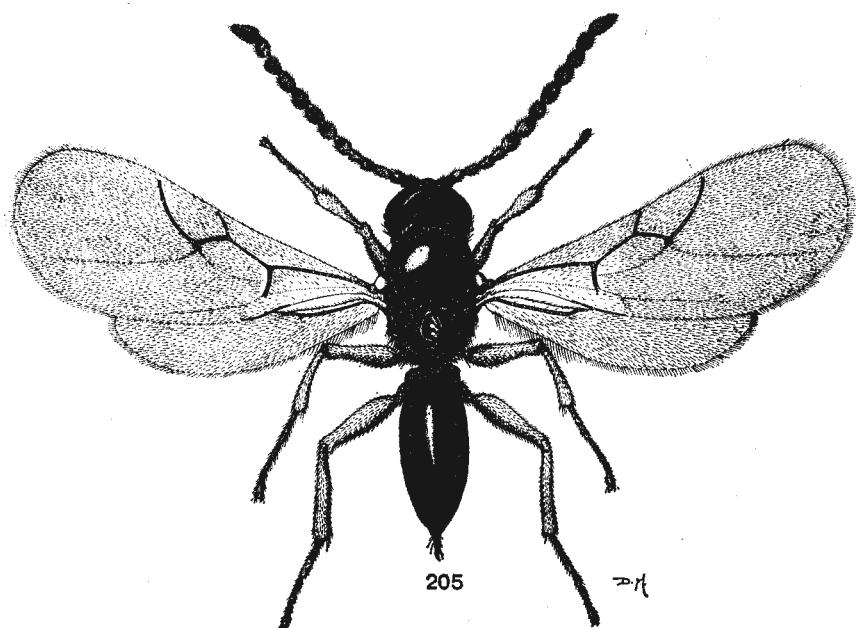


FIG. 205, *Trybliographa rapae* ♀.

- rugose, cup almost round, concave in centre with large fovea at apex and small foveae around the margin (fig. 174); pronotal plate sculptured on lower half (cf. fig. 182); apex of tergite 2 with only sparse scattered punctures; legs reddish brown atra (Hartig)
- Segments 3 and 4 of antenna subequal, segment 4 swollen on outer margin (fig. 197); pronotal plate with weak strigose sculpture on lower half, foveae small (fig. 182); lateral bars of scutellum striate on dorsal and lateral surfaces (cf. fig. 174), scutellar disc reticulate-rugose, cup round, concave in centre with large fovea at apex and small foveae along the margin; apex of tergite 2 of gaster (viewed laterally) with sparse scattered punctures, remaining visible segments with regular punctures (fig. 201); legs yellowish diaphana (Hartig)
- 9 Radial cell distinctly closed on front margin (cf. fig. 168), cubitus obsolescent, if pigmented not extending beyond middle of wing; segment 3 of antenna longer than 4 which is strongly swollen on outer margin, SN 3, 4 = AR 46, 43 (fig. 199); lateral bars of scutellum striate, disc finely reticulate-rugose (cf. fig. 189), cup broad concave, with large foveae at apex; apex of tergite 2 of gaster (viewed laterally) with band of punctures extending to remaining visible tergites (cf. fig. 201)
scotica (Cameron)

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