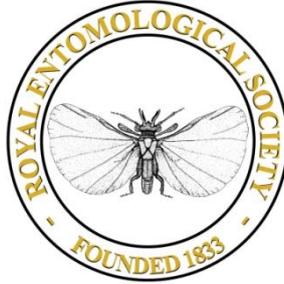


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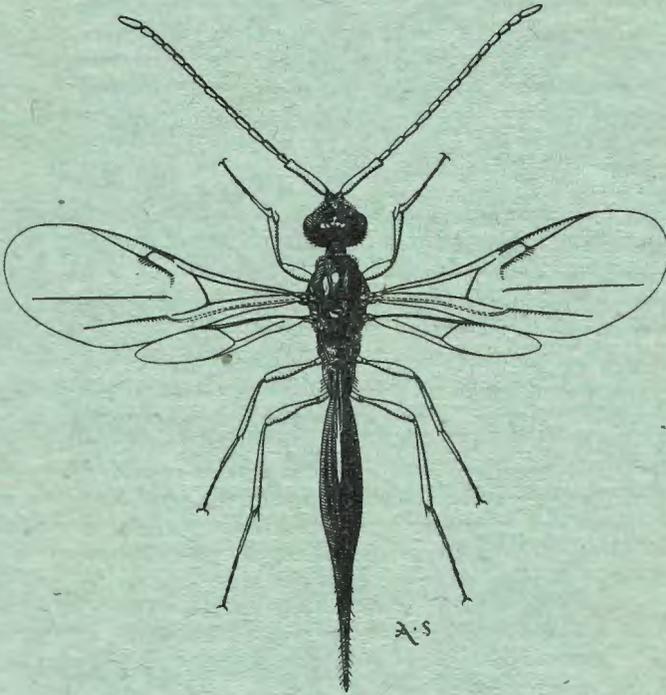
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ROYAL ENTOMOLOGICAL
SOCIETY OF LONDON

Vol. VIII. Part 3 (dii).

HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS



HYMENOPTERA
PROCTOTRUPOIDEA
DIAPRIIDAE subfamily BELYTINAE

By

G. E. J. NIXON.

LONDON

Published by the Society
and Sold at its Rooms
41, Queen's Gate, S.W. 7

31st December, 1957

Price 20s. od.

HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS

The aim of this series of publications is to provide illustrated keys to the whole of the British Insects (in so far as this is possible), in ten volumes, as follows :

- | | |
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Orthoptera. | " 13. Mecoptera. |
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The Society is indebted to the Royal Society for a grant towards the cost of initiating this series of *Handbooks*.

A list of parts now available appears on the back cover

HYMENOPTERA
PROCTOTRUPOIDEA.

DIAPRIIDAE, Subfamily BELYTINAE.

By G. E. J. NIXON.

INTRODUCTION.

THE Diapriidae, as interpreted by Kieffer in *Das Tierreich*, *Diapriidae* (1916), are divided into two subfamilies, the Diapriinae and the Belytinae. These have been accorded family rank by some authors but Muesebeck and Walkley, whose nomenclature as set out in the *Synoptic catalogue of the Hymenoptera of America N. of Mexico* (1951) has, in the main, been followed, prefer to retain the lower status for them.

This *Handbook* sets a precedent in that it covers rather more than the British fauna and also includes new genera and species. The reason for this was in part a serious lack of British material, offset on the other hand by the availability in the British Museum of a magnificent collection from South Sweden. Comprising some 5000 specimens of Belytinae, this collection was made by Mr. and Mrs. J. F. Perkins in 1938. It proved indispensable to a study of the British fauna and not to have worked it out as a whole would have been, in my opinion, a serious mistake. It therefore became the basis of this synopsis, giving it a wider scope than was originally intended without, it is hoped, diminishing its usefulness to British entomologists.

The descriptions of new species appear in the keys but new genera are described separately. With regard to the new species, every structural feature that I believe to be important has been mentioned either in the framework of the key itself or within brackets immediately in association with each new name:

The keys are original and based only on specimens that I have personally examined. They cannot be expected to lead to positive results unless used in conjunction with the figures.

In the keys the names of species not recorded from Britain are printed in a distinguishing type.

TERMINOLOGY.

The nomenclature of the wing venation is that used by Kieffer in his monograph on the Diapriidae and can be understood by reference to figure

107. The whole of the abdomen posterior to the propodeum is called the gaster (see Richards: *Handbook for the Identification of British Insects Hymenoptera*, 6 (1): 39); its first dorsal and first ventral segments are together modified to form a narrow, stalk-like waist, referred to throughout as the petiole. The petiole is always followed by a very large segment which, since it stands out on size alone, is referred to as the "large tergite". In its simplest form, the gaster of both male and female is composed of eight visible tergites, the dorsum of the petiole being counted as tergite 1.

The term "epomia" has not been used, as far as I am aware, in the taxonomy of the Proctotrupeidae. It is applied to a longitudinal ridge at the side of the pronotum right in front and separates the side of the pronotum from the dorsal surface or collar (fig. 4). Another character that is being used here for the first time is the narrow, flange-like projection at the anterior margin of the mesoscutum in front of the lateral lobe. I have found it to be useful in separating groups of species in the genus *Aclista* (formerly *Xenotoma* s.l.).

The antenna is regarded as being made up of three parts, namely, a basal scape, a clearly differentiated pedicel and a flagellum.

The genitalia of the male appear to offer valuable characters and would certainly repay closer investigation. In this *Handbook* their value as a means of separating species has been explored only in the genera *Belyta* and *Zygota*. Figures 303-314 are given only to show the range of structure that can be expected within the subfamily.

BIOLOGY.

Little is known about the hosts of the Belytinae, though it is probable that they are mostly parasites of Diptera, a few species having been bred from Mycetophilidae in rotting fungi. There is one notable exception: *Ismarus*—a genus sufficiently aberrant to be worthy of tribal rank—has been bred as a hyperparasite from the cocoons of Dryinidae, themselves primary parasites of plant bugs (Homoptera).

Species of Belytinae are obtained easily by sweeping and they should be sought where vegetation is lush and varied. Woodlands where there is always an abundance of damp, decaying plant tissue seem to suit these small parasites best.

ACKNOWLEDGMENTS.

To Mr. A. W. Stelfox, in particular, I am deeply indebted not only for the loan of a large and extremely rich collection of Irish and Scottish Belytinae, but also for the patience with which he has allowed me for many years to keep and study his collections. To Dr. Anton Jansson of Orebrö, Sweden, I am grateful for the prompt and generous way in which he has responded to all my requests for the loan of specimens. With his help and knowledge I have been able to settle the identity of many of Thomson's species. Dr. René Malaise of the Riksmuseum, Stockholm, earns my very special thanks for arranging the loan of certain of Thomson's types. I am grateful also to Mr. J. F. Perkins of the British Museum (Nat. Hist.) for help with difficult points of nomenclature and for advice and encouragement at all times.

Others who have helped me and receive my thanks are : Mr. V. H. Chambers, Mr. W. Daltry, Monsieur C. Granger, Dr. B. Petersen, Professor G. C. Varley and Dr. C. Ferrière.

TYPES.

The types of all new species are in the British Museum (Nat. Hist.) except where otherwise stated. All species that I have recognized from an examination of the types are marked with an asterisk.

Family DIAPRIIDAE (NW. European only).

- 1 Antenna of female with 14-15 segments, but nearly always with 15; rarely with 12 segments (*Synacra*) and then the gaster with 4 ring segments after the large tergite and a seventh and eighth beyond them, though these last 2 may hardly show a dividing suture; antenna of male with 14 segments, the third (first flagellar) almost always emarginate; only in *Ismarus* the fourth instead of the third antennal segment modified, but this genus has the venation more or less typical of the subfamily (fig. 117). (Notaulices deeply impressed and complete except in *Synacra* (part), *Anommatium* and *Ismarus*; hind wing with a closed basal cell except in *Synacra* (cf. fig. 1)).....subfamily BELYTINAE
- Antenna of female with 11-13 segments, usually 12-13; when 12 are present, then either 3 ring segments after the large tergite (*Diapria* and related genera), or the frons ornamented with projections (*Galesus*), or the distal end of the subcostalis widely separated from the edge of the wing and the scutellar hollow (apterous forms) more or less bipartite (*Aneurhynchus*); antenna of male with 13-14 segments, the fourth (second flagellar), never the third, almost always sexually modified. (Hind wing without a closed basal cell)
 subfamily DIAPRIINAE
 (Not treated in this work).

Subfamily BELYTINAE.

KEY TO GENERA.

(Females).

- 1 Micropterous species 2
- Macropterous species.....7
- 2 Notaulices wanting; antenna with 14 segments; apical segment of hind tarsus nearly as long as the 3 preceding segments together and with a long, powerful claw (fig. 57). (Entire body fulvous yellow; eyes very small, clothed with a few long hairs; flagellum much thickened towards apex, becoming more yellow apically, with the large, globose, apical segment the yellowest; apex of gaster clothed with very long, sparse, hairs; 2 apical segments together forming a narrow, polished triangle with no clear line of separation between them)
Anommatium Förster (p. 12)
- Notaulices present; antenna with 12 or 15 segments; apical segment of hind tarsus shorter than the preceding 2 segments together and with claw of unexaggerated form3
- 3 Antenna with 12 segments.....*Synacra* Förster (p. 13)
- Antenna with 15 segments.....4
- 4 Seventh tergite clearly separated from the eighth, slightly transverse, or at least not longer than its basal width and thickly to densely hairy; seventh and eighth tergites together not at all compressed laterally, the eighth sometimes extremely small; epomia distinct more or less from front coxa to tip of pronotal shoulder..5
- Seventh tergite not clearly separated from the eighth and forming with it a long, very narrow triangle which is polished and at most very sparsely hairy; seventh and eighth tergites together strongly laterally compressed; epomia less well developed and defined only at the pronotal collar.....6
- 5 Propodeal keel forked; petiole very obviously longer than wide at apex; head, from above, conspicuously nasiform or scutellar fovea reniform or subreniform
Belyta Jurine (p. 30)

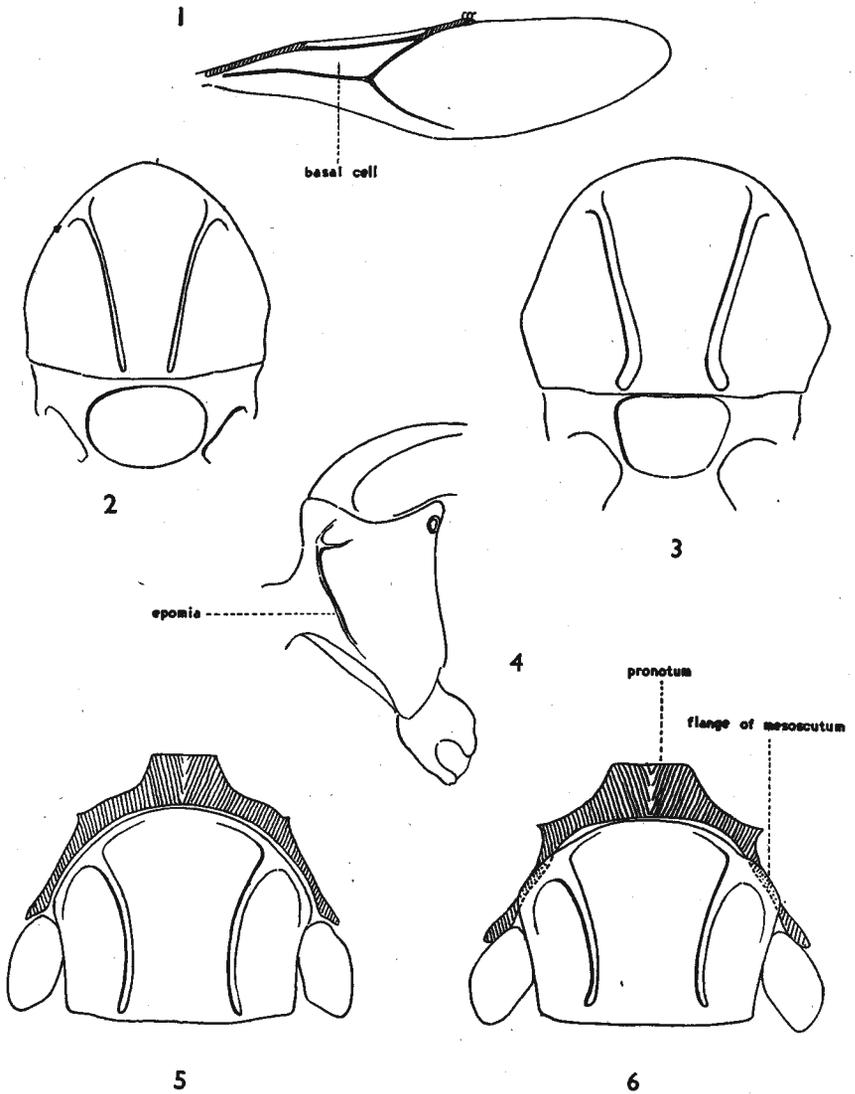


FIG. 1.—Hind wing of *Pantoclis striola* (Thomson).

FIGS. 2-3.—Mesoscutum of: 2, *Leptorhaptus politus* (Thomson); 3, *Cinctus fuliginosus* Curtis.

FIG. 4.—Pronotum, from side, and to show epomia, of *Pantoclis similis* (Thomson).

FIGS. 5-6.—Mesoscutum of: 5, *Aclista boops* (Thomson); 6, *Aclista striolata* (Kieffer).

- Propodeal keel not forked; petiole not or hardly longer than its apical width; head, from above, never conspicuously nasiform nor scutellar fovea in the least reniform. (Epomia (cf. fig. 4) more sharply developed than in *Belyta* with gaster much wider in proportion to the width of the thorax)..... *Zygota* Förster (p. 54)
- 6 In profile, lower side of gaster very slightly upcurved towards apex; rims of antennal sockets raised and free with a deep cleft between them
Acroplesta Förster (part) (p. 24)
 - In profile, lower side of gaster slightly downcurved towards apex, and here somewhat beak-like; rims of antennal sockets neither raised nor free and hence no cleft between them. (Very small species, not surpassing 2.2 mm.)
Pantolyta Förster (p. 17)
- 7 Notaulices wanting; head strongly transverse; antennae not inserted on a frontal prominence, the sockets opening forwards, not upwards and close to clypeus (fig. 58); scutellum posteriorly raised high above the level of the postscutellum and, except anteriorly, margined more or less distinctly (throughout (fig. 56). (Radial cell short, closed; marginalis fully as long as its distance from the basalis; hind tibia thickened and abruptly narrowed at base; only 5 clearly defined segments beyond large tergite, the eighth being hidden beneath the large seventh)
Ismarus Haliday (p. 11)
 - Notaulices distinct throughout (except in *Synacra*); antennae inserted on a frontal prominence, the sockets opening upwards; scutellum often domed but never raised posteriorly above the level of the postscutellum and never with the semi-circular margin characteristic of *Ismarus*..... 8
- 8 Mandibles forming a short, triangular beak, the outer edge of one of them, seen from in front, more or less straight. (Small spp. not more than 2.5 mm. with the marginalis always at least as long as its distance from the basalis and the petiole at most hardly longer than its apical width; radial cell, if closed, very short, never longer than the marginalis; gaster narrowly pointed at apex and more or less compressed here, the hypopygium in the form of a narrow sheath enclosing the two apical tergites; gaster posterior to large tergite with 4 clearly defined ring segments and 2 narrow, not sharply separated, apical segments (7 and 8); ovipositor very long, normally concealed but in dead specimens sometimes far exerted)..... 9
- Mandibles not forming a beak, the outer side of one of them seen from in front, curved 12
- 9 Antenna with 12 segments; sides of propodeum and also, but less thickly, the dorsal areas, the base of the rest of the gaster, both below and above, clothed with a dense, whitish, flocculent pubescence; occipital margin on lower side of head bordered with a narrow fringe of woolly pubescence. (Maxillary palpi extremely short, hardly visible, 2-segmented (*Synacra brachialis*); eyes bare, polished, indistinctly faceted, shorter than the distance between one of them and the tip of the antennal socket (as seen from side); no closed radial cell in macroporous species; petiole slightly transverse, smooth; propodeum without a keel on external side of spiracle; scape showing on one side at apex a distinct membranous angulation; hind wing without a closed basal cell (cf. fig. 1)
Synacra Förster (p. 13)
 - Antenna with not less than 14 segments; propodeum without dense, flocculent pubescence; base of tergite 2 with at most a thin tuft of pubescence on each side; occipital margin without a fringe of pubescence at sides though there may be one above. (Half the apical circumference of the scape raised to form a rim or flange, each extremity of which forms an angular projection; this feature less well developed in *Synacra*; maxillary palpi long, well developed, conspicuous, 5-segmented (*Rhyncopsilus apertus*)..... 10
- 10 Occipital margin above with a border of pale pubescence; pronotum with a collar of dense pubescence against its dorsal, posterior margin; a very faint, spurious radius feebly indicates the limits of a radial cell which is much longer than the marginalis; large sternite convex or humped at base; hind wing without a closed basal cell and with at most a very faintly indicated mediella. (Eyes polished, indistinctly faceted as in *Synacra*; no trace of an epomia; meso-scutum characteristically bare; dorsal areas of propodeum and dorsal surface of petiole virtually bare)..... *Rhyncopsilus* Kieffer (p. 13)
 (Closely related to *Acamosema* Kieffer, differing from it only in the shape of the mandibles.)

- Occipital margin not bordered with pale pubescence (such pubescence faintly indicated *at sides in Opazon*); pronotum without a collar of dense pubescence; radius, if present, not spurious, enclosing, or at least indicating, the limits of a radial cell which is never longer than the marginalis; large sternite simple, feebly humped at base only in *Opazon*; hind wing with a closed basal cell. (Eyes with sparse hairs).....11
- 11 Antenna with 14 segments; stigmalis and radialis reduced to a knob-like thickening at the end of the marginalis, hence no radial cell; dorsal areas of the propodeum smooth, shining, bare except for a quite inconspicuous tuft of hairs at the anterior, dorsal corner; petiole smooth, bare, bounded by a lateral keel (slightly outwardly kinked at middle) and with a medial, rather weak keel. (Mandible not forming a very conspicuous beak as seen from in front; mesoscutum on the whole very sparsely hairy; hairs of the fore wing somewhat characteristically long (fig. 103); pronotum short, its collar with no trace of a posterior, transverse keel; no epomia present)..... **Atelopsilus** Kieffer (p. 12)
- Antenna with 15 segments; stigmalis and radialis together enclosing a usually distinct, though sometimes so small as to be virtually absent, radial cell; dorsal areas of propodeum with hairs, even though sometimes sparse, scattered all over its surface; petiole with some sort of sculpture all over and with at least a few long hairs. (A more or less distinct epomia separates the side of the pronotum from the collar; mesoscutum thickly pubescent all over; two apical tergites elongated, narrowly compressed by the sheath-like hypopygium and the whole somewhat resembling a down-curved beak)..... **Opazon** Haliday (p. 15)
- 12 Scutellum with a row of foveae across its posterior margin, very indistinct in *Paroxylabis*. (A sharply defined epomia always present (cf. fig. 4)).....13
- notal carina) — Scutellum normally without any kind of sculpture posteriorly; at most a single, very short, longitudinal keel present in some species of *Pantoclis*.....17
- 13 Petiole about two and a half times as long as its middle width; scape very long, fully equal to the height of the head as seen from the side; radial cell completely closed at apex. (Elongate, very narrowly built species with the scape entirely yellowish)..... **Paroxylabis** Kieffer (p. 65)
- Petiole at most one and a half times as long as its middle width; scape short, obviously not equal to the height of the head; radial cell open or indistinctly closed at apex.....14
- 14 Only 2 discrete ring segments between the large tergite and the preapical one (seventh) (fig. 43); petiole beneath with a dense pencil of hairs at apex
..... **Aprestes** gen. n. (p. 30)
- Four discrete ring segments between these two tergites; petiole beneath without such a pencil of hairs.....15
- 15 Base of large tergite with a transverse keel on each side of the middle furrow. (In *Oxylabis tuberculata*, the keel is sharply defined only at extreme lateral corner).....16
- Base of large tergite without trace of such a keel. (Marginalis fully half as long as its distance from the basalis; gaster beyond petiole short and broad; scutellar fovea transverse and as wide as the distance between the notaulices behind)
Pantocelis (part) (p. 41)
- 16 Marginalis not longer than stigmalis and only about one-third as long as its distance from the basalis; side of scutellum without a free hook-like projection; post-scutellum without a spiniform projection..... **Belyta** (part) (p. 30)
- Marginalis much longer than stigmalis and about three-quarters as long as its distance from the basalis; side of scutellum with a free hook-like projection; post-scutellum usually with a conspicuous spiniform projection. (Keels joining rims of antennal sockets behind, pushed forwards to form an angular projection visible when the head is seen from above and slightly from behind; at most the 8 distal segments of the antenna tending to form a darkened club)
Oxylabis Förster (p. 27)
- 17 Mandibles very long, sickle-shaped and widely crossing at apex (fig. 189). (Radial cell always completely closed at apex).....18
- Mandibles of ordinary form, short and only slightly crossing at apex.....21
- 18 Marginalis reduced to a mere junction-point of veins and much shorter than stigmalis (fig. 105); pronotal shoulders virtually wanting; medial keel of the propodeum forked..... **Pamls** gen. n. (p. 30)



- Marginalis never as short as this and at least as long as stigmalis ; pronotal shoulders, on the whole, well defined and sharply angular ; medial keel of the propodeum not forked19
- 19 Marginalis considerably longer than both its distance from the basalis and the radial cell ; radial cell short (fig. 107) ; gaster strongly laterally compressed at apex, the apical segments more or less telescoped within segment 3. (Antenna extremely slender with the preapical segment about twice as long as wide ; pronotal shoulder showing as a sharp tooth but epomia wanting)
Cinelapius gen. n. (p. 91)
- Marginalis never longer than either its distance from the basalis or the radial cell ; radial cell relatively longer ; gaster never laterally compressed, though it may sometimes be dorsoventrally compressed (*Aclista*) and the apical segments may be partly hidden beneath an enlarged third tergite (*Aclista*).....20
- 20 Postscutellum with a prominent angular process ; scape very long, fully equal to the width of the head as seen from above ; rims of the antennal sockets united, at their own level, by a transverse keel. (Gaster beyond petiole very narrow, bright reddish-yellow) **Paroxylabis** Kieffer (part) (p. 65)
- Postscutellum without such a process ; scape shorter, considerably shorter than the width of the head seen from above ; antennal sockets not united by such a keel **Aclista** Förster (p. 66)
(formerly *Xenotoma* Kieffer)
- 21 Segment 1 of flagellum enormously lengthened, about as long as the following 7 or 8 segments together **Diphora** Förster (p. 41)
- Segment 1 of flagellum of normal appearance and never longer than the following two segments together22
- 22 Marginalis very long, at least as long as its distance from the basalis and fully as long as the radial cell. (Radial cell always completely closed ; gaster almost always modified in the sense that some telescoping of the apical segment takes place ; ovipositor, if visible at all, never long and thread-like, its sheaths projecting at most as a short stub ; petiole at least one and a half times as long as wide and then the apical segments of the gaster more or less completely retracted).....23
- If the marginalis is as long as its distance from the basalis then either it is obviously shorter than the radial cell or the radial cell is completely open or there is no telescoping of the apical gastral segments and 4 ring segments beyond the large tergite are discernible. (Except in *Miota*, the gaster is unmodified apically and 4 clearly defined ring segments can be counted beyond the large tergite ; ovipositor frequently projecting in death as a long, thread-like organ).....24
- 23 Notalices slightly divergent posteriorly, their posterior extremity directed to a point outside the scutellar hollow (fig. 3). (Epomia present and well defined ; apical gastral segments almost always modified ; third gastral segment almost always very long, dorsoventrally flattened or in the form of a truncated cone, the open (posterior) end of which is more or less tubular ; or the apical segments otherwise modified ; rarely 2-3 clearly defined simple ring segments beyond the large tergite. In many species the gaster of the female shows a wide divergence of form)..... **Cinetus** Jurine (p. 91)
- Notalices evenly convergent, their posterior extremity directed to a point well within the scutellar hollow (fig. 2). (Gaster more or less laterally compressed at apex, except in *tenuicornis* Kieffer ; epomia complete or incomplete)
Leptorhaptus Förster (p. 84)
- 24 Marginalis distinctly longer than its distance from the basalis. (Small species, ca. 2.5 mm. ; radial cell either open or closed but its length when closed, or as indicated by the incomplete radialis, at most but slightly greater than the length of the marginalis ; seventh and eighth gastral segments not clearly separated and together forming a smooth, narrow, downcurved, almost hairless segment which is closely ensheathed by the hypopygium ; large sternite never humped at base (cf. *Psilomma*)) **Pantolyta** Förster (p. 17)
- Marginalis rarely nearly equal to its distance from the basalis and then it is much shorter than the radial cell or the radialis is virtually wanting and the large sternite is humped at base25
- 25 Pronotal collar on each side with a deep hollow separated beneath a glabrous longitudinal bridge by a thin septum, and each of them below with a dense tuft of pubescence (if the pronotal tuft is poorly or hardly developed, then the

- antenna is 14-segmented; apex of scape with a raised rim or flange which is angulate on opposite sides; stigmalis very short, only about half as long as the marginalis (fig. 102); a spurious, hardly indicated radialis encloses a very long narrow radial cell; epomia wanting; eyes bare; occiput bordered at sides with fine pubescence)..... *Acanosema* Kieffer (p. 21)
- Pronotum rarely with a hollow on each side and then these are without pubescence and a fully developed epomia is present 26
- 26 Epomia at least sufficiently well developed to form a sharp, evenly continuous, ridge-like barrier between the impressed side of the pronotum and the pronotal collar 27
- Epomia absent so that the surface of the side of the pronotum is continuous with that of the pronotal collar or at least there is an apparent break beneath a prominent angular pronotal shoulder and the eyes are bare 32
- 27 Medial keel of the propodeum forked. (Pronotum elongate, narrow across the rounded shoulders, its collar without a vertical posterior surface)
Belyta (part) (p. 30)
- Medial keel of the propodeum not forked. 28
- 28 Gaster simple in the sense that it is clearly differentiated into a dorsum and a sternum, showing 4 ring segments distal to the large tergite. (Eyes hairy)... 29
- Gaster remarkably modified, showing no clearly differentiated dorsum and sternum; no dorsal ring segments visible as such, the apical segments more or less completely telescoped within the large tergite; ovipositor very short, its sheaths showing as a short stub. (The apical gastral segments can be extruded to resemble a scorpion's tail; flagellum thin and thread-like. Related to *Cinetus* but the marginalis is at most about half as long as the radial cell)
Miota Förster (p. 102)
- 29 Radial cell open at apex, the radialis usually represented by a long, spurious vein which tends to delimit a very long radial cell; when the cell is thus long, the marginalis is at least half as long as its distance from the basalis; if the radialis is short and the radial cell almost closed apically, then the marginalis is much shorter than its distance from the basalis and the scutellar hollow is usually of pronounced reniform appearance..... *Zygota* Kieffer (p. 54)
- Radial cell closed at apex, the radialis sclerotized throughout 30
- 30 Petiole at most one and a third times as long as its apical width. (Pronotum not elongate, having a vertical posterior surface; the distance between the pronotal shoulders is fully equal to the distance between one of them and the spiracle; marginalis at most about one-third as long as its distance from the basalis; petiole usually slightly transverse..... *Pantoclis* Förster (p. 41)
- Petiole fully one and a half times as long as its apical width 31
- 31 Pronotum elongate, without a vertical posterior surface and the distance between the shoulders slightly less than the distance between one of them and the spiracle; marginalis not more than half as long as its distance from the basalis; antenna neither 14-segmented nor the flagellum thickened in the middle
Belyta Jurine (part) (p. 30)
- Pronotum not elongate, with a more or less vertical posterior face and the distance between the prominent dentiform shoulders not less than the distance between one of them and the spiracle; marginalis at least two-thirds as long as its distance from the basalis; either the antenna with 14 segments or the flagellum curiously thickened in the middle..... *Aclista* Förster (part) (p. 66)
- 32 Radial cell completely closed, the radialis sharply defined; eyes hairy but not conspicuously so 33
- Radial cell widely open, the radialis virtually absent; eyes bare. (Marginalis at least two-thirds as long as its distance from the basalis (fig. 104); scape clothed only with an extremely short pubescence and without outstanding hairs)
Psilomma Förster (p. 20)
- 33 Marginalis at least two-thirds as long as its distance from the basalis; gaster posterior to the petiole long, narrowly fusiform, at least three times as long as wide, strongly laterally compressed at apex and tapering to a fine point. (Propodeal keel sometimes forked)..... *Acroplesta* Förster (p. 24)
- Marginalis at most one-third as long as its distance from the basalis; gaster here nearly always decidedly globose and at most two and a third times longer than wide *Pantoclis* (part) Förster (p. 41)

KEY TO GENERA.

(Males).

- 1 Fourth antennal segment (second flagellar) with a feebly keeled emargination; notaulices absent..... *Ismarus* Haliday (p. 11)
- Fourth antennal segment never modified; a sexual modification almost always present on the third antennal segment; rarely no modification present at all; notaulices always present except in *Synacra* (part) and possibly the unknown male of *Anommatium*..... 2
- 2 Mandibles long, sickle-shaped, widely crossing at tips (fig. 189). (Eyes hairy; radial cell always completely closed)..... 3
- Mandibles of ordinary form, short and only slightly crossing at tips..... 6
- 3 Marginalis reduced to a mere point, virtually not longer than wide and many times shorter than its distance from the basalis (fig. 105)... *Pamls* Nixon (p. 30)
(See key to females)
- Marginalis never as short as this, always obviously longer than wide and at least one-third as long as its distance from the basalis..... 4
- 4 Marginalis very long, longer than the short radial cell and longer than its distance from the basalis..... *Cinelaptus* Nixon (p. 91)
(Only ♀ known. See key to females)
- Marginalis much shorter, never as long as the radial cell nor its distance from the basalis..... 5
- 5 Postscutellum, in profile, with a triangular projection.... *Paroxylabis* Kieffer (p. 65)
- Postscutellum, in profile, without such a projection..... *Aolista* Förster (p. 66)
- 6 Scutellum with a row of foveae bordering its posterior margin (hardly indicated in *Paroxylabis*)..... 7
- Scutellum posteriorly with at most a single, short, longitudinal keel (easily overlooked)..... 10
- 7 Gaster with only 4 clearly defined segments posterior to the large tergite; petiole at apex beneath with a dense pencil of hairs; flagellum 1 without trace of a basal modification and evenly hairy all round. (Radial cell completely closed)
Aprestes gen. n. (p. 30)
- Gaster with 6 clearly defined segments posterior to the large tergite; petiole beneath without such a pencil of hairs; flagellum with at least a straight-edged basal modification from which, in profile, no hairs arise..... 8
- 8 Radial cell more or less open at apex; petiole at most approaching twice as long as apically wide..... 9
- Radial cell completely closed at apex; petiole fully 3 times as long as apically wide. (Very narrowly built species; postscutellum with a prominent spinose projection)..... *Paroxylabis* Kieffer (part) (p. 65)
- 9 Side of scutellum with a free, hook-like projection; large sternite with a raised, transverse margin at base; scutellum usually with a spinose projection; marginalis at least two-thirds as long as its distance from the basalis; front tibia without modified bristles..... *Oxylabis* Förster (p. 27)
- Side of scutellum without a free projection; large sternite without a raised, transverse margin; scutellum without a spinose projection; marginalis about half as long as its distance from the basalis; front tibia with a short row of differentiated bristles..... *Belyta* Jurine (part) (p. 30)
- 10 Mandibles, seen from in front, forming a beak, the outer margin of one of them more or less straight. (Very small species, not more than 2.5 mm. with the marginalis always at least as long as its distance from the basalis; half the apical circumference of the scape more or less raised to form a rim or flange, each extremity of which forms an angular projection)..... 11
- Mandibles not forming a beak..... 13
- 11 Eyes polished, bare, indistinctly faceted; occiput bordered, at least in part, with fine pubescence; radial cell open..... 12
- Eyes not polished, more distinctly faceted and with fine, though inconspicuous hairs; occiput nowhere bordered with fine pubescence; radial cell closed or almost closed..... *Opazon* Haliday (p. 15)
(Including *Atelopsilus* Kieffer ?)
- 12 Propodeum very short, its medial keel reduced to a mere point, its ill-defined dorsal areas, the petiole and the extreme base of the large tergite, clothed with a floccu-

- lent pubescence; petiole not longer than wide; hind wing without a closed basal cell.....*Synaera* Förster (p. 13)
- Propodeum normal and with a long medial keel, its dorsal areas and base of large tergite bare; petiole longer than wide and with at most a few longish hairs; hind wing with a closed basal cell.....*Rhynchopsilus* Kieffer (p. 13)
- 13 Marginalis very long, hardly shorter than the radial cell and at least as long as its distance from the basalis; radial cell always completely closed. (Petiole much longer than wide; the spurious medius is almost straight and distinct right to edge of wing).....14
- Marginalis rarely as long as this and then the radial cell is open at apex or the medius is very indistinct and fades out long before the edge of the wing (*Pantolyta* part); or if the marginalis is nearly as long as its distance from the basalis then it is distinctly shorter than the radial cell.....15
- 14 Notaulices slightly divergent posteriorly, their posterior extremity directed to a point outside the scutellar hollow (fig. 3). (*Epomia* always well developed)
- Cinetus* Jurine (p. 91)
- Notaulices evenly convergent, their posterior extremity directed to a point well within the scutellar hollow (fig. 2). (*Epomia* occasionally wanting, in a few species there being no trace of a ridge separating the side of the pronotum from the collar).....*Leptorhaptus* Förster (p. 84)
- 15 Propodeal keel doubled or forked.....16
- Propodeal keel simple.....17
- 16 Pronotum with a more or less distinct epomia separating the side from the collar; pronotum somewhat elongate and without a vertical polished posterior face; large tergite not markedly tapering towards petiole; apical tergite very dull, subrugose.....*Belyta* Jurine (p. 30)
- Pronotum without an epomia; pronotum not elongate and with a vertical polished face; large tergite markedly tapering towards petiole; apical tergite highly polished and upturned apically.....*Acroplesta* Förster (part) (p. 24)
- 17 Radial cell completely closed at apex.....18
- Radial cell more or less open at apex either through a fading out of the post-marginalis or because the radialis is very indistinct.....23
- 18 Marginalis longer than its distance from the basalis
- Pantolyta* Förster (part) (p. 17)
- Marginalis rarely even equal to its distance from the basalis.....19
- 19 Petiole fully 4 times as long as its middle width and slightly tapered towards apex; medius fine, sharply defined and extending to edge of wing. (Marginalis almost as long as its distance from the basalis; radial cell sharply defined and with well-developed postmarginalis; radial cell much longer than the marginalis (fig. 125, cf. *Cinetus*, closely related); front tibia with a cluster of hairs, one or two of which are curved apically and overhang the others (fig. 302))
- Miota* Förster (p. 102)
- Petiole at most about two and a half times as long as its middle width and then it tends to be widened posteriorly. (Front tibia without a cluster of hairs or bristles except in *Pantoclis magnicornis*).....20
- 20 Marginalis as long or nearly as long as its distance from the basalis and obviously longer than the stigmatis; petiole at least one and a half times longer than its apical width.....21
- Marginalis much shorter than its distance from the basalis and not longer than the stigmatis; petiole rarely as much as one and a half times as long as its posterior width. (*Epomia* present or absent; at most a feeble cleft between the antennal sockets; these without a discrete raised rim).....22
- 21 *Epomia* sharply defined and extending from the angularly dentiform pronotal shoulder almost as far as the front coxa; at most a shallow cleft between the antennal sockets when the head is seen from above; mesoscutum densely pubescent; gaster beyond the petiole broadly oval
- Aclista* Förster (part) (p. 66)
- *Epomia* represented at most by a short keel separating the side of the pronotum from the collar and not extending downwards towards the front coxa; when the head is seen from above there is a deep cleft between the antennal sockets which, in consequence, appear sharply discrete with their rims, on the inner side, well raised; mesoscutum rather sparsely pubescent and appearing highly polished. (Species of very slender build with the gaster beyond the petiole long and narrow;

- apical tergite somewhat flattened, polished and with its apical margin slightly upturned)..... *Aeropieta* Förster (p. 24)
- 22 Dorsal areas of the propodeum with at least one, more or less distinct, transverse secondary keel. (Head from above distinctive, somewhat lentil-shaped; pronotum with prominent dentiform shoulders, its posterior face subvertical and rugose; posterior margin of pronotum showing as a free, raised rim that extends from spiracle to spiracle and is separated from the mesoscutum by a percurrent furrow; scutellar fovea circular; face with a dull, shagreened sculpture that extends from the antennal insertions almost to the clypeus; marginalis only about one-fifth as long as its distance from the basalis.) . . . *Diphora* Förster (p. 41)
- Dorsal areas of the propodeum without transverse secondary keels. (Except in *Belyta carinifrons* Kieffer and *Pantoclis brevicornis* Kieffer, both of which have the marginalis much more than one-fifth as long as its distance from the basalis, the posterior margin of the pronotum is never raised as a free rim from spiracle to spiracle, being always more or less hidden in front of the lateral lobe of the mesoscutum by a flange-like extension of this) *Pantoclis* Förster (p. 41)
- 23 Half the apical circumference of the scape raised to form a rim or flange, each extremity of which forms an angular projection; pronotum with a deep pit on each side, separated by a flat, shining bridge and each filled below with a tuft of pubescence. (A spurious radialis encloses a long, very narrow, radial cell, (figure 102); scape about one and a half times longer than flagellum 1)
- Apical circumference of the scape simple; pronotum without a deep, pubescence-filled pit on each side. 24
- 24 Radialis virtually absent or showing as a small sclerotized prolongation at tip of stigmatalis but not developed as a spurious vein; pronotal shoulders very prominent, angular and margined outwardly by a longitudinal keel; marginalis at least two-thirds as long as its distance from the basalis (fig. 104). (Scape shorter than pedicel plus flagellum 1) *Psilomma* Förster (p. 20)
- Radialis better developed, either showing as a very long, spurious vein or, if short, then the marginalis is much less than two-thirds its distance from the basalis
- Zygotia* Förster (p. 54)

Genus *Ismarus* Haliday.

Genus differs widely from the rest of the Belytinae and could with justification be given tribal rank. Easily recognized by absence of notaulices. Hyperparasitic on *Anteon* spp. (Dryinidae). See Chambers, 1955, *Ent. mon. Mag.* 91 : 113.

KEY TO SPECIES.

(Females).

- 1 Entire body, with exception of dark brown mesoscutum and scutellum, pale yellowish with the undersurface almost white. *dorsiger* Curtis
Rare. England. Ireland. A striking species in the female sex.
- Entire body black or blackish. 2
- 2 Scutellum densely rugose; dorsal surface of gaster dull, evenly scaly-reticulate; antenna blackish throughout. (First flagellar segment very distinctly shorter than the second) *rugulosus* Förster
Rare. England. Ireland. Sweden. Unmistakable on account of the dull surface sculpture of the gaster.
- Scutellum without sculpture; dorsal surface of gaster shining and without such sculpture; at least the 4 basal segments of the antenna yellowish 3
- 3 Antenna bright yellowish throughout; lower half of mesopleura with a continuous zone of sculpture from front coxa to posterior margin; venation (fig. 117)
- flavicornis* Thomson
England. Ireland. Sweden. Bred from *Anteon flavicorne* Dal. Apparently the commonest species but still infrequent.
- Only 4-5 basal segments of antenna yellowish, the rest nearly black; lower half of mesopleura shining and unsculptured over a large median area
- halidayi* Förster
England. Scotland. Sweden. Bred from *Anteon* sp.

(Males).

- 1 Mandibles pale whitish-yellow with only the tips reddish. (Body entirely blackish (cf. ♀); mesopleura without sculpture within its broad oblique impression; flagellum 1 hardly shorter than 2)..... **dorsiger** Curtis
- Mandibles at most obscurely reddish in part..... 2
- 2 A continuous or almost continuous zone of sculpture across the oblique impression of the mesopleura; scape darkened along its upper surface; hind tarsus with at least its basal segment blackened. (Antenna thicker with first segment of flagellum less short and less thin in proportion to second than in *holidays*)
flavicornis Thomson
- No such continuous zone of sculpture across the polished oblique impression of the mesopleura; scape entirely yellowish; hind tarsus entirely yellowish or at most the apical segment faintly darkened. (Minute, remote punctures on gaster less evident than in *flavicornis*)..... **haldayi** Förster

Genus *Anommatium* Förster.

Only one species known from England..... **A. ashmeadi** Mayr

Two specimens (♀) examined: *Austria. England: Herts., King's Langley, 27. ix. 1936, 1 ♀, taken in nest of Lasius flavus Fab. (R. B. Benson). Hind tarsus (fig. 57).*

Genus *Atelopsilus* Kieffer.

In female sex only one species recognized, described in key to genera

ciliatum (Thomson), **comb. nov.**

(= *Opazon ciliatum* (Thomson) in Kieffer)

Sweden: Skåne, Ring sjö, 27. vi. 1938, 5 ♀ (D. M. S. Perkins and J. F. Perkins). Dr. Carl Lindroth of the Zoological Institute, Lund, tells me that there is no material of this species in Thomson's collection at Lund.

KEY TO SPECIES.

(Males).

- 1 Ocelli in a triangle with base much longer than sides, the distance between the posterior ocelli being about twice as long as the distance between one of them and a lateral ocellus; eyes virtually bare; between the antennal sockets only a shallow cleft when the head is seen from above, the rims joined at same level by a short transverse keel; front tibia somewhat short and, seen at its widest, showing a row of 4-5 stout curved bristles. (Emargination of flagellum 1 as in ? *ciliatum*; fringe of fore wing shorter than in ? *ciliatum*; stigmatis very slightly less well developed; dorsal areas of propodeum smooth and without hairs; petiole about one and a third times longer than wide, weakly striate)
borealis Petersen¹
- Sweden: Örebro (1 ♂ seen). (In Zoological Museum, Copenhagen.)*
- Ocelli in a triangle with base not distinctly longer than sides; eyes distinctly hairy; between the antennal sockets is a deep cleft when head is seen from above; a much less well-developed keel joins the rims, of the antennal sockets and it lies below their level; front tibia longer and, seen at its widest, without differentiated hairs. (Head above and mesoscutum with perhaps slightly fewer hairs; fringe of fore wing and stigmatis as in fig. 103; dorsal areas of propodeum smooth and hairless as in *borealis*, but distinctly longer than wide; petiole slightly longer, and the rest of the gaster narrower; whole insect more elongate than *borealis*)..... ? ***ciliatum*** Thomson
- Sweden: Skåne, Håör dist., 1 ♂. (In British Museum (Nat. Hist.))*

These two species are doubtfully interpreted. The specimen kindly lent by Petersen may, in fact, be *ciliatum* and the specimen here put forward as *ciliatum* may belong to Petersen's female *borealis*. With regard to the feebleness of the cleft between the antennal sockets, bare eyes, short dorsal

¹ 1956, *Zoology of Iceland (Hymenoptera)* 3 : 113, ♀.

areas of propodeum and generally shorter form, the female here interpreted as *ciliatum* agrees more with *borealis* male than with ? *ciliatum* male, though there is a difference in the shape of the ocellar triangle. Both the male of *borealis* and ? *ciliatum* lack the characteristic appearance of the petiole that is a feature of female *ciliatum*.

Genus *Synacra* Förster.

KEY TO SPECIES.

(Females).

- 1 Micropterous species with wings reaching to about middle of large tergite ; dorsal surface of propodeum not separated from posterior face by a curved keel. (Antenna thick with short scape ; notaulices sharply defined as fine grooves ; medial keel of propodeum reduced to a mere tubercle) *brevipennis* Kieffer
England : Kent, Charing, 1 ♀, labelled "emerged 15. ix. 1903 from Ponera contracta Nees". Ireland. 13 ♂, 3 ♀.
- Macropterous species ; dorsal surface of propodeum separated from posterior face by a curved keel. (Propodeum with very short, dorsal surface, the medial keel, as seen from above, hardly longer than that of the postscutellum ; antenna considerably less thick than in *brevipennis* with scape relatively longer and thinner) 2
- 2 Notaulices wanting ; flagellum thicker, becoming somewhat yellowish towards apex ; flocculent pubescence of propodeum and abdomen slightly denser and more conspicuous ; outer edge of mandible more distinctly serrated. (Pale, almost fulvous species with wings variable in length, sometimes surpassing gaster, sometimes not extending beyond seventh tergite) *brachialis* Nees
England : Berks., 12 ♀. Sweden : Skåne, 1 ♀.
- Notaulices distinct throughout ; flagellum less thick and darker ; this pubescence less conspicuous ; mandible with a less distinctly serrate outer edge
holconota Kieffer
England : Kent, 2 ♀, 2 ♂ bred from Sciariid larvae in mushroom.

(Males).

- 1 Notaulices wanting ; flagellum more slender, the second segment about two and a half times longer than wide *brachialis* Nees
- Notaulices showing as fine, completely defined grooves ; flagellum somewhat thick, all the segments shorter, the second hardly twice as long as wide 2
- 2 Scape very short, hardly one and a half times as long as the eye
brevipennis Kieffer
- Scape longer, fully twice as long as the eye *holconota* Kieffer

Genus *Rhynchopsilus* Kieffer.

(= *Brunnicophilus* Nixon, 1931, syn. n.).

KEY TO SPECIES.

(Females).

- 1 Occipital margin with thick collar of pubescence above (slightly interrupted at middle) ; notaulices tending to fade out at middle ; head above virtually without hairs ; whole body fulvous yellow with antenna almost yellow
**donisthorpei* (Nixon), comb. n.
(= *Brunnicophilus donisthorpei* Nixon, 1931)
England : Berks., Windsor Forest, in nests of the ant, Lasius brunneus Latr.
- Occipital margin with less conspicuous collar of pubescence ; notaulices distinct throughout ; head above with scattered hairs ; body darker, brownish with head almost black ; antenna not appearing yellow. (Pronotal collar of pubescence considerably less thick than in *donisthorpei* and darker in colour)
apertus Kieffer
England : Berks., 6 ♀, 8 ♂ ; Dorset, 1 ♂ ; Devon, 1 ♂.

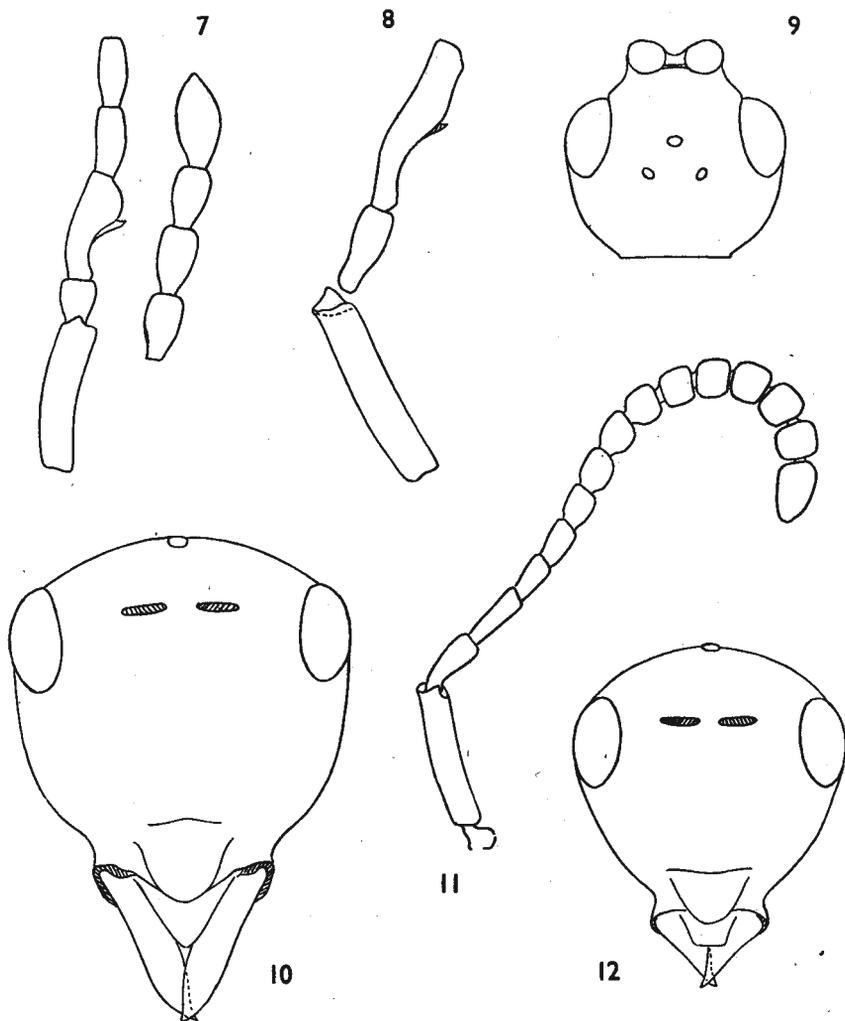


FIG. 7.—Basal and apical antennal segments of *Rhynchopsilus donisthorpei* (Nixon), ♂.

FIG. 8.—Basal antennal segments of *Opazon clausa* (Kieffer), ♂.

FIG. 9.—Head, from above, of *O. clausa* Kieffer, ♂.

FIG. 10.—Head, from in front, of *O. princeps* sp. n., ♀.

FIG. 11.—Antenna of *O. princeps* sp. n., ♀.

FIG. 12.—Head, from in front, of *O. parvulus* Haliday, ♀.

(Males).

- 1 Flagellum yellow with at least the 4 preapical segments thickened and narrowed towards base, about one and a half times as long as wide (fig. 7); flagellum 1 much thickened distally, deeply emarginate, the emargination ending in a strong tooth; notaulices fading out posteriorly **donisthorpei** (Nixon)

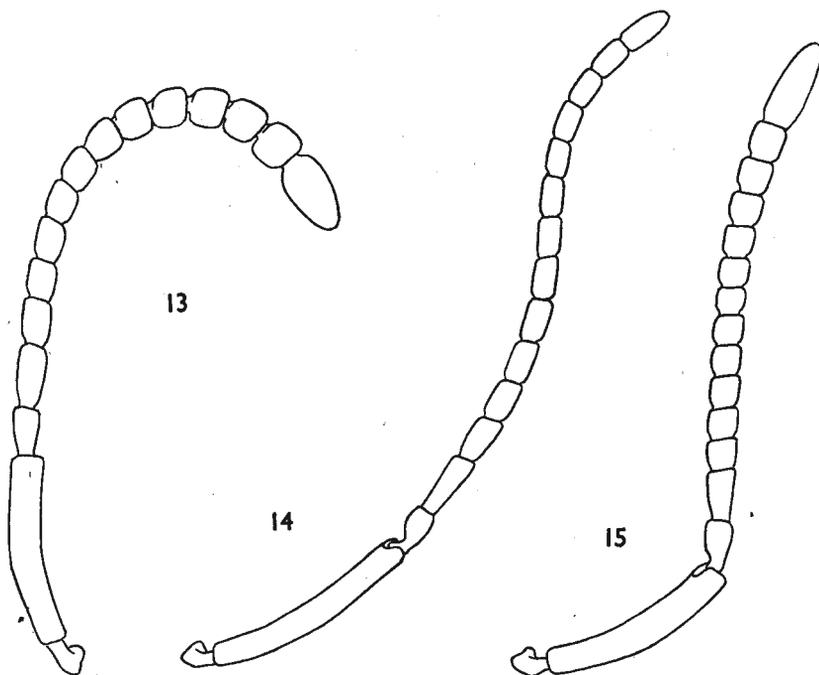
- Flagellum darker, of normal appearance with the 4 preapical segments evenly cylindrical and fully 3 times as long as wide; flagellum 1 virtually not thickened distally, its emargination very feeble; notaulices evenly impressed throughout
apertus Kieffer

Genus **Opazon** Haliday. = **PANTOLYTA** ?
(= *Promeuselia* Kieffer, syn. n.).

KEY TO SPECIES.

(Females).

- 1 Pronotum elongate, so that, seen from the side, its anterior half forms with its posterior half only a very feeble curve; mesoscutum in front only feebly declivous; apical flange of scape better developed, more gaping and with more conspicuous opposite projections.....2



FIGS. 13-15.—Antenna of female of: 13, *Acropiستا rufiventris* Kieffer; 14, *A. sciari-vora* (Kieffer); 15, *A. xanthura* Kieffer.

- Pronotum not at all elongate, so that, seen from the side, its anterior half forms almost a right angle with the vertical posterior part; mesoscutum in front steeply declivous; apical flange of scape less well developed. (Antenna shorter than in the two other species; radial cell clearly defined (fig. 109); beak least well developed of the three species (fig. 12)).....**parvulus** Haliday (= *Opazon incrassatum* Thomson in Kieffer)

(In spite of Kieffer, page 378, *parvulus* is sufficiently indicated to be valid and is the type-species).

England. Ireland. Scotland. Sweden. 14 ♀. A single female from Ireland, Dublin, has the wings somewhat reduced, not quite reaching tip of gaster and narrower than in typical examples; the radial cell reduced to a mere pin-point.

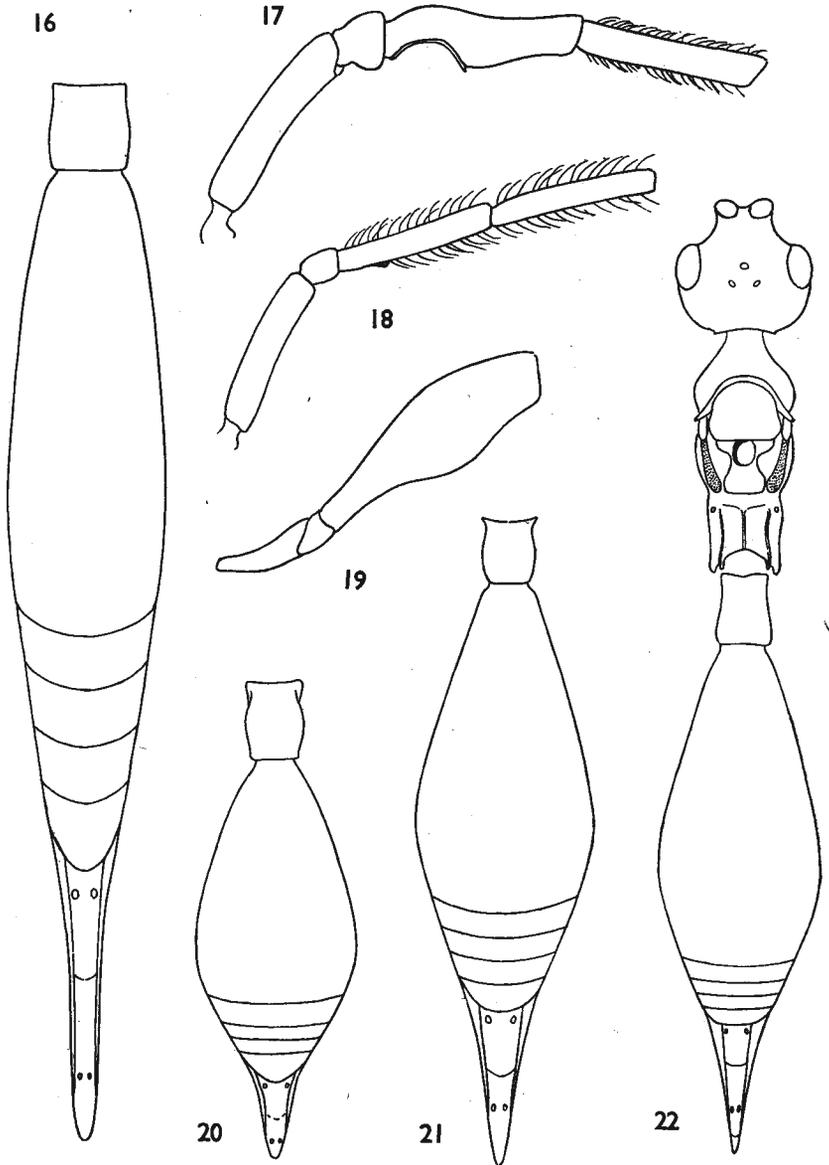


FIG. 16.—Gaster of *Acropiستا flaviventris* (Thomson), ♀.

FIGS. 17–18.—Basal antennal segments of: 17, *A. flaviventris* (Thomson), ♂; 18, *A. sterope* sp. n., ♂.

FIG. 19.—Hind femur of *A. xanthura* Kieffer, ♀.

FIGS. 20–21.—Female gaster of: 20, *A. sciarivora* (Kieffer); 21, *A. flavipes* Kieffer.

FIG. 22.—Body of *A. aptera* Kieffer, ♀.

This species has a facies deceptively like that of Pantolyta fuscicornis (K.) and because of the weak development of mandibles is almost transitional between Pantolyta and Opazon.

- 2 Postmarginalis much shorter than marginalis, the radial cell reduced to a mere transparent point or not defined at all; beak long (longest of the 3 species), so that in a front view of the head, the distance between the apex of the clypeus and the tip of the beak is considerably greater than the length of the clypeus itself (fig. 10); flagellum longer, its 3 preapical segments submoniliform (fig. 11); posterior margin of pronotum more distinctly extended laterally as a horizontal keel to the pronotal shoulder than in *clausa*; hairs of head above longer and sparser **princeps** sp. n.

England: Gloucester, Staunton, High Meadow Woods, 9.vi.1936, 2 ♀, one the type (E. B. Britton and J. F. Perkins); Hereford, Fownhope, Capler Wood, 31.v.1936, 1 ♀ (E. B. B. and J. F. P.). Ireland: S. Tipperary, Balinacourty, 27.v.1944, 1 ♀ (A. W. Stelfox); Dublin, Jobstown, 9.ix.1949, 1 ♂ (A. W. S.). Scotland: Angus, Clova, 22.vi.1947, 1 ♂ (A. W. S.); 11-30.vi.1939, 1 ♂ (R. B. Benson). France: Finisterre, Huelgoat, 31.v.1954, 1 ♀ (J. F. P.).

- Postmarginalis as long as marginalis, the radial cell hence relatively large and virtually triangular; in a front view of the head, the clypeus and beak about equal in length; flagellum shorter, its three apical segments more transverse; posterior margin of pronotum less distinctly extended laterally as a keel; hairs of head above shorter and more numerous than in *princeps*.... **clausa** (Kieffer) **comb. n.**

(= *Promeuselia clausa* Kieffer)

England: Surrey, viii, 8 ♀; Bucks., vii., 1 ♀. Base of antenna paler than in princeps; body less black, the pronotum somewhat reddish; fore wing, at its widest part, more evenly curved than in princeps.

(Males).

(Front tibia always with a row of stout, differentiated bristles.)

- 1 Flagellum 1 with a distinct emargination which, seen in profile, is completely free from hairs and ends in a small tooth; apical flange of scape well developed, somewhat gaping and ending in strong opposite projections..... 2
- Flagellum 1 without a differentiated emargination and hence without any edge that, seen in profile, is completely free from hairs; apical flange less well developed, its opposite projections less strong. (Very black with frontal prominence less produced and head hence slightly less elongate than in *clausa* and *princeps*; flagellum black throughout)..... **parvulus** Haliday
- 2 Emargination of flagellum 1 deeper (fig. 8); postmarginalis fully as long as the marginalis; radial cell well developed and completely closed; venation pale; beak less well developed; head, from above, less elongate and frontal prominence more deeply cleft (fig. 9); scape yellowish and whole body paler with pronotum reddish..... **clausa** (Kieffer)
- Emargination of flagellum 1 shallower; postmarginalis hardly as long as the marginalis; radial cell slightly smaller, sometimes just open at extreme apex; venation darker; beak more prominent than in the other two species; head from above slightly more elongate than in *clausa* with frontal prominence less deeply incised; body on the whole darker..... **princeps** Nixon

(See key to females)

Genus *Pantolyta* Förster.

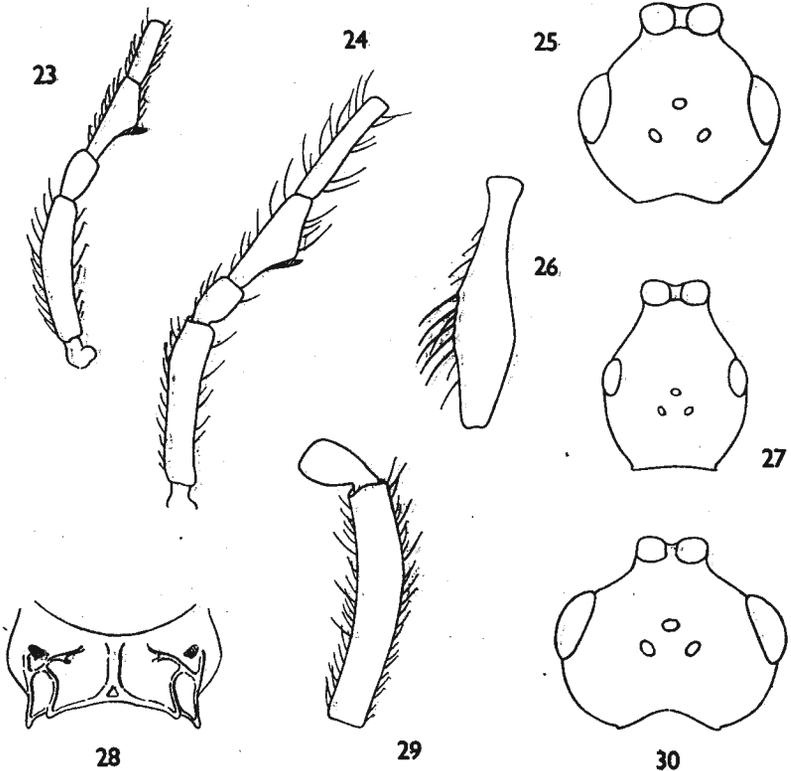
(= *Meuselia* Kieffer, **syn. n.**)

KEY TO SPECIES.

(Females).

- 1 Macropterous species with the fore wing reaching beyond the apex of the gaster ... 2
- Micropterous species with the fore wing not reaching the middle of the large tergite. (Posterior margin of the pronotum with a more or less distinct keel that extends laterally to the pronotal shoulder where it meets the epomia as well as another, short, more or less distinct keel that extends backwards in direction of the tegula; epomia distinct)..... 5

- 2 Mesoscutum and top of head thickly and evenly hairy. (Epomia well developed; eyes distinctly hairy; posterior margin of the pronotum with a more or less distinct keel that is extended laterally to meet the pronotal shoulder; seen from in front, the head is somewhat pointed below, triangular, its lateral margin showing a small notch or concavity where it reaches the base of the mandible; head from above somewhat long, the antennal prominence somewhat nasiform)... 3
- Mesoscutum and top of head with only a few long, sparse hairs and hence having a smooth, highly polished appearance. (Epomia not, or hardly developed (*incerta*); eyes virtually bare; head from in front not pointed below or triangular; from above, short, the frontal prominence not in the least nasiform)..... 4
- 3 Radial cell completely closed, variable in length but measured along the post-marginalis, hardly shorter than the marginalis and more often distinctly longer; scape with a ragged pubescence of long and short hairs (fig. 29); dorsal areas of the propodeum, and petiole above, without close adpressed pubescence
fuscicornis (Kieffer), comb. n.
 (= *Meuselia fuscicornis* Kieffer)



FIGS. 23-24.—Male basal antennal segments of: 23, *Pantolyta semirufa* Kieffer; 24, *P. subtilis* Kieffer.
 FIG. 25.—Head, from above, of *P. fuscicornis* (Kieffer).
 FIG. 26.—Front tibia of *P. fuscipes* Kieffer, ♂.
 FIG. 27.—Head, from above, of *P. vernalis* sp. n., ♀.
 FIG. 28.—Propodeum of *P. atrata* Förster.
 FIG. 29.—Antennal scape of *P. fuscicornis* (Kieffer), ♀.
 FIG. 30.—Head, from above, of *P. pallida* Kieffer, ♂.

England. Scotland. Germany. Sweden. This species and the next one have exactly the same facies as *Opazon parvulus* Hal. and may perhaps be regarded as transitional between *Pantolyta* and *Opazon*.

- Radial cell open at apex; scape with an even, extremely short pubescence; dorsal areas of the propodeum, and petiole above, with close adpressed pubescence

analysis sp. n.

England: *Hants., Brockenhurst, 13. vi. 1939, 1 ♀, the type, (G. E. J. Nixon).* The flagellum is slightly less thickened towards apex than in *fuscicornis*. Although the two species are extremely alike in general appearance, the first two characters given in the key will readily separate them.

- 4 Radial cell virtually closed at apex; propodeum short, its dorsal areas slightly transverse (fig. 28); epomia virtually wanting except for a minute tubercle; pronotal shoulder indicated by a smooth, polished, hardly indicated swelling. (Pronotum paler than the rest of the thorax; two apical tergites less elongate than in *incerta*; flagellum only feebly thickened towards apex). *atrata* (Förster) (= *Pantolyta atrata* Förster in Kieffer)

Sweden: *Skåne, 2 ♀, 5 ♂. Distinctive because of the highly polished, very sparsely hairy head and mesoscutum, short pronotum and absence of all rugosity in neighbourhood of pronotal shoulders. Could be confused only with incerta.*

- Radial cell indicated by a feeble radialis but open at apex; propodeum normal, its dorsal areas not transverse; epomia indicated as a short, weak ridge (only a single ♀ seen!); region of pronotal shoulder not thus smoothed and rounded off, a minute angulation being present; flagellum slightly more thickened towards apex; 2 apical tergites more elongate than in *atrata*. *incerta* (Kieffer), comb. n. (= *Psilomma incerta* Kieffer)

Scotland: *Type ♀ only. (Cameron coll. in Brit. Mus. (Nat. Hist.)). May be the female of pallida Kieffer.*

- 5 Head, from in front, strongly narrowed towards the mouth, subtriangular; from above, less elongate (fig. 25); antenna dark brown, though the flagellum is somewhat paler beneath between the seventh and twelfth segments; wings not extending beyond the apex of the petiole (this character of doubtful value!). (Micropterous form). *fuscicornis* (Kieffer)
- Head, from in front, almost subquadrate; from above and from side, more elongate, conical (fig. 27); antenna yellowish; wings reaching well beyond the apex of the petiole. *vernalis* sp. n.

England: *Berks., Windsor Forest, viii, 1 ♂; Surrey, Ashstead, 10. viii. 1930, 1 ♀, the type (G. E. J. Nixon).* The pubescence of the scape is shorter and more even than in *fuscicornis*; as in *fuscicornis*, the pronotum shows posteriorly a more or less distinct transverse keel but it is better developed in *vernalis* and more distinctly separated from the anterior margin of the middle lobe of the mesoscutum.

(Males).

- 1. Flagellum 1 without a trace of an emargination: (Head from in front almost round; eyes with a few hairs; top of head and mesoscutum having a highly polished appearance owing to extreme sparseness of hairs; only the merest indication of an epomia; pronotal shoulder indicated as a feeble, smooth, rounded off swelling; radial cell open; front tibia without modified bristles; frontal prominence only slightly nasiform, the head hence strongly transverse (fig. 30); genitalia (fig. 307)) *pallida* Kieffer

England. Germany. Sweden. Not rare. On the whole a pale species with the body reddish-brown and head somewhat darker. Easily recognized by the absence of an emargination on the first flagellar segment.

- Flagellum 1 always with a distinct emargination. 2
- 2. Radial cell completely closed. 3
- Radial cell open or wanting. 4
- 3. Mesoscutum almost bare, its sparse, suberect hairs situated along the notaulic courses; epomia virtually wanting, the pronotal shoulder smooth and rounded off; eyes without distinct hairs; frontal prominence hardly produced. (Species closely related to *pallida* but darker and with a very deep emargination to flagellum 1, the segment being much widened at the apex of the emargination; head from above as in *pallida* and above as free from hairs as in that species) *atrata* (Förster)

- Mesoscutum with hairs scattered over its entire surface; epomia much better developed; pronotal shoulder indicated as a feeble, angular projection; eyes with distinct hairs; frontal prominence better developed, the head from above hence less transverse (fig. 25, ♀)..... **fuscicornis** (Kieffer)
(*The marginalis and the veins enclosing the radial cell are rather pale; the radial cell is at least as long as the marginalis. May be two species, here, differing in the length of the radial cell.*)
- 4 Hairs of the flagellum unusually long and sparse, mostly evenly curved (fig. 24). (Frontal prominence feebly developed; its emargination rather deep (fig. 55); eyes with sparse hairs; pronotum without trace of a posterior keel; pronotal shoulder smooth, rounded off; a distinct, though shortened radialis present, indicating a rather long, narrow cell)..... **subtillis** Kieffer
England: Berks., Windsor Forest, ix, 1 ♂. Germany. Switzerland. 3 ♂.
- Hairs of the flagellum much more numerous, shorter and less curved. (Species with the radial cell hardly indicated; eyes distinctly hairy)..... 5
- 5 Front tibia with a row of stout, differentiated bristles (fig. 26). (Very dark, rather heavily built species)..... **fuscipes** Kieffer
Germany: Bavaria, 1 ♂. Sweden: Skåne, 1 ♂. No other species has the bristles of the front tibia so sharply differentiated.
- Front tibia without a row of differentiated bristles..... 6
- 6 Head from above strongly conical; stigmalis hardly indicated; pronotum posteriorly with a better developed, transverse margin; head from in front quadrate rather than triangular; basal cell of hind wing virtually wanting
vernalis Nixon
(See key to females)
- Head from above much less conical; stigmalis better developed; pronotum with a less well-developed, transverse margin; head from in front subtriangular; basal cell of hind wing faintly indicated..... **semirufa** Kieffer
England, Finland, Switzerland. 8 ♂. The tooth at the apex of the emargination of first flagellar segment is particularly well developed in this species (fig. 23). The pubescence of the scape is rather long and uneven which seems to exclude the possibility of this species being the male of anysis sp. n., although, in all other respects, the two species could well be different sexes of one.

Genus *Psilomma* Förster.

Epomia interrupted just below pronotal shoulder. Marginalis not longer than its distance from the basalis. Gaster of female sharply pointed behind, the apical tergite very narrow and obviously longer than wide (fig. 64).

KEY TO SPECIES.

(Females).

- 1 Pronotal shoulder weak, almost rounded off, and only a feeble keel extending backwards from it towards the spiracle; radialis clearly indicated; inner, lateral keel of propodeum distinct almost to posterior margin, though feeble. (Pubescence of head and mesoscutum finer and less characteristic than in both *dubia* and *nigra*; gaster stouter with petiole slightly shorter than in these two species (fig. 64); scape relatively shorter than in *dubia* and flagellum shorter, thicker than in *nigra*)..... **atriceps** Kieffer
England, Ireland, Switzerland. (5 ♀ in British Museum (Nat. Hist.)). Most easily separated from the other species by the weak pronotal shoulders. In facies very like Pantoclis of the similis-group.
- Pronotal shoulder, seen from above, conspicuous, right-angled and with a well-defined lateral keel extending backwards to the posterior margin of the pronotum; radialis reduced to a mere angulation at tip of stigmalis; inner, lateral keel of propodeum fading out at half-way; as in *atriceps*, there is no transverse keel posterior to the spiracle, between the two lateral, longitudinal keels..... 2
- 2 Head with a dense, matted pubescence which is as thick on temples as on cheeks; antenna dark brown throughout; flagellum slender, with first segment 4-5 times longer than wide and the 3 preapical segments not wider than long, the whole flagellum only feebly widened towards apex (fig. 63); head and thorax black; marginalis two-thirds as long as its distance from the basalis; mesoscutum and

scutellum very thickly and characteristically pubescent; seventh tergite thickly hairy; large sternite not produced at base; behind the rim of each antennal socket no thickening, though the area is hard to see because of dense pubescence

**nigra* Kieffer

Austrian Alps: B. Hartberg, 1 ♀ (H. Franz). Sweden: Skåne, 7 ♂. (In British Museum (Nat. Hist.)).

- Head thickly hairy but the pubescence on cheeks denser than that on temples; antenna rich fulvous throughout; flagellum thicker, the first segment 3 times as long as wide and the 3 preapical segments slightly transverse; whole flagellum more thickened towards apex than in *nigra* (fig. 62); head and thorax deep reddish with pronotum, notaulic furrows, and hollow of scutellum tending to be paler; *marginalis* as long as its distance from the basalis (fig. 104); seventh tergite only very sparsely hairy; mesoscutum and scutellum less hairy, the convexity of the scutellum being characteristically bare with a tuft of almost yellowish pubescence at sides; behind the rim of each antennal socket is a slight thickening, the rim having the appearance of being doubled. **dubla* Kieffer
- England. Ireland. Sweden: Skåne. 7 ♀, 10 ♂. A very distinct species, not to be confused with any other Belytid. The base of the large sternite is somewhat produced, the hump surmounted with a dense tuft of pubescence, much denser than occurs at the base of the sternite in atriceps, but hardly more so than shown by nigra. Type ♂, Scotland. (In British Museum (Nat. Hist.)).*

(Males).

- 1 Scape distinctly shorter than flagellum 1; flagellum dark brown, its pubescence rather sparse, but long, on segment 1 almost equal to the width of the segment; emargination of flagellum 1 deeper (fig. 67); scutellum thickly pubescent all over; body black; *marginalis* shorter than its distance from the basalis; petiole longer, smoother, its ridges more even and the surface, between the two medial ones, contrastingly bare..... *nigra* Kieffer
- Scape distinctly longer than flagellum 1; flagellum fulvous, its pubescence denser, shorter and obviously shorter than the width of segment 1; emargination of flagellum 1 very shallow (fig. 60); scutellum bare over the greater part of its convexity except for a few arching hairs; body reddish; *marginalis* as long as its distance from the basalis; petiole shorter, less smooth, its ridges somewhat wrinkly, the middle strip less contrastingly bare..... *dubla* Kieffer
- (As in the female, there is a slight thickening behind the rim of each antennal socket.)

Genus *Acanosema* Kieffer.

(= *Cardiosilus* Kieffer, syn. n.).

- 1 Antenna with 14 segments; mesoscutum clothed evenly with fine, more or less adpressed pubescence; scape longer, thinner, its apical margin hardly produced to form a projecting rim; petiole not swollen at sides and with two smooth medial ridges, the space between them bare. (Petiole beneath with predominantly simple hairs; claws small; *marginalis* shorter)..... 2
- Antenna with 15 segments; mesoscutum having a bare, polished appearance, being clothed only with long, semidecumbent hairs which are most numerous on the front part of the middle lobe; scape shorter, thicker, with well developed apical rim; petiole usually strongly swollen at sides, subhexagonal; claws unusually long and stout; *marginalis* longer or wings shortened. (Pronotal shoulders hardly indicated, smooth and rounded off; pits at side of pronotal collar deep and conspicuous, separated above by a flat bridge and internally by a fenestra and each filled below with a (usually) conspicuous tuft of pubescence; large sternite strongly produced (more or less right-angled) at base (fig. 35))..... 3
- 2 Three preapical segments of flagellum distinctly a little longer than wide; large sternite produced (humped) (fig. 32) at base (but less so than in *reitteri* and *nervosa*); side of pronotal collar with hardly a differentiated tuft of pubescence; pronotal shoulder less well developed; head very slightly more elongate; gaster more elongate posterior to the large tergite and more evenly narrowed to tip (fig. 41)..... *clavata* (Kieffer), comb. n.

(= *Acanopsilus clavatus* Kieffer)

England: ? Suffolk, 1 ♀. Ireland: 2 ♀.

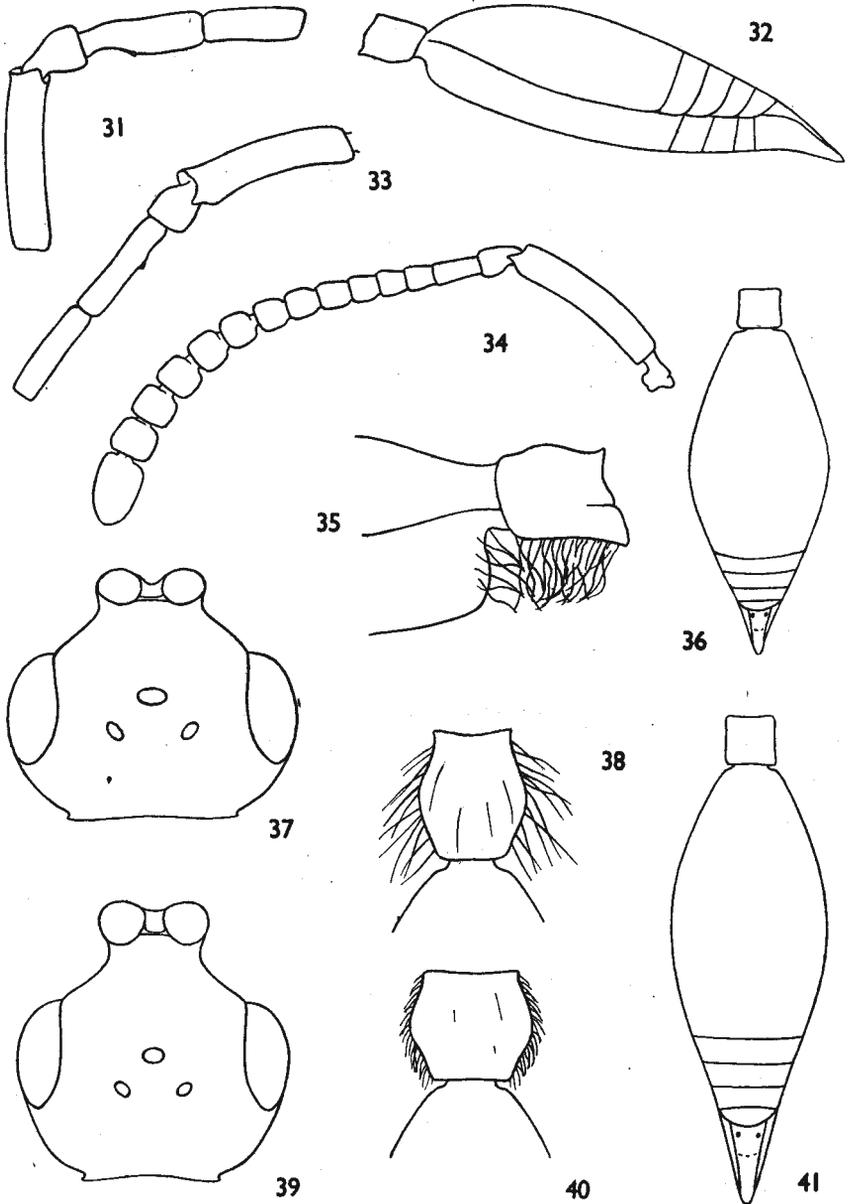


FIG. 31.—Basal antennal segments of *Acanoosema nervosa* (Thomson) ♂. FIG. 32.—Gaster, lateral, of *A. clavata* (Kieffer). FIG. 33.—Basal antennal segments of *A. alpestre* Kieffer, ♂. FIG. 34.—Antenna of *A. nervosa* (Thomson), ♀. FIG. 35.—Hump of large sternite, from side, of *Acanoosema nervosa* (Thomson), ♀. FIG. 36.—Gaster of *A. heterocera* (Haliday), ♀. FIG. 37.—Head, from above, of *A. nervosa* (Thomson), ♂. FIG. 38.—Petiole of *A. nervosa* (Thomson), ♀. FIG. 39.—Head, from above, of *A. flavipes* (Kieffer), ♂. FIG. 40.—Petiole of *A. reitteri* Kieffer, ♀. FIG. 41.—Gaster of *A. clavata* (Kieffer), ♀.

- Flagellum 1 with a distinct emargination, hence markedly narrowed towards base (fig. 31); the basal keel covers almost half; petiole, in largest individuals, hardly one and a half times as long as apically wide and often swollen in the middle; apical rim of scape with at most an obtusely angled tooth. 3
 - 3 Head, from above, strongly transverse; frontal prominence more deeply emarginate and not noticeably nasiform (fig. 37). (Petiole varying from one and a half times to twice as long as apically wide and often swollen medially; lateral cavities of pronotum very deep, separated above by a flat bridge and internally by a fenestra; each with a dense tuft of pale, almost golden pubescence; genitalia (fig. 313))
nervosa (Thomson)
 - Head, from above, somewhat rounded; frontal prominence hardly emarginate and noticeably nasiform (fig. 39) *flavipes* (Kieffer), comb. n.
(= *Pselomma flavipes* Kieffer)
- Scotland: Type loc. but type lost. Angus, Clova, 1 ♂ in Brit. Museum (Nat. Hist.). The cavity on each side of the pronotal collar is less well defined than in nervosa and shows only a thin tuft of greyish pubescence; ocelli slightly smaller than in nervosa.*

Genus *Acropiesta* Förster.

(= *Pantopiesta* Maneval, 1939, *Bull. Soc. ent. Fr.* 44: 170. syn. n.).

The validity of *Pantopiesta* as a genus rests primarily on a secondary sexual character, namely the greatly lengthened gaster of the female of *flaviventris* Thomson. In my opinion, this feature has no more than specific value and to attach more importance to it would be to open the door wide for the creation of numerous genera or subgenera within the subfamily, especially in such genera as *Aclista* (formerly *Xenotoma* s.l.) and *Cinetus*, where the gaster of the female shows a wide range of variation in shape.

KEY TO SPECIES.

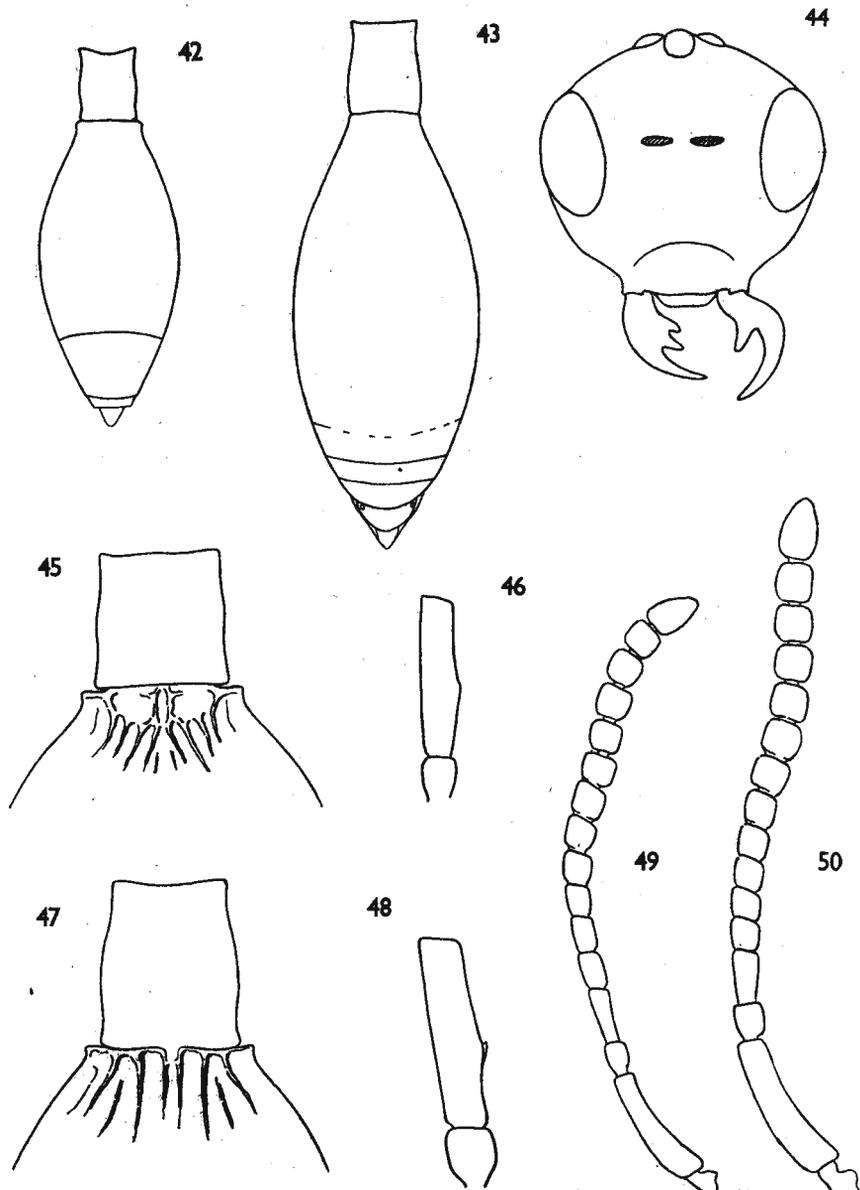
(Females).

- 1 Flagellum filiform, with segments 2-12 all obviously longer than wide. (Propodeal keel frequently forked). 2
- Flagellum either very distinctly widened towards apex, or, if not, then segments 2-12 are not obviously longer than wide 4
- 2 Scape very long (fig. 14), slightly longer than the following 4 segments together; scutellum with a complete or almost complete lateral margin; propodeal keel widely forking at about middle but the 3 keels thus formed very irregular and lacking definition; scutellum showing reddish and contrasting with the darker rest of the thorax; gaster much less attenuated behind (fig. 20), in profile down-curved, beaklike at apex *sciarivora* Kieffer
England. Ireland. Sweden. 2 ♀, 6 ♂. The English female has the petiole slightly swollen at middle. The flagellum of this species is imperceptibly narrowed towards apex and has a bare shiny appearance owing to its excessively short pubescence; mesoscutum polished and bare except for a few hairs along the course of the notaulices.
- Scape shorter, at most a little longer than the following 3 segments together; scutellum without such a margin; propodeal keel forked usually from base, if at all, and then not so widely; scutellum not contrasting in colour with the rest of the thorax; gaster much more attenuated behind and with strong lateral compression at apex. (Radial cell very long, considerably longer than in *sciarivora*). . . 3
- 3 Gaster beyond petiole very strongly laterally compressed and much elongated, about 6 times as long as its greatest width (fig. 16); preapical segment of antenna almost, or virtually, twice as long as wide; hairs of the mesoscutum tending to be restricted to borders of notaulices so that at least the middle lobe is largely bare and polished. *flaviventris* Thomson
(= *Xenotoma gracilicornis* Kieffer, ♂, syn. n. Type in British Museum (Nat. Hist.)).
(= *Pantopiesta flaviventris* Thomson, Hincks, 1949, *Ent. mon. Mag.* 85: 29).
England. Ireland. Hungary. Sweden. 13 ♀. Easily recognized by the elongate gaster.

- Gaster beyond petiole only in about apical third laterally compressed and not more than three and a half times as long as its greatest width (fig. 21); preapical segment of antenna from one and a third to one and a half times as long as wide; mesoscutal hairs more abundant and more evenly distributed so that the middle lobe is hairy all over ***flavipes** Kieffer
England. Ireland. Scotland. 6 ♀. (Type in British Museum (Nat. Hist.). Extremely like flaviventris, except for the shorter gaster.
- 4 Micropterous (fig. 22), the fore wing reaching hardly beyond postscutellum. (Flagellum like that of *rufiventris* (cf. fig. 13); an extremely short keel (epomia) separates the side of the pronotum from the neck; mesoscutum bare except for a few long hairs along the course of the notaulices) **aptera** Kieffer
Germany: Tyrol, Tegernsee, 1 ♀. (In the Staatssammlung, Munich). Perhaps a micropterous form of rufiventris.
- Macropterous, with fore wing fully developed. 5
- 5 Flagellum very short, not noticeably thickened towards apex and with segments 2-12 not longer than wide, submoniliform to almost square (fig. 15); mesoscutum with only sparse, inconspicuous hairs; hind femur with short basal stalk (fig. 19); marginalis and radial cell shorter than in *rufiventris* **santhura** Kieffer
Germany. 2 ♀. Easily recognized on the structure of the flagellum.
- Flagellum longer and very obviously thickened towards apex with segment 2 very distinctly longer than wide and 12 more or less square in outline (fig. 13); mesoscutum thickly hairy all over; hind femur with longer basal stalk; marginalis and radial cell longer but radial cell not so long as in *flaviventris* and *flavipes* (fig. 106) **rufiventris** Kieffer
England. Ireland. Sweden. 22 ♀. Stands apart from the other species on the structure of the flagellum.

(Males).

1. Flagellum 1 with a deep emargination, the segment being usually distinctly widest at apex of the emargination and distinctly bowed on the side opposite to it. (Radial cell very long, at least two and a half times as long as the marginalis; a usually sharp, distinct transverse keel joining the antennal sockets and usually at the level of their rims; mid-basal sulcus of large tergite much longer and more emphasized than any of the indistinct lateral sulci; no trace of an epomia) 2
- Flagellum 1 with at most a feeble emargination and the segment lacking both these other features 3
- 2 Back of head, especially at temples, with only sparse hairs, hence appearing decidedly smooth and shiny; pubescence of flagellum short, the height of the thick, curved setae hardly more than half that of the longer, finer hairs (fig. 17); ca. 4 mm.; eyes almost bare; genitalia (fig. 314) **flaviventris** Thomson
(There seems to be variation in the amount of pubescence of the mesoscutum. Some specimens with more hairy middle lobe of mesoscutum may be flavipes Kieffer, the male of which is otherwise unknown.)
- Back of head, especially at temples, much more hairy; pubescence of flagellum longer, the two kinds of hairs less differentiated, the shorter, thicker ones, on the whole, reaching the same level as the longer ones; ca. 3.5 mm.; eyes with hairs slightly less sparse than in *flaviventris* **rufiventris** Kieffer
- 3 Flagellum 1 without an emargination but with a fine straight edged keel covering about basal two-fifths; no epomia between side of pronotum and collar; sides of scutellum subcarinate; the weak propodeal keel widely forking at about middle. (Mesoscutum highly polished, its extremely sparse hairs restricted to the course of the notaulices; head, including temples, rather thickly hairy; marginalis and postmarginalis heavily embrowned) **sciarivora** Kieffer
- Flagellum 1 with a distinct though feeble emargination, ending in a small projection; sides of scutellum without a margin; medial keel of the propodeum well defined, not forked. (Radial cell rather short, less than twice as long as the marginalis; no keel between the antennal sockets; an extremely short epomia between the side of the pronotum and the collar) 4
- 4 Petiole two and a half to three times as long as its apical width; pubescence of flagellum very long, curled and sparse, standing away from the segments to a distance equal to the width of the segments (fig. 18); head, including temples,



FIGS. 42-43.—Female gaster of: 42, *Diphora westwoodi* Förster; 43, *Aprestes aberrans* sp. n.

FIG. 44.—Head, from in front, of *Pamisi one* sp. n., ♀.

FIG. 45.—Base of gaster of *Oxylabis tuberculata* Kieffer, ♀.

FIG. 46.—First flagellar segment of *O. thomsoni* Kieffer, ♂.

FIG. 47.—Base of gaster of *O. maculata* Kieffer, ♀.

FIG. 48.—First flagellar segment of *O. maculata* Kieffer, ♂.

FIGS. 49-50.—Female antenna of: 49, *O. thomsoni* Kieffer; 50, *O. maculata* Kieffer.

and mesoscutum almost bare. (Head rather large and not of pronounced transverse appearance).....*sterope* sp. n.

Sweden: Skåne, Löderup, 24.vii.1938, 1 ♂, the type; Kivik; Degeberga; Höör dist. Skärålid, 62 ♂, nearly all taken in July. (D. M. S. Perkins and J. F. Perkins). Female unknown.

- Petiole about one and a half times as long as its apical width; pubescence of the flagellum short and denser, the hairs standing away from the segments to a distance equal to half their width; head and at least the middle lobe of the mesoscutum with sparse hairs all over. (Posterior projections of the propodeum very strong; usually a well-developed keel joining the 2 lateral keels of the propodeum posterior to the spiracle; base of large tergite with a fairly even fan-shaped area of strong striation).....*lysicles* sp. n.

Sweden: Skåne, Höör dist., 9.vi.1938, 1 ♂, the type; Ring sjö; Skärålid; Degeberga; Röstänga; Löderup; vi, vii, 17 ♂ (D. M. S. Perkins and J. F. Perkins).

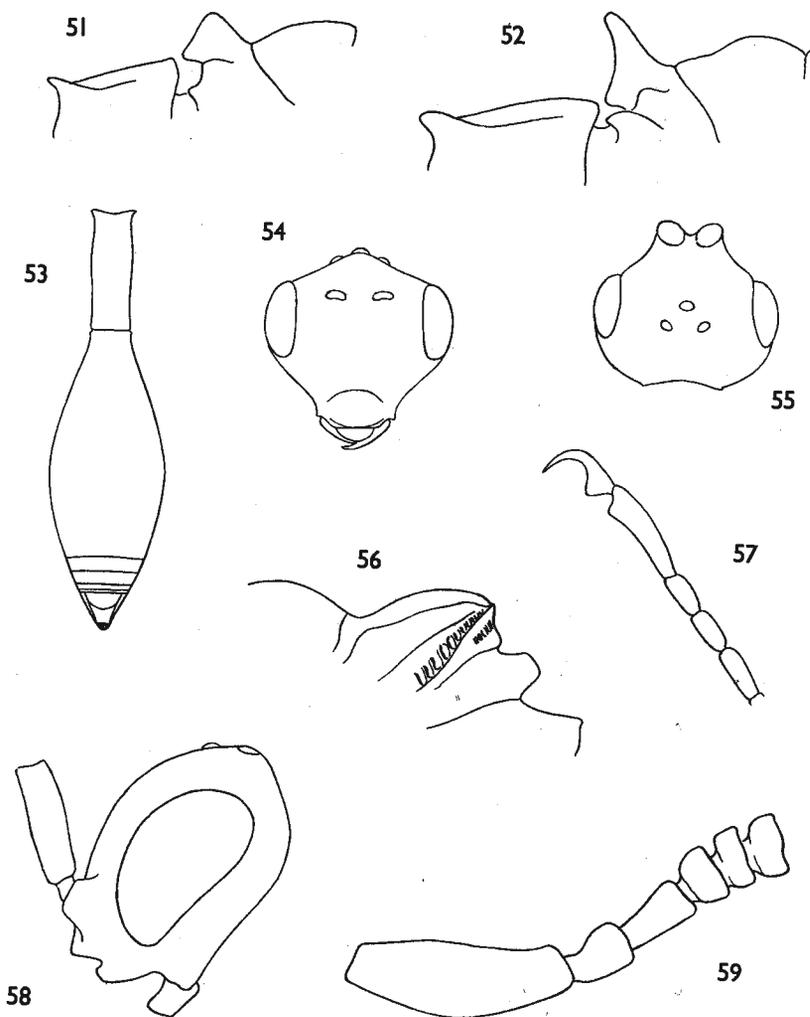
Genus *Oxylabis* Förster.

The females of this genus have a short, blunt gaster and are otherwise easily recognized by the characters given in the key to the genera.

KEY TO SPECIES.

(Females).

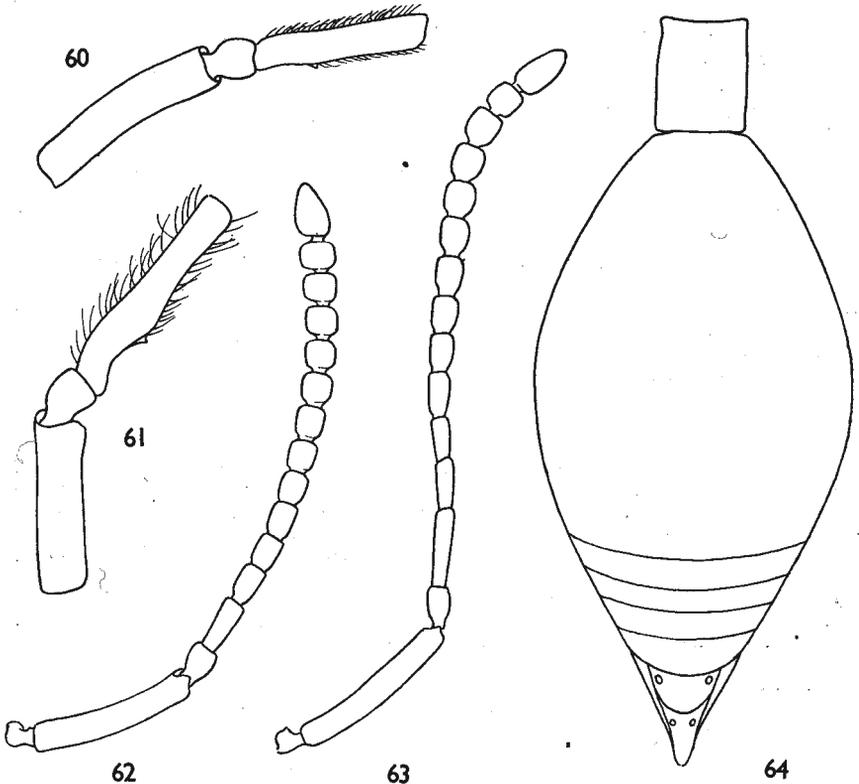
- 1 Base of large tergite on each side of the medial notch with 3 short furrows which are not closed anteriorly by a clearly defined, transverse keel (fig. 45). (Flagellum with the 6-7 distal segments strongly blackened, its length as in *thomsoni* (cf. fig. 49); postscutellum with only an angular projection)....*tuberculata* Kieffer
England: Devon, 3 ♀, 2 ♂. Easily separated from *cameroni* by the basal structure of the large tergite.
- 2 Base of large tergite here with shallower, more numerous furrows or without distinct striation but in either case with a strongly raised transverse keel on each side of the medial notch (fig. 47).....2
- 2 Postscutellum virtually without a projection; segment 2 of the flagellum not longer than wide, or even slightly transverse; face beneath the antennal insertions with very coarse rugosity.....*cameroni* (Kieffer), comb. n.
(= **Acista cameroni* Kieffer, ♂. Type in British Museum. (Nat. Hist.))
England. Scotland. Austria. France. Sweden. 15 ♀, 48 ♂. In the Austrian females, the entire antenna is usually bright fulvous; it is nearly as pale in the single Swedish specimen but blackened on the 7 distal segments in the single female from England. The antenna is shorter than in the two following species.
- Postscutellum with a conspicuous spine; segment 2 of the flagellum at least slightly longer than wide; face immediately beneath the antennal insertions with a zone of shagreened sculpture merging below into coarser rugosity.....3
- 3 Flagellar segment 4 not longer than wide (fig. 50); facial furrows well defined, foveate and confluent with the zone of subantennal rugosity; base of large tergite (fig. 47).....*maculata* Kieffer
(= *Oxylabis punctulata* Kieffer, syn. n.)
Widely distributed and common in NW. Europe. In largest examples the large tergite is conspicuously punctate on apical two-thirds. In nearly all specimens there is a dark cloud beneath the stigma and the marginalis becomes unpigmented towards base.
- Flagellar segment 4 very distinctly longer than wide (fig. 49); facial furrows indicated only near clypeus and usually separated from the zone of shagreened sculpture (this more extensive than in *maculata*) beneath the antennal insertions by a smooth space.....*thomsoni* Kieffer
Less common than *maculata*. A much less noticeable cloud beneath the stigma; marginalis not paler towards base; petiole narrower and longer. The difference in the sculpture of the face seems reliable.



- FIGS. 51-52.—Thorax, lateral, showing postscutellum, of: 51, *Parozylabis semirufa* Kieffer, ♀; 52, *P. spinifer* sp. n., ♀.
- FIG. 53.—Gaster of *P. semirufa* Kieffer, ♀.
- FIG. 54.—Head, from in front, of *P. spinifer* sp. n., ♀.
- FIG. 55.—Head, from above, of *Pantolyta subtilis* Kieffer, ♂.
- FIG. 56.—Scutellum, lateral, of *Ismarus flavicornis* (Thomson).
- FIG. 57.—Hind tarsus of *Anommatus ashmeadi* Mayr, ♀.
- FIG. 58.—Head, from side, of *Ismarus flavicornis* (Thomson).
- FIG. 59.—Basal antennal segments of *Pantoclis dolon* sp. n., ♀.

(Males).

- 1 Postscutellum with at most a feeble conical projection..... 2
- Postscutellum with a conspicuous spine..... 3
- 2 Base of tergite 2 without a clearly defined transverse keel on each side of the mid-basal notch (such a keel present only at extreme lateral corner); facial furrows virtually not confluent with the subantennal rugosity; postmarginalis not clearly indicated for a length greater than that of the stigmalis; stigmalis and base of radialis thicker than in *cameroni* *tuberculata* Kieffer
- Base of tergite 2 with a clearly defined, transverse keel that extends to lateral corner; facial furrows more distinctly foveate and confluent with the subantennal rugosity; postmarginalis much longer than the stigmalis; stigmalis and radialis less thickened *cameroni* (Kieffer)
- 3 Seen from side, the modification at base of flagellum 1 has a perfectly straight edge (fig. 46); facial furrows not confluent with the fine, shagreened, subantennal rugosity. Genitalia (fig. 305) *thomsoni* Kieffer
- Thus seen, this modification has a feebly curved edge (fig. 48); facial furrows tending to be confluent with the subantennal rugosity; this somewhat coarser than in *thomsoni*..... *maculata* Kieffer



FIGS. 60-61.—Basal antennal segments of: 60, *Psilomma dubia* Kieffer; 61, *P. nigra* Kieffer.
 FIGS. 62-63.—Female antenna of: 62, *P. dubia* Kieffer; 63, *P. nigra* Kieffer.
 FIG. 64.—Gaster of *P. atriceps* Kieffer, ♀.

Genus *Pamis* gen. n.

Mandibles long, sharply pointed, the right one with 3 teeth, the left with 2 (fig. 44). Eyes thickly hairy. Antenna of female with 15 segments. Epomia reduced to a short keel separating the side of the pronotum from the collar; dorsal margin of pronotum showing as a free, raised rim that extends without interruption from spiracle to spiracle. Marginalis punctiform and hence many times shorter than its distance from the basalis (fig. 105); radial cell large, completely closed. Medial keel of propodeum forked. Gaster of female of ordinary form, with 4 clearly defined ring segments and a clearly defined seventh and eighth beyond them.

Type of the genus: *Pamis ione* sp. n.

Pamis ione sp. n.

Female: Black. Antenna dark brown with base of flagellum only very slightly paler; flagellum thick with all segments, except first and last, virtually moniliform; scape short, thick but fully twice as long as flagellum 1. Pronotal shoulders hardly indicated. Scutellar hollow small, much less wide than the distance between the notaulices behind. Hind femur rather thick, almost without a basal stalk. Neither the inner nor the outer lateral propodeal keel ending behind in a projection. Petiole one and a third times longer than wide.

Male: Antenna brown throughout; flagellum 1 hardly shorter than the scape, 8:9, with a weak emargination covering nearly half; pubescence of flagellum very short and even. Scutellar fovea a little wider than in female.

Length: ♂ ♀, 2.8–3 mm.

Ireland: Dublin, Slade of Saggart, 24. v. 1939, 1 ♀, the type (in coll. Stelfox), (A. W. Stelfox), Wicklow, Dublin, Tipperary. (3 ♂, 5 ♀, all A. W. S.). Scotland: Moray, 1 ♂. Sweden: Skåne, Ringsjö, vi, 1 ♂ (D. M. S. Perkins and J. F. Perkins). May–Sept.

In spite of the falcate mandibles, this genus has no affinity with *Aclista*. In general facies it suggests *Pantoclis* and *Zygota*. The short marginalis is very characteristic.

Genus *Aprestes* gen. n.

Mandibles of ordinary form. Epomia present; dorsal margin of pronotum showing as a free rim that extends uninterrupted from spiracle to spiracle. Scutellum behind with a foveate margin. Radial cell long, open at tip in female, closed in male; marginalis about two-thirds as long as its distance from the basalis. Beneath petiole towards apex, a conspicuous cylindrical tuft of hairs. Only 4 segments beyond the large tergite in both sexes though a faint suture at apex of large tergite suggests a fifth segment (fig. 43). Type of the genus: *Aprestes aberrans* sp. n.

Aprestes aberrans sp. n.

Female: Antenna 15-segmented, thick, with the 10 distal segments forming an ill-defined thickened club; first flagellar segment about 3 times as long as wide and fully half as long as the scape. Scutellar hollow small, almost circular. Petiole fully one and a half times as long as wide. Large tergite covered with large, rather remote punctures. Propodeal keel simple. Postscutellum seen from side rather sharply triangularly produced.

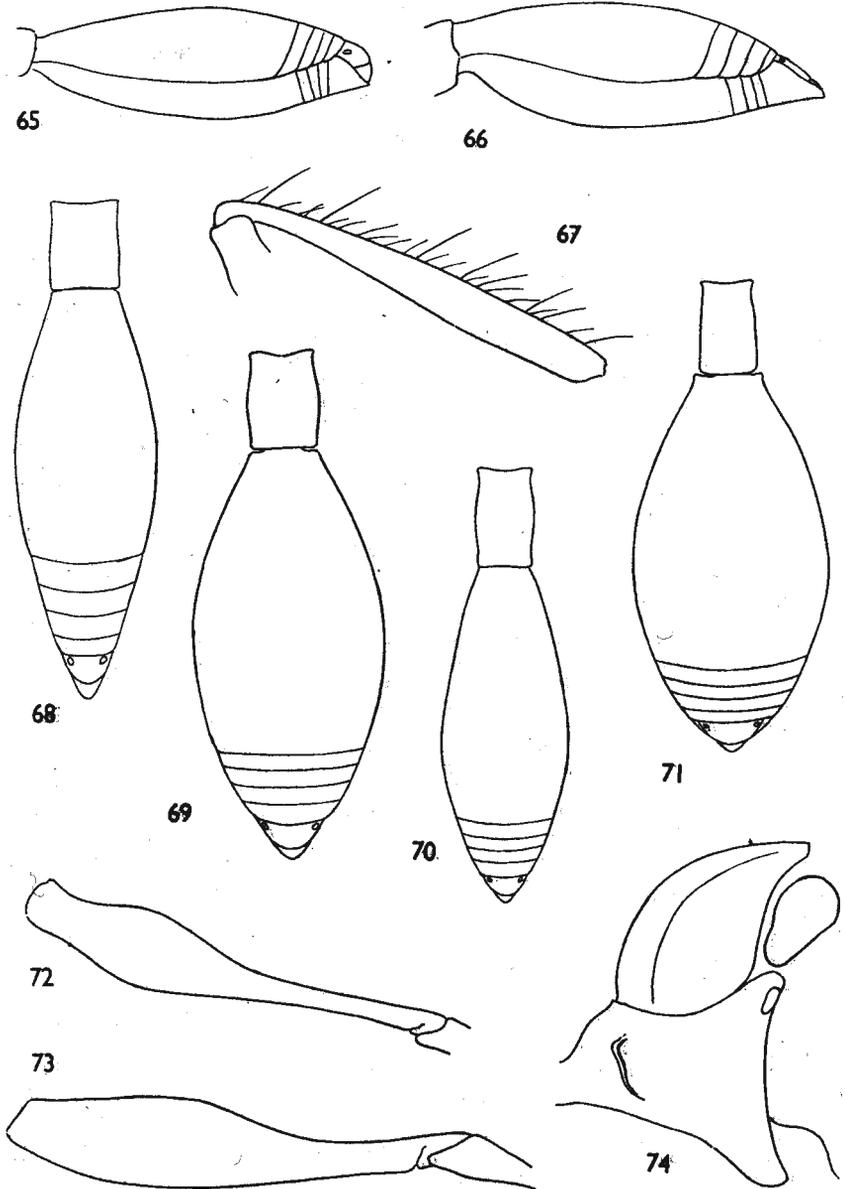
Male: Front tibia with 1–2 thickened bristles. First flagellar segment without trace of a basal modification, the segment being evenly hairy all round.

England: Yorks, 1 ♂ (J. Wood). Ireland: Dublin, Wicklow, Kildare, S. Tipperary. 1 ♂, 6 ♀ (A. W. Stelfox). Scotland: Aviemore, 1 ♀. Sweden: Skåne, Ringsjö, 4. vi. 1938, 1 ♂, the type (in British Museum (Nat. Hist.)) (D. M. S. Perkins and J. F. Perkins).

Related to *Pantoclis* and *Zygota* but very distinct from both these genera in the reduction in number of gastral segments and foveate hind margin of scutellum.

Genus *Belyta* Jurine.

Most species are readily recognized by the forked propodeal keel but this character is not constant throughout the genus. On the whole, the species are difficult to separate but the males of several can be easily recognized on genitalia alone.



FIGS. 65-66.—Gaster of: 65, *Belyta depressa* Thomson, ♀; 66, *B. rugosicollis* Kieffer, ♀.
 FIG. 67.—Hind tibia of *B. tenuicornis* Kieffer, ♀.
 FIGS. 68-71.—Gaster of: 68, *B. moniliata* Cameron, ♀; 69, *B. quadridens* Kieffer, ♀;
 70, *B. pedestris* (Kieffer), ♀; 71, *B. tenuicornis* Kieffer, ♀.
 FIGS. 72-73.—Hind femur of: 72, *B. lubrica* Kieffer, ♂; 73, *B. rugosicollis* Kieffer, ♂.
 FIG. 74.—Pronotum and mesoscutum, from side, of *B. lubrica* Kieffer, ♂.

KEY TO THE SPECIES.

(Females).

1. Distance between the antennal sockets (as seen from above) distinctly greater than half the diameter of one of them. (Scape clothed only with an extremely short, even pubescence; seen from above, the margin of the gaster, at least in apical third, shows a pale fringe of short pubescence as well as longer hairs towards apex) **Pantoclis brevicornis** Kieffer³
- This distance usually much less than half the diameter of a socket, the interspace usually reduced to a mere keel; or, if it approaches half the length of the socket, then the scape is clothed with long, outstanding hairs and the marginal pubescence of the gaster is fundamentally different (**Belyta** Jurine) 2
- 2 Scutellum posteriorly margined with a row of small foveae; large tergite at base with a raised, transverse margin interrupted at middle by the deep, basal furrow and absent on declivous sides. (Propodeal carina not forked; flagellum rather long, with the more apical segments loosely articulated; the 3 preapical segments, seen at their widest, only very slightly transverse; flagellum without long, up-standing, bristly pubescence; scutellar fovea small, almost circular, not wider than the distance between the posterior extremities of the notaulices; hind femur without a basal stalk; marginalis punctiform; radial cell long, open and ill-defined apically; large tergite sharply but rather remotely punctate) **fuscipennis** Thomson
- Ireland only. A most distinct and easily recognized species.*
- Scutellum posteriorly without foveae; large tergite without a transverse keel on each side of the medial sulcus 3
- 3 Gaster, in profile, bluntly truncate at apex (fig. 65), the small apical segment (eighth) lying in a vertical plane and virtually not over-reaching the preapical (seventh) segment. (Antennal segments 6-8 strongly transverse, wedge-shaped; flagellum short, its segments closely articulated; hind femur almost without a basal stalk) 4
- Gaster never thus truncate at apex, the apical tergite by no means lying in a vertical plane and always distinctly over-reaching the preapical segment (fig. 66) (only just so in *pedestris* but this species has the propodeal keel unforked) . . . 7
- 4 Radial cell completely closed, the radialis fully sclerotized as far as the edge of the wing; marginalis fully two-thirds as long as its distance from the basalis. (Head, from above, distinctly wider than long (fig. 75); scape slightly shorter and less thick than in *depressa*; scutellum flat as in *depressa* but the fovea very slightly less reniform; petiole with a much more obvious trace of longitudinal elements in its sculpture; a single Swedish female (Jansson Coll.) has the petiole slightly swollen medially with the surface becoming almost smooth here) . . . *seron* sp. n.
- England: Surrey, Horsley, 14.vi.1930, 1 ♀, the type (G. E. J. Nixon).*
- Sweden: Jansson Coll. A very dark species, having the facies of depressa but differing from it strikingly in the form of the radial cell; the large tergite shows no trace of punctation.*
- Radial cell more or less open at apex, the radialis becoming feebly sclerotized towards apex or not indicated; marginalis not more than half as long as its distance from the basalis 5
- 5 Face and clypeus strongly punctate; petiole with 4 even keels on a virtually smooth surface; scutellar fovea small, almost circular; segments on proximal half of flagellum without erect bristles on longer side; head slightly wider than long; pronotal shoulders sharp, almost right-angled, the subhorizontal surface posterior to them coarsely rugose. (Facial furrows marked by a row of transverse pits; more apical flagellar segments less transverse than in *depressa*; radial cell as indicated by the incomplete radialis larger than in *depressa*, the radialis sometimes distinct almost to the edge of the wing but less so in male; large tergite strongly punctate) **abrupta** Thomson
- Corsica. Finland. Germany. Switzerland. 5 ♀. On antennal structure could be confused only with depressa and lativentris, though is abundantly distinct from both; the most obvious difference is found in the sculpture of the petiole.*
- Face and clypeus impunctate; petiole with a predominating sculpture of rugose-

³ This species is included here owing to possibilities of misdetermination. See also p. 45.

reticulation ; scutellar fovea transverse and distinctly reniform ; segments on proximal half of flagellum with erect bristles ; pronotal shoulders showing only as smooth bosses, the surface behind them almost smooth ; head not wider than long..... 6

- 6 Antennal segments 12-14 markedly transverse, the whole antenna very short (fig. 94) ; head less narrowed behind the eyes (fig. 78) ; marginalis not obviously longer than the stigmalis ; large tergite without obvious punctures ; size smaller, 2.5-3.5 mm. (Wings frequently shortened but extending at least to the middle of the large tergite ; in forms with shortest wings, the head is frequently strongly flattened ; gaster (fig. 65))..... *depressa* Thomson
 (= *B. depressa* var. **cursitans* Kieffer, ♀, syn. n.)
 (= *B. furcata* Kieffer, ♀, syn. n.)
 (= *B. arietina* Kieffer, ♀, syn. n.)
 (= *B. costalis costalis* Kieffer, ♂, syn. n.)
 (= *B. costalis *obliterata* Kieffer, ♂, syn. n.)
 (= *B. *modesta* Kieffer, ♂, syn. n.)

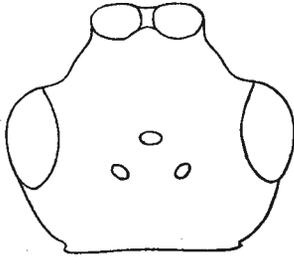
NW. Europe. Commonest species of the genus, the males often abundant. Hardly more than subspecifically distinct from excavata Whitaker (Canada, type in British Museum (Nat. Hist.)) ; excavata has legs and antennal scape entirely yellowish whereas in depressa the scape is blackened except at apex and the legs tend to be brown.

- Antennal segments 12-14 less transverse ; marginalis about twice as long as the stigmalis ; head more narrowed behind the eyes ; large tergite rather conspicuously punctate towards sides (larger, 4-8 mm.)..... **lativentris* Cameron
 England: Herts., v, 1 ♀. Scotland: Type ♀, gaster missing. (In British Museum (Nat. Hist.)). Lacks the flattened appearance characteristic of all specimens of depressa but nevertheless not obviously distinct from this species on the two females available ; the scutellar fovea is deeper, larger and less obviously reniform than in depressa but this difference may be correlated with larger size.
- 7 Marginalis very short, hardly one-third as long as its distance from the basalis ; radial cell short, with radius distinctly curved. (Frons not markedly nasiform (fig. 76) ; transverse keel joining the antennal sockets behind almost straight ; between this keel and the slope of the frons is a deep groove ; scape and legs bright, rich yellow ; antenna broken but existing scape, pedicel and flagellum I very shiny with flagellum I narrow, three and a half times as long as apically wide ; anterior side of the front tibia heavily and conspicuously spinose ; scutellar fovea small, deep, round ; propodeal carina widely forked ; petiole with 4 fairly sharply defined keels ; gaster posterior to petiole longer and narrower than in all other species except pedestris (fig. 68))..... **monillata* Cameron
 Scotland: Type ♀. (In British Museum (Nat. Hist.)). Sweden: 1 ♂. A most distinct species, in general facies much like pedestris. Has more in common with pelias sp. n. and carinifrons Kieffer than with the species with strongly nasiform frons clustering around quadridens Kieffer.
- Marginalis usually much longer than this ; if as short, then the radial cell is much longer and the scape is infusate and not shiny or the propodeal keel is not forked. (Frequently micropterous forms)..... 8
- 8 Radial cell very long ; marginalis less than half as long as its distance from the basalis ; flagellum without bristly pubescence ; frons not conspicuously nasiform. (Antenna on the whole dusky with segments 12-14 not transverse ; scutellar fovea almost circular ; gaster very narrow, its marginal pubescence forming, at least on posterior half in a dorsal view, a fairly dense fringe)..... 9
- Radial cell much less long, or, if it approaches the above length, then the marginalis is fully half as long as its distance from the basalis ; flagellum with bristly pubescence ; frons conspicuously nasiform. (Frequently micropterous forms)..... 10
- 9 Propodeal carina forked ; petiole wrinkly rugose, without obvious longitudinal elements ; width of the scutellar fovea obviously less than the distance between the posterior extremities of the notaulices ; marginalis hardly one-quarter as long as its distance from the basalis ; this distance (i.e. second abscissa of subcostalis) about twice as long as the short basalis ; flagellum thin and rather short (fig. 92) but scape relatively thick ; face with virtually no trace of furrows ;

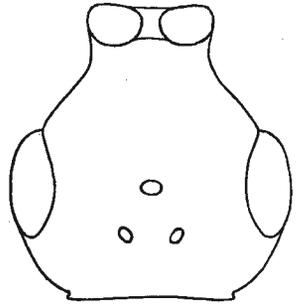
anterior surface of front tibia with numerous fine spines.....*pellas* sp. n.
 Sweden: Skåne, Högst. dist., 18. vi. 1938, 6 ♀, one the type (D. M. S. Perkins and J. F. Perkins). A very distinct species, easily distinguished from all others on the combination of venational characters. Closest ally seems to be *carinifrons* Kieffer.

- Propodeal keel not forked, or at most with the faintest indication of forking; petiole strongly shining and with 4 keels of which the 2 middle ones are best defined; width of the scutellar fovea not less than the distance between the posterior extremities of the notaulices; scutellar fovea as in *pellas* but more distinctly margined laterally; *marginalis* almost half as long as its distance from the basalis; second abscissa of the subcostalis hardly one and a half times as long as the basalis; flagellum thicker and longer (fig. 93); face with distinct rugose furrows; anterior surface of front tibia with fewer and much less distinct spines.....*carinifrons* (Kieffer), **comb. n.**
 (= *Paraclista carinifrons* Kieffer)

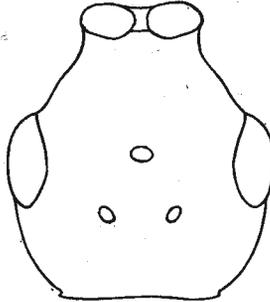
England. Ireland. Sweden. 5 ♀, 10 ♂. The striation at the base of large tergite is much less well developed than in *pellas*.



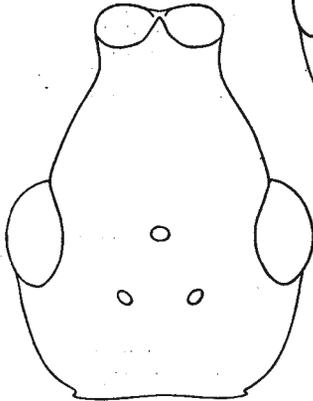
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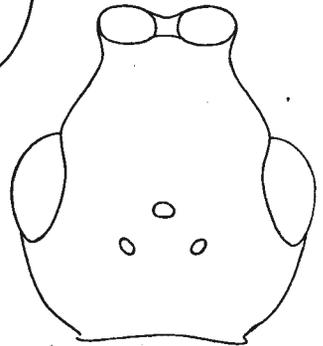
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Figs. 75-79.—Head of female, from above, of: 75, *Belyta seron* sp. n.; 76, *B. moniliata* Cameron; 77, *B. quadridens* Kieffer, micropterous; 78, *B. depressa* Thomson; 79, *B. rugosicollis* Kieffer.

- 10 Propodeal keel not forked ; propodeum unusually long, its dorsal areas distinctly longer than wide ; gaster long and very narrow, not wider than the thorax, having a slender, fusiform appearance (fig. 70) ; flagellum not long nor of powerful build and its segments without upstanding bristly hairs (fig. 95). (Facial furrows very short, not confluent with the weak subantennal sculpture ; scape thick, shiny and reddish-yellow like the short, thick legs ; hind femur without a basal stalk and much thickened ; wings reaching to end of gaster ; radial cell very short, with the radialis distinctly curved ; scutellar fovea small, more or less circular and less wide than the distance between the posterior extremities of the notaulices ; petiole somewhat thick and swollen, and densely, evenly rugose-reticulate ; posterior margins of the antennal sockets hardly forming an angle at their junction (cf. *forticornis* and *quadridens*, fig. 77)) *pedestris* (Kieffer), comb. n.
 (= *Parachista pedestris* Kieffer)

England: S. Somerset, Brompton Regis, viii, 2 ♀. A most distinctive species, characterized chiefly by long, narrow gaster, propodeal characters and form of flagellum. In general facies very like moniliata but differs in sculpture of petiole, simple propodeal keel, etc.

- Propodeal carina normally forked (if not, some individuals of *forticornis*, then margins behind antennal sockets uniting to form a conspicuous forward projection) ; propodeum of ordinary form, its dorsal areas not longer than wide ; gaster less narrow, distinctly a little wider than the thorax ; flagellum long, powerfully built and with upstanding, bristly hairs 11
- 11 Base of tergite 2 between its prominent, lateral corners distinctly wider than the apical width of the petiole (fig. 71). (Gaster broad, somewhat flattened ; longest hairs of the flagellum fully two-thirds the width of the segments ; margins behind antennal sockets uniting medially and produced forwards to form a conspicuous, angular tooth) 12
- Base of tergite 2 here not wider than the apex of the petiole. (Gaster narrower than in above species) 13
- 12 Tibiae, more especially the hind pair, with long, upstanding hairs (fig. 67) ; facial furrows deep, distinct, extending into the area of coarse rugosity beneath the antennal insertions ; scutellar fovea strongly transverse and markedly reniform ; pronotum posterior to a line joining the shoulders, short, finely rugose and tending to be margined on each side in front by a short, transverse keel which is an inwards extension of the shoulder ; fully winged species ; gaster a little flatter and broader than in *gaullei* (fig. 71) and showing faint traces of scaly-reticulation
tenuicornis Kieffer

England: Surrey, Kent, Herts. 10 ♀.

- Tibiae without upstanding hairs ; scutellar fovea less transverse and not reniform ; this part of the pronotum slightly longer, hence less transverse, coarsely rugose and with a much weaker indication of an anterior, bounding keel on each side ; second tergite more narrowed at base and without trace of scaly-reticulation ; facial furrows short, shallow and not extending into the zone of coarse rugosity beneath the antennal insertions ; fore wing usually not extending beyond apex of petiole (7 ♀) but fully developed in one female (Surrey, Ashtead) . . . **gaullei* Kieffer

England. Scotland. Distinguished from the other micropterous species on shape of gaster and longer, more bristly hairs of flagellum.

- 13 Fore wing shortened, reaching at most slightly beyond the posterior margin of the petiole. (Pronotum with a well defined, longitudinal, oval impression) . . . 14
- Fore wing fully developed and reaching to nearly the apex of the gaster 15
- 14 Head more narrowed and less rounded behind the eyes (fig. 77) ; seen from side, the frons falls more steeply to the anterior prominence ; flagellum less, or not at all darkened towards apex ; 5 preapical segments of flagellum almost moniliform ; pronotum on each side of the median fovea with considerable rugosity ; scape slightly longer and slightly less thick ; propodeal keel always forked in material examined. (Size usually slightly larger than in *forticornis* ; gaster (fig. 69))

**quadridens* Kieffer

(= *B. *longistilus* Kieffer, ♂, syn. n.)

(= *Pantoclis *atriatilis* Kieffer, ♂, syn. n.)

Widely distributed in NW. Europe. Easily confused with forticornis, the differences between the two species being all comparative.

- Head less narrowed behind the eyes and more rounded here ; thus seen, the frons slopes more gradually to the tip of the antennal prominence ; flagellum tending

to darken after middle ; 5 preapical segments distinctly transverse ; pronotum on each side of the fovea tending to show as a smooth, rounded boss with only a feeble trace of rugosity

-*forticornis* Cameron
 (= *Belyta* **crassinervis* Kieffer, ♀, syn. n.)
 (= *Belyta crassinervis* var. **scotica* Kieffer, ♂, syn. n.)
 (= *Belyta* **marginalis* Kieffer, ♀, macropterous, syn. n.)
 (= *Belyta mullensis* Cameron, ♂, syn. n.)
 (= *Belyta* **peraffinis* Kieffer, ♂, syn. n.)
 (= *Pantochis* **arcuata* Kieffer, ♂, syn. n.)
 (= *Pantochis arcuata festiva* Kieffer, ♂, syn. n.)
 (= *Pantochis* **levistylus* Kieffer, ♂, syn. n.)
 (= *Xenotoma* **scotica* Kieffer, ♂, syn. n.)

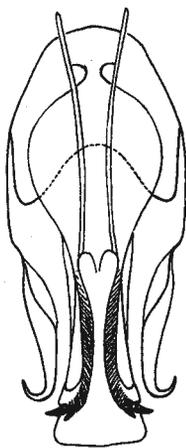
Widely distributed and common in NW. Europe.

- 15 Keel margining the antennal sockets behind produced forwards medially to form a well-defined, angular tooth ; longer, bristly hairs of the more apical flagellar segments obviously shorter than the width of the segments 16
 — This keel at most very feebly angled medially ; these hairs at least nearly equal to the width of the segments 17
 16 Antennal segments 4-9 less transverse, almost moniliform (head as in couplet 14) ; ocelli slightly larger, forming a triangle with base slightly longer than sides
*quadridens* Kieffer
 — Antennal segments 4-9 more transverse (head as in couplet 14) ; base of ocellar triangle not longer, sometimes shorter than sides *forticornis* Cameron
 17 Long, erect hairs of antennal segments 11-14 distinctly shorter than the width of the segments ; raised, posterior part of the pronotum very coarsely rugose-reticulate ; scutellar fovea less transverse and less distinctly reniform ; scape always yellow ; facial furrows subfoveate, merging into the very coarse subantennal sculpture at about midway between tip of prominence and clypeus ; gaster (fig. 66) *rugosicollis* Kieffer
England: Hants., Surrey. Sweden: Skåne. Head (fig. 79).
 — Long, erect hairs of antennal segments 11-14 about equal to the width of the segments ; raised, posterior part of pronotum much less rugose, shorter and having a less differentiated appearance ; scutellar fovea more transverse and distinctly reniform ; scape usually darkened medially ; facial furrows showing as smooth grooves, sometimes very weak, that flow into the much less rugose subantennal area nearer to the antennal prominence *elegans* Kieffer
 (= *Belyta* **acuta* Kieffer, ♂, syn. n.)
 (= *Belyta norvegica* Kieffer, ♀, syn. n.)

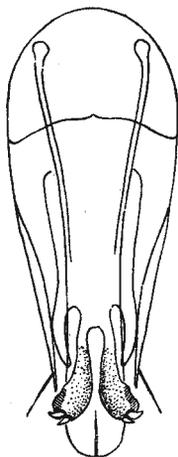
England. This species has the antenna particularly thick and long, with its pubescence longer and more bristly than in any other species.

(Males).

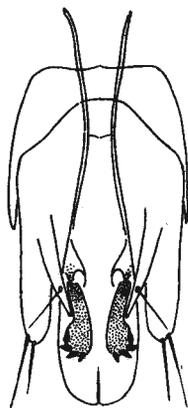
- 1 Scutellum margined posteriorly with a row of irregularly shaped foveae ; large tergite at base with a raised, transverse margin interrupted at middle by the deep, basal furrow and absent on declivous sides. (Facial furrows foveate and merging into the large area of coarse subantennal rugosity ; venation quite unlike that of *Belyta* but resembling closely that of *Zygota* ; propodeum without a forked keel ; petiole widened behind, hardly longer than its posterior width)
*fuselpennis* Thomson
Switzerland: Valais, vi, 1 ♂. Distinguished from all species of Zygota on the first two mentioned characters.
 — Scutellum posteriorly without a trace of foveae ; large tergite at base without such a margin 2
 2 Radial cell either very short, not longer than the marginalis or indistinctly closed apically by a long, spurious radialis that tends to anastomose with the post-marginalis ; in either case a long, spurious postmarginalis is present that fades out distally. (Scape short, thick, and distinctly swollen at base ; marginalis fully two-thirds as long as its distance from the basalis) 3
 — Radial cell completely closed at apex, or if doubtfully so, then it is still much longer than the marginalis ; postmarginalis never thus indistinct nor fading out distally 5



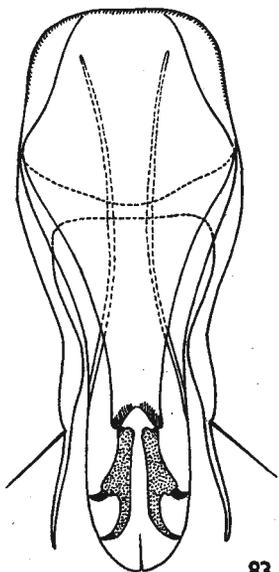
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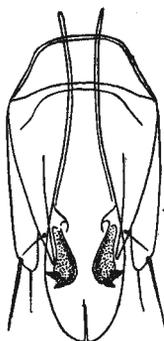
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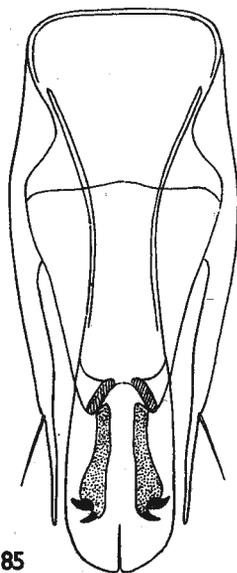
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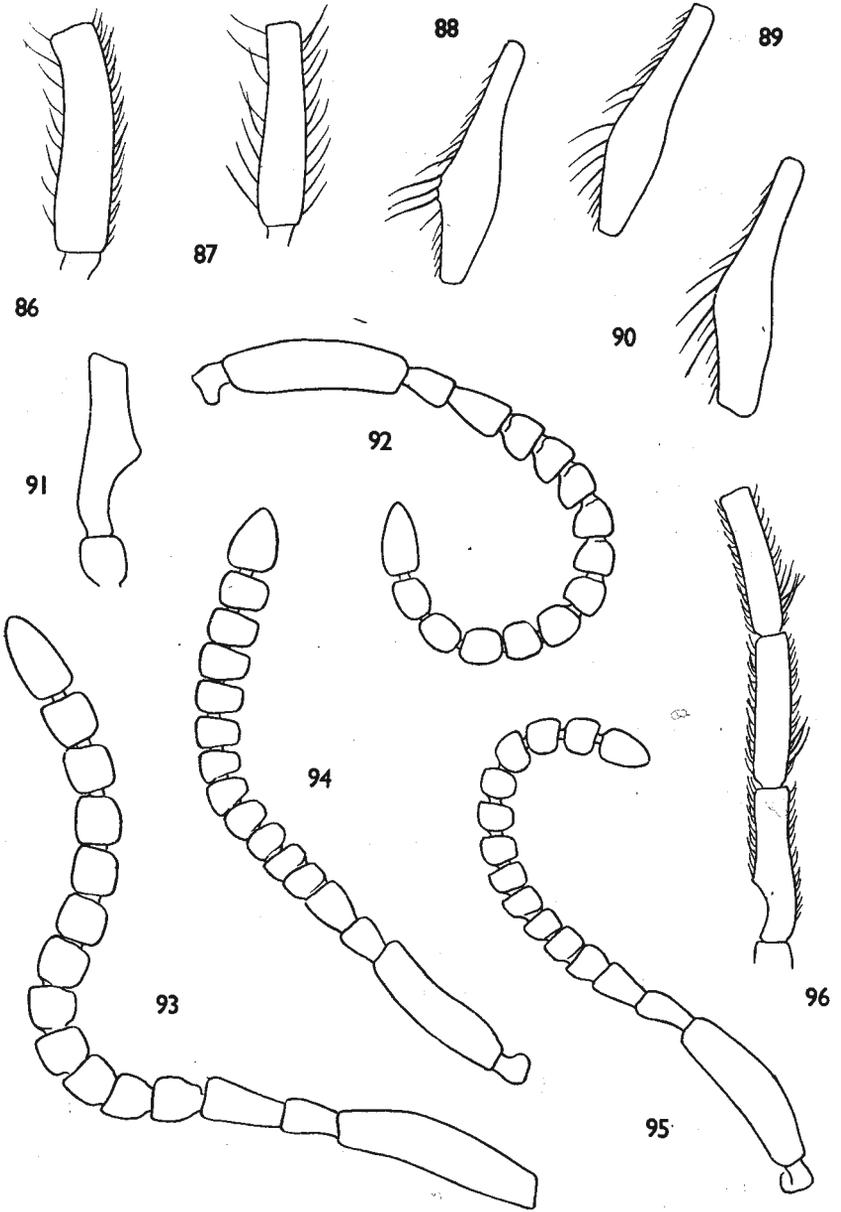
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FIGS. 80-85.—Genitalia, ventral, of : 80, *Belyta validicornis* Thomson ; 81, *B. depressa* Thomson ; 82, *B. rugosicollis* Kieffer ; 83, *B. quadridens* Kieffer ; 84, *B. elegans* Kieffer ; 85, *B. forticornis* Cameron.

- 3 Radial cell about as long as the marginalis ; radialis continuing beyond the apex of the cell and anastomosing with the postmarginalis to form a long, thickened, spurious vein ; this thickening is usually about as long as radial cell plus marginalis. (Scape almost always deeply infuscated to blackish ; scutellar fovea frequently markedly reniform)..... 4
- Radial cell as indicated by the indistinct radialis much longer than the marginalis, the radialis remaining more or less free from the postmarginalis throughout (fig. 113). (Scape stouter and more swollen basally than in *depressa* ; head more transverse ; thorax not in the least flattened ; pronotum with distinctly angular shoulders ; scutellar fovea larger than in *depressa*, deeper and not, or hardly, reniform ; notaulices widened posteriorly and separated here by 2-3 times their posterior width ; dorsal areas of propodeum in larger individuals with coarse, vermiculate rugosities towards sides ; petiole short, about one and one-third times longer than its posterior width ; attenuated, apical part of paramere strongly bent downwards in a plane at right angles to the horizontal plane of the whole genital capsule ; fig. 80 shows parameres turned outwards through 90 degrees)..... *validicornis* Thomson
England. Finland. Sweden. 11 eas. Female unknown.
- 4 Size smaller, 3-4 mm. ; large tergite impunctate ; pubescence of flagellum less fine and less dense. (Thorax usually somewhat flattened and with the scutellar fovea markedly reniform ; compared with *validicornis*, the pronotal shoulders are hardly indicated ; notaulices separated posteriorly by 4-5 times their posterior width ; appearance of the radial cell somewhat variable (fig. 115) ; genitalia (fig. 81)..... *depressa* Thomson
- Size larger, ca. 4-5 mm. ; large tergite heavily punctate ; pubescence of flagellum slightly finer and denser..... *lativentris* Cameron
England. Ireland. 6 ♂. Doubtfully distinct from depressa but there is a greater disparity in the size of the two digital teeth than in that species.
- 5 Marginalis considerably less than half as long as its distance from the basalis... 6
- Marginalis at least about half as long as this distance..... 9
- 6 Subcostalis between marginalis and basalis at least one and two-thirds times as long as the basalis ; radial cell very long, sharply tapered to apex and with straight radialis, its length distinctly greater than the abscissa of the subcostalis between marginalis and basalis ; facial furrows virtually absent ; concave side of the scape with fine, close pubescence. (Scape blackened ; flagellum very slender with preapical segment fully 5 times as long as wide ; scutellar fovea circular ; propodeal carina narrowly forked)..... *pellas* Nixon
(See key to females)
- Subcostalis here at most one and a third times longer than the basalis ; radial cell at most only a little longer than the abscissa of the subcostalis and then the radialis is curved distally ; facial furrows more or less wanting only in *pedestris* but this species has the scape yellow and the propodeal carina unforked ; concave side of scape with at most a few long, sparse hairs..... 7
- 7 Propodeal carina unforked ; dorsal areas of the propodeum distinctly longer than wide ; facial furrows indicated only as short, smooth grooves. (Scape yellow, its inner, concave side bare except for a few longish hairs ; flagellum very slender, the preapical segment fully 4 times as long as wide ; scutellar fovea small, weakly transverse ; gaster beyond petiole long, narrow ; petiole about twice as long as wide, rugose-reticulate without obvious indication of longitudinal keels ; front tibia without differentiated bristles)..... *pedestris* Kieffer
England: Hants., Brockenhurst, viii, 1 ♂.
- Propodeal carina forked ; dorsal areas of the propodeum less obviously longer than wide even if keel were unforked ; facial furrows distinct, merging with or extending into the subantennal rugosity..... 8
- 8 Radial cell very short, hardly equal to the abscissa of the subcostalis between basalis and marginalis ; pronotal shoulders sharp and angular ; the pronotum between them falls, at least medially, perpendicularly to the neck and tends to be smooth and unsculptured here ; facial furrows coarsely foveate and merging into the coarse subantennal sculpture ; face and clypeus punctate. (Very dark species with strongly embrowned wings ; scape deeply infuscate, its inner, concave side smooth and virtually without hairs ; head strongly transverse ; large tergite



FIGS. 86-87.—Scape of : 86, *Belyta rugosicollis* Kieffer, ♂ ; 87, *B. elegans* Kieffer, ♂.
 FIGS. 88-90.—Front tibia of : 88, *B. rugosicollis* Kieffer, ♂ ; 89, *B. tenuicornis* Kieffer, ♂ ; 90, *B. forticornis* Cameron, ♂.
 FIG. 91.—First flagellar segment of *B. forticornis* Cameron, ♂.
 FIGS. 92-95.—Female antenna of : 92, *B. pelias* sp. n. ; 93, *B. carinifrons* (Kieffer) ; 94, *B. depressa* Thomson ; 95, *B. pedestris* (Kieffer).
 FIG. 96.—Basal flagellar segments of *B. carinifrons* (Kieffer), ♂.

sharply punctate in apical half; front tibia short, stout, its bristles short and forming an isolated group; petiole with 4 even keels on a smooth surface)

abrupta Thomson

Austria. Italy. 4 ♂.

- Radial cell distinctly longer than the abscissa of the subcostalis between basalis and marginalis; pronotal shoulders not angular and pronotum between them divided by an indistinct keel into a coarsely rugose subhorizontal posterior zone and a lower lying anterior collar; facial furrows showing as deep, smooth grooves which extend into the rather small subantennal rugose area; face and clypeus impunctate. (Slenderly built species, having the facies of *pedestris*; scape and legs bright reddish-yellow and the whole body brown rather than black; scape without long hairs, bare on inner, concave side, not longer than flagellum 1; propodeal carina widely forked; petiole with 4 even keels on a smooth surface)

moniliata Cameron

England: Dorset, Dorchester, 1 ♂. Sweden: Skåne, 1 ♂. The bare, concave side of scape and details of venation separate this species easily from all others with pale scape and pale legs.

- 9 Scape not longer than flagellum 1 and virtually with only very short hairs; pronotum with fairly well marked subangular shoulders, the distance between which is about equal to the distance between one of them and the pronotal spiracle; at least second to fourth flagellar segments with a group of longer, bristle-like hairs at base (on side opposite to emargination of flagellum 1 (fig. 96)). (Scape more or less black; propodeal carina always unforked; scutellar fovea at most slightly transverse, its sides sharply margined and tending to diverge from front to back so that the hollow appears wider behind; radial cell very long; large tergite without obvious striation on each side of mid-basal furrow)

carinifrons Kieffer

In general facies very similar to pelias Nixon but differs at once from that species in having the carina of the propodeum unforked. The flagellum is also less slender than in pelias and more tapered apically.

- Scape usually distinctly longer than flagellum 1 and, in any case, clothed with long hairs as well as short ones; pronotum narrow and considerably prolonged forwards, without clearly marked shoulders or, if these are distinct, then the distance between them is distinctly shorter than that between one of them and the pronotal spiracle; pubescence of flagellum even. (Head very strongly and characteristically narrowed behind)..... 10
- 10 Scape, seen from above (antenna stretched forwards) with rather sparse, virtually all long hairs (fig. 87). (Marginalis hardly two-thirds as long as its distance from the basalis (fig. 114); scape almost always blackened; scutellar fovea nearly twice as wide as long; no isolated cluster of bristles on front tibia (cf. *rugosicollis*); genitalia (fig. 84))..... *elegans* Kieffer

England. France. 36 ♂. No other species has the scape so sparsely hairy. Closely related on genitalia to rugosicollis and tenuicornis and very easily confused with the last mentioned.

- Scape, thus seen, with numerous hairs, many of which, especially on inner, convex side, are short and semidecumbent (fig. 86)..... 11
- 11 Marginalis very distinctly shorter than its distance from the basalis, about half as long..... 12
- Marginalis only a little shorter than this distance, fully three-quarters as long (fig. 116, *quadridens*). (Scutellar fovea, except in individuals, markedly transverse; parameres much attenuated apically, tapering to a fine point (figs. 83 and 85). Species hard to separate from *rugosicollis*, *elegans* and *tenuicornis*, unless careful attention is paid to length of marginalis; frontal prominence slightly more prolonged than in these species. The two groups widely different on form of parameres)..... 14
- 12 Pronotum unusually narrow and lying far below the level of the mesoscutum which falls very steeply to it (fig. 74); hind femur with an unusually long basal stalk which is about as long as the thickened distal part (fig. 72). (Very slender species with thin, cylindrical scape and preapical flagellar segment fully 3 times as long as wide; scutellar fovea fully twice as wide as long, its posterior margin very slightly pushed forwards at middle; pronotum coarsely rugose and with no indication of shoulders; petiole 3 times as long as its middle width; the frontal

- prominence is more produced forwards (nasiform) than in either the *rugosicollis*-group or the *forticornis*-group).....*lubrica* Kieffer
Germany: Bavaria, viii, 1 ♂. Most easily recognized by the narrow, rugose pronotum and slender legs.
- Pronotum less narrow and not lying so far below the level of the mesoscutum; hind femur with a stalk that is considerably shorter than the thickened distal part (fig. 73, *rugosicollis*).....13
- 13 Inner side of front tibia with a row of 3–4 stiff bristles, regularly spaced and more or less of even length (fig. 88); dorsal surface of pronotum behind the neck coarsely rugose; scutellar fovea at most slightly transverse, more often appearing virtually circular (scape, fig. 86).....*rugosicollis* Kieffer
England. Ireland. Germany. Sweden. Switzerland. Common. No other species has the bristles of the front tibia quite so differentiated either in evenness of length or closeness of spacing. In general facies, extremely like elegans but elegans, apart from different vestiture of scape, has the ocelli larger with the hind pair nearer to the eyes. Genitalia (fig. 82).
- Inner side of front tibia without such a sharply differentiated row of bristles (fig. 89); dorsal surface of pronotum less sharply separated as a platform above the level of the neck, shorter, more transverse, with fairly prominent shoulders and at least medially somewhat sunken and smooth; scutellar fovea more transverse and shallower. (Radial cell shorter, the preapical segment not more than twice as long as wide (at least two and a half times longer in *rugosicollis*); ocelli larger).....*tenuicornis* Kieffer
England: Berks., Kent, Surrey. 13 ♂.
- 14 Scape somewhat swollen medially; flagellum 1 widened at apex of emargination (fig. 91); digitus with its 2 apical teeth close together (fig. 85). (Bristles of front tibia, fig. 90).....*forticornis* Cameron
Abundant in NW. Europe. Over 200 specimens examined. Except on genitalia (frequently exposed enough for certain identification) hard to separate from quadridens.
- Scape not swollen medially; flagellum 1 not widened at the apex of the emargination; inner edge of digitus prolonged to form a thin neck, surmounted by a tooth, the neck and the tooth together forming a conspicuous claw-like process (fig. 83); venation (fig. 116).....*quadridens* Kieffer
As common and equally well distributed as forticornis. If the genitalia are exposed the species is easy to recognize. The arrangement of the front tibial bristles is the same in both species.

Genus *Diphora* Förster.

Female distinct on account of the extraordinarily lengthened first flagellar segment. The male has the flagellum distinctly narrowed towards apex and the concave side of the scape free from hairs; genitalia (fig. 303). Venation (fig. 108). Gaster (fig. 42).

westwoodi Förster

(= *D. monticola* Kieffer, syn. n.)

(= *D. nigriceps* Kieffer, ♀, syn. n., type in British Museum (Nat. Hist.))

(= *D. rufiventris* Kieffer, ♀, syn. n., type in British Museum (Nat. Hist.))

Widely distributed in NW. Europe but not common.

Genus *Pantoclis* Förster.

Closely related to *Zygota*, differing mainly in having the radial cell completely closed and the petiole shorter. The females are not easy to separate and the males are still in need of much study.

KEY TO SPECIES.

(Females).

- 1 Posterior margin of scutellum bordered with a row of small foveae. (Facial furrows foveate and confluent with the rather fine subantennal rugosity; distal 10 segments of flagellum blackened and, except apical one, transverse, forming a thick but weakly defined club; first 3 antennal segments yellow; pronotal shoulders

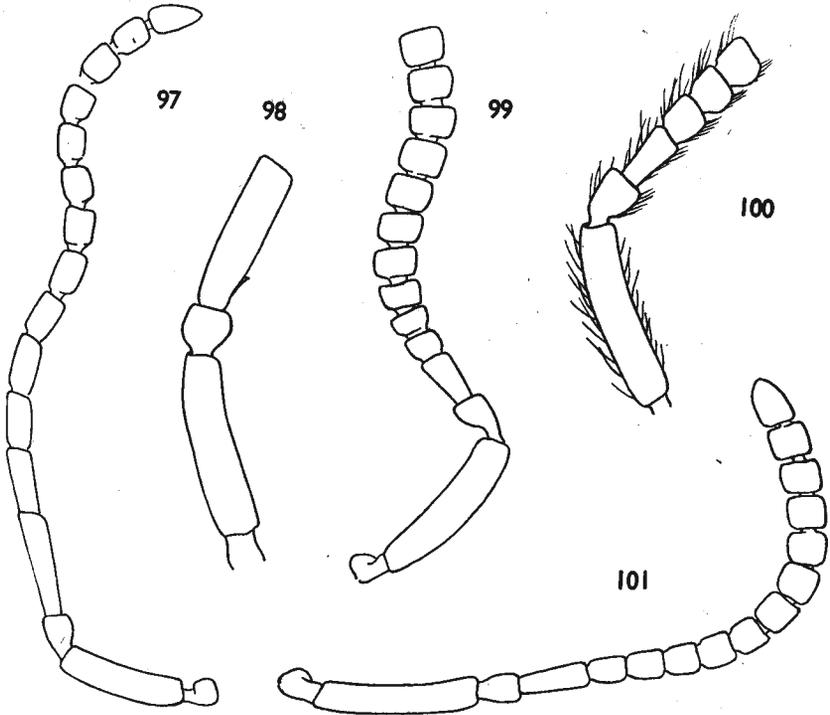


FIG. 97.—Antenna of *Pantoclis ruralis* sp. n., ♀.
 FIG. 98.—Basal antennal segments of *P. carinata* (Thomson), ♂.
 FIG. 99.—Antenna of *P. scotica* Kieffer, ♀.
 FIG. 100.—Basal antennal segments of *P. longipennis* (Thomson), ♀.
 FIG. 101.—Antenna of *P. striola* (Thomson), ♀.

hardly indicated; scutellar fovea distinctly transverse; radialis fading out just before apex so that the long radial cell is not sharply closed; petiole very slightly longer than its apical width; large tergite with remote, sharp punctures; apical tergites very short, the eighth very small, transverse, excavate, roughened)

leviventris (Kieffer), **comb. n.**
 (= *Oxylabis leviventris* Kieffer)

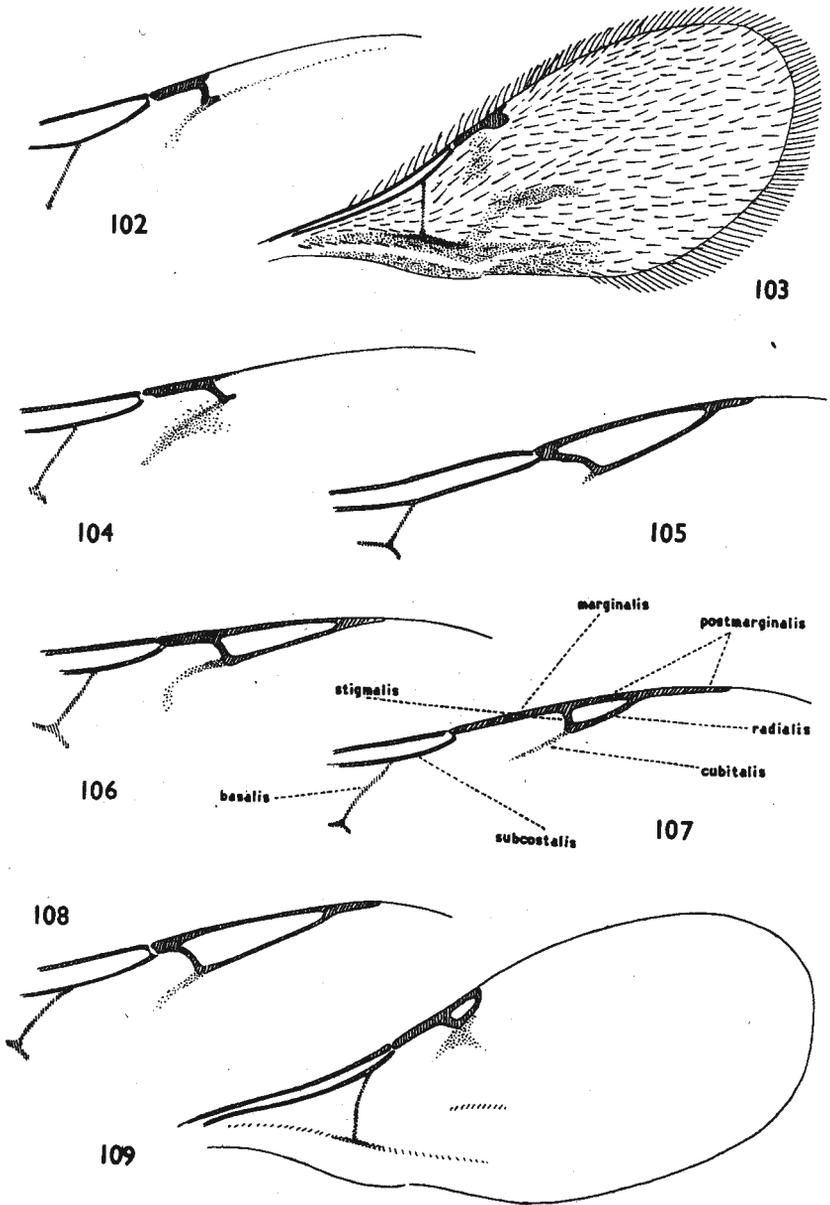
England: Gloucester, Staunton, 1 ♀. *Abundantly distinct from the other species on the sculpture of the scutellum.*

- Posterior margin of scutellum with at most a single, very short, medial keel. 2
- 2 *Epomia* wanting in the sense that no ridge separates the side of the pronotum from the collar. (Small spp. 2.5-2.8 mm., exceptionally as much as 3 mm.; radial cell always very long, longer than the abscissa of the costalis between the marginalis and the basalis; scutellar fovea large, transverse, always very distinctly wider than the distance between the posterior extremities of the notaulices) **obscuripes-group** 3
- *Epomia* distinct, there being always a distinct, sharp ridge separating the side of the pronotum from the collar. 7
- 3 Apical tergite very small, appearing hardly longer than wide, sometimes weakly and very indistinctly ridged along the middle but neither smooth nor shining here, and with prominent basal pores. (A deep, U-shaped cleft between the

antennal sockets; distal 7-8 segments of flagellum feebly thickened; 2 pre-apical segments slightly longer than wide from some angles (fig. 97), more or less quadrate from others; seventh gastral segment and the segments preceding it more towards sides, thickly hairy)..... *ruralis* sp. n.

England: Surrey, *Ashtead*, 12.viii.1931, 1 ♀, the type (G. E. J. Nixon); *Ashtead*, 12-19.viii.1933, 1 ♀ (G. E. J. N.); *Bagshot*, 10.xi.1938, 1 ♀; *Somerset, Brompton Regis*, viii.1952, 1 ♀ (D. M. S. Perkins and J. F. Perkins). Ireland: *Wicklow, vi* and *ix*, 2 ♀; *Kildare, ix*, 1 ♀ (A. W. Stelfox coll.). Germany: near *Berlin*, 19.viii.1938, 1 ♀ (G. J. Kerrich). Sweden: *Skåne, Ring sjö*; *Fjellfota sjö*; *Röstanga*; *Höör, vi-viii*, 7 ♀ (D. M. S. P. and J. F. P.). This species has the basal flagellar segments more cylindrical than in any other of the obscuripes-group.

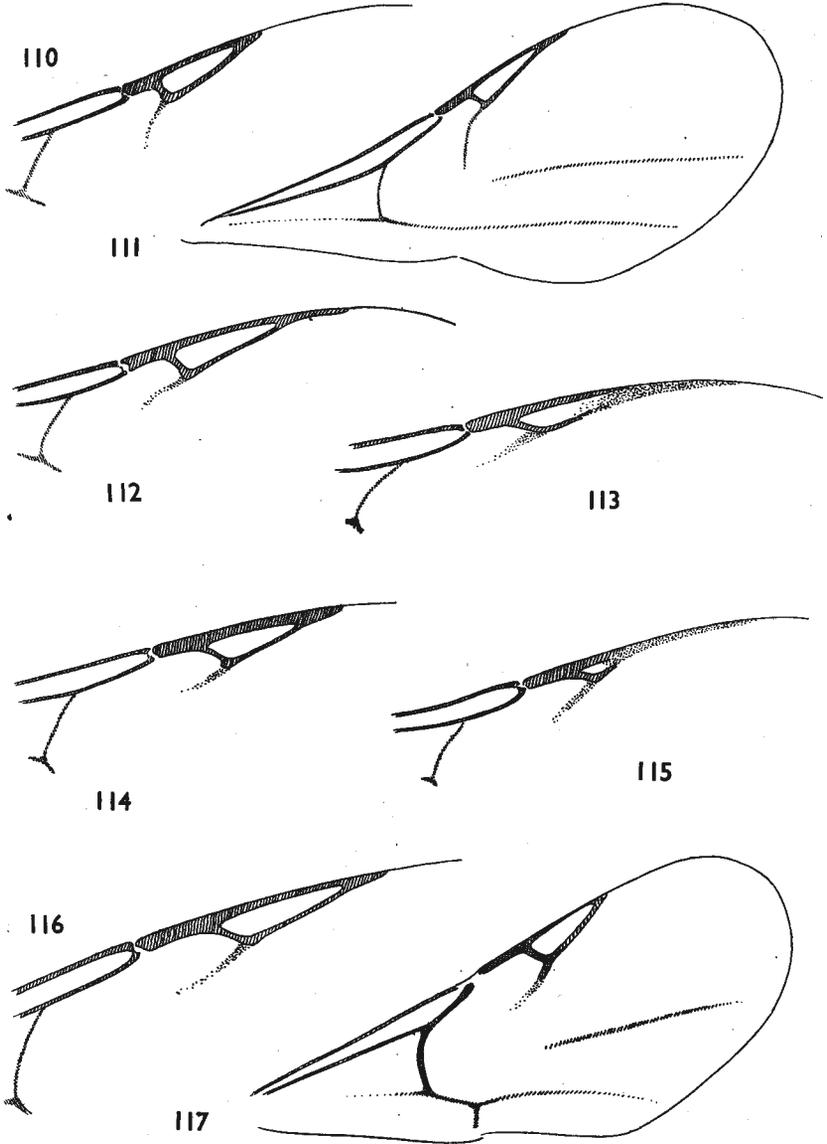
- Apical tergite larger, of obvious triangular appearance, more or less conical and smooth and shining along the middle; basal pores less prominent.....4
- 4 Apical tergite very short, but little longer than wide. (Extremely like *ruralis* but distal 7-8 segments of antenna thicker; segment 3 of flagellum not more than one and a half times longer than wide; less of a contrast between the cylindrical basal flagellar segments and the thickened apical ones than in *ruralis*; venation (fig. 124); apical segments of gaster considerably less hairy).... *obscuripes* Kieffer
- England. Ireland. Sweden. This species and *ruralis* are not satisfactorily separated.
- Apical tergite considerably longer than this, in the form of a narrow triangle....5
- 5 Two apical tergites more attenuated (fig. 140). (Six apical segments of the gaster highly polished and very sparsely hairy; flagellar segment 1 only a little more than half as long as the scape; radial cell shorter than in the other species of the group; colour black or blackish; cleft between the antennal sockets hardly less deep than in *ruralis* and *obscuripes*)..... *mese* sp. n.
- Ireland: *S. Tipperary, Ballincourty*, 11.vi.1944, 1 ♀, gaster figured, (A. W. Stelfox coll.). Sweden: *Skåne, Skärålid*, 1.vii.1938, 1 ♀, the type (D. M. S. Perkins and J. F. Perkins); *Degeberga*, 8.vi.1938, 1 ♀ (D. M. S. P. and J. F. P.) (B.M. Coll.). This species is characterised by the much attenuated, bare, polished apex of gaster.
- Two apical segments of gaster less attenuated. (Pale species with yellowish tint; only a very feeble cleft between the antennal sockets; apical 8-9 segments of the flagellum much thickened).....6
- 6 Preapical (seventh) segment of gaster densely hairy; 10 apical flagellar segments slightly thicker; pronotal shoulders slightly more prominent.... *gaudens* sp. n.
- Sweden: *Skåne, Kivik*, 15.vii.1938, 1 ♀, the type, (D. M. S. Perkins and J. F. Perkins).
- This segment very sparsely hairy and thus having a smoother, more shiny appearance; 10 apical flagellar segments slightly less thick; pronotal shoulders not in the least prominent and between them the pronotum narrower than in *gaudens*..... *eulimine* sp. n.
- England: *Herts., Tring*, 16.vii.1942, 1 ♀ (R. B. Benson); *Surrey, Wisley*, 21.ix.1932, 1 ♀ (G. E. J. Nixon). Ireland: *Sligo, Glen Wood*, 11.xi.1940, 1 ♀ (A. W. Stelfox Coll.). Sweden: *Skåne, Ring sjö*, 7.vi.1938, 1 ♀, the type; *Röstanga*, 4.vii.1938, 1 ♀ (D. M. S. Perkins and J. F. Perkins). This species and *gaudens* are in need of further study. Both tend to have the facial furrows distinct, rugose and merging in the area of strong rugosity beneath the antennal insertions.
- 7 Apical tergite very small, not obviously triangular and lying more or less below the preceding segment so that, in profile, the gaster appears truncate or sub-truncate at apex (fig. 136). (Widely dissimilar species).....8
- Apical tergite larger, obviously triangular and extending beyond the apex of the preceding segment so that the gaster in profile is sharply conically pointed at apex. (Compact group of very similar species).....14
- 8 Scape strongly swollen and subfusiform (fig. 59); flagellum very short, its second segment (fourth antennal) distinctly transverse. (No trace of a furrow between the posterior margin of the pronotum and the middle lobe of the mesoscutum; laterally the dorsal edge of the pronotum is just hidden by a narrow flange projecting from the lateral lobe of the mesoscutum; scutellar fovea large, transverse; petiole distinctly longer than wide; apex of gaster with a dense, fine



Figs. 102-109.—Venational details of: 102, *Acanosema nervosa* (Thomson), ♀; 103, *Atelopsilus ciliatum* (Thomson), ♀; 104, *Psilomma dubia* Kieffer, ♀; 105, *Pamisione* sp. n., ♀; 106, *Acropiesta rufiventris* Kieffer, ♀; 107, *Cinelaptus fragilis* sp. n., ♀; 108, *Diphora westwoodi* Förster, ♀; 109, *Opazon parvulus* Haliday, ♀.

- pubescence; small species: ca. 2.4 mm.) *dolon* sp. n.
 Sweden: Skåne, Höör dist., 17.vi.1938, 2 ♀, one the type (D. M. S. Perkins and J. F. Perkins). Easily distinguished from all other species on antennal structure.
- Scape normal; flagellum never as short as this, its second segment never as obviously transverse as this.....9
9. Dorsal surface of front tibia and at apex with several, stout curved spines. (Facial furrows complete, rugose and confluent with the subantennal rugosity).....10
- Front tibia without such spines.....11
10. Radial cell short, not longer than the distance between the marginalis and the basalis and sometimes obviously shorter; radialis somewhat attenuated towards apex and slightly curved distally; gastral margin posterior to the ring segments with long, outstanding hairs (fig. 137); dorsal areas of the propodeum very slightly longer than wide; pubescence of body considerably longer and more ragged; back of head with numerous upstanding hairs as well as short pubescence; scutellar fovea a little smaller, hardly as wide as the distance between the posterior extremities of the notaulices; flagellum rather thin, short, with segment 1 much longer than the pedicel. (In the specimen from Gloucester, the two preapical segments of antenna are almost square in outline; in the Swedish and French examples, these segments are distinctly transverse; posterior margin of the pronotum separated from middle lobe of mesoscutum by a distinct, costate furrow; 2.6-3 mm.).....*subatricornis* Kieffer
 England: Gloucester, 1 ♀. France: Finistère, 1 ♀. Sweden: Skåne, 1 ♀.
 Could be confused only with the following species on account of the spines of the front tibia.
- Radial cell not at all short, distinctly longer than the distance between the marginalis and the basalis; radialis not attenuated towards apex and not incurved distally; gastral margin posterior to ring segments with fewer, much less obviously outstanding hairs; dorsal areas of propodeum very slightly transverse; pubescence of body shorter; back of head without upstanding hairs; scutellar fovea a little larger; flagellum slightly thicker with first segment a little shorter. (Pubescence of scape shorter than in *subatricornis*; a less distinct furrow between the posterior margin of the pronotum and the middle lobe of the mesoscutum).....*dives* sp. n.
 England: Bedford, Sharpenhoe Clappers, 8.viii.1954, 1 ♀, the type (V. H. Chambers).
11. Scutellum posteriorly with the faintest indication of a keel; inner, concave part of the scape without pubescence when seen in profile; no furrow between the posterior margin of the pronotum and the middle lobe of the mesoscutum. (Head from in front with conspicuously bulging cheeks and from above strongly transverse (fig. 133); flagellum with only extremely short pubescence; thorax decidedly truncate in front, with prominent, dentiform pronotal shoulders, the distance between which is obviously greater than the distance between one of them and the pronotal spiracle; a fairly distinct keel (at least anteriorly) between the pronotal shoulder and the spiracle; scutellar fovea large, slightly wider than the distance between the posterior extremities of the notaulices; large tergite finely, sharply punctate towards sides).....*sulecata* (Thomson)
 (= **Pantoclis excavatus* Kieffer, ♀, syn. n.)
 England. Ireland. Sweden. Not common. An aberrant species of very distinctive facies. Marginalis almost punctiform.
- Scutellum posteriorly without trace of a keel; inner, concave side of scape with at least a short, fine pubescence; a distinct furrow between the posterior margin of the pronotum and the middle lobe of the mesoscutum.....12
12. Scutellar fovea small, subreniform, less wide than the distance between the posterior extremities of the notaulices; medial carina of the propodeum forked posteriorly; posterior margin of the pronotum with an evenly curved, raised, free rim extending from spiracle to spiracle and between which and the lobes of the mesoscutum there is a percurrent furrow; pronotal shoulders not at all prominent, the distance between them only slightly greater than the distance between one of them and the spiracle; petiole distinctly longer than wide; distance between the antennal sockets fully equal to two-thirds the diameter of one of them. (Pubescence of the flagellum extremely short)

brevicornis Kieffer



FIGS. 110-117.—Venational details of: 110, *Aclista rufopetiolata* (Nees), ♀; 111, *A. haemorrhoidalis* Kieffer, ♀; 112, *A. insolita* sp. n., ♀; 113, *Belyta validicornis* Thomson, ♂; 114, *B. elegans* Kieffer, ♂; 115, *B. depressa* Thomson, ♂; 116, *B. quadridens* Kieffer, ♂; 117, *Ismarus flavicornis* (Thomson).

Ireland. Finland. Sweden. Rare. A most distinct species chiefly on account of the free, posterior margin of the pronotum. The forking of the propodeal carina is no indication of close relationship with *Belyta* and in some males is hardly indicated. Except that the inner, lateral keel of the propodeum ends in a considerably stronger tooth and the antennal sockets are further apart in *brevicornis*, I can find no difference between this species and the Canadian *Belyta borealis* Whitaker (type in British Museum (Nat. Hist.)).

- Scutellar fovea large, slightly wider than the distance between the posterior extremities of the notaulices; medial carina of the propodeum not forked; posterior margin of the pronotum between the shoulders raised, free, separated from the middle lobe of the mesoscutum by a feebly foveate furrow; in front of the lateral lobes of the mesoscutum the posterior margin of the pronotum is hidden; pronotal shoulders prominent, the distance between them slightly greater than the distance between one of them and the pronotal spiracle; petiole not longer than wide; distance between the antennal sockets not more than half as great as the diameter of one of them. 13
- 13 Flagellum short, thick with segment 1 only a little longer than the pedicel (fig. 100); in small examples hardly longer; pubescence of scape and flagellum longer, rather conspicuous; a fine, sharp keel runs from the tip of the pronotal shoulder backwards almost to the spiracle; facial furrows almost confluent, as vaguely foveate lines, with the subantennal rugosity. (Scape varying from entirely reddish-yellow to blackish with contrasting pale apical quarter and, in this latter condition, the flagellum dark except for base of segment 1 and the pedicel; altogether a more hairy species than *macrotoma*; gaster (fig. 136))

longipennis (Thomson)

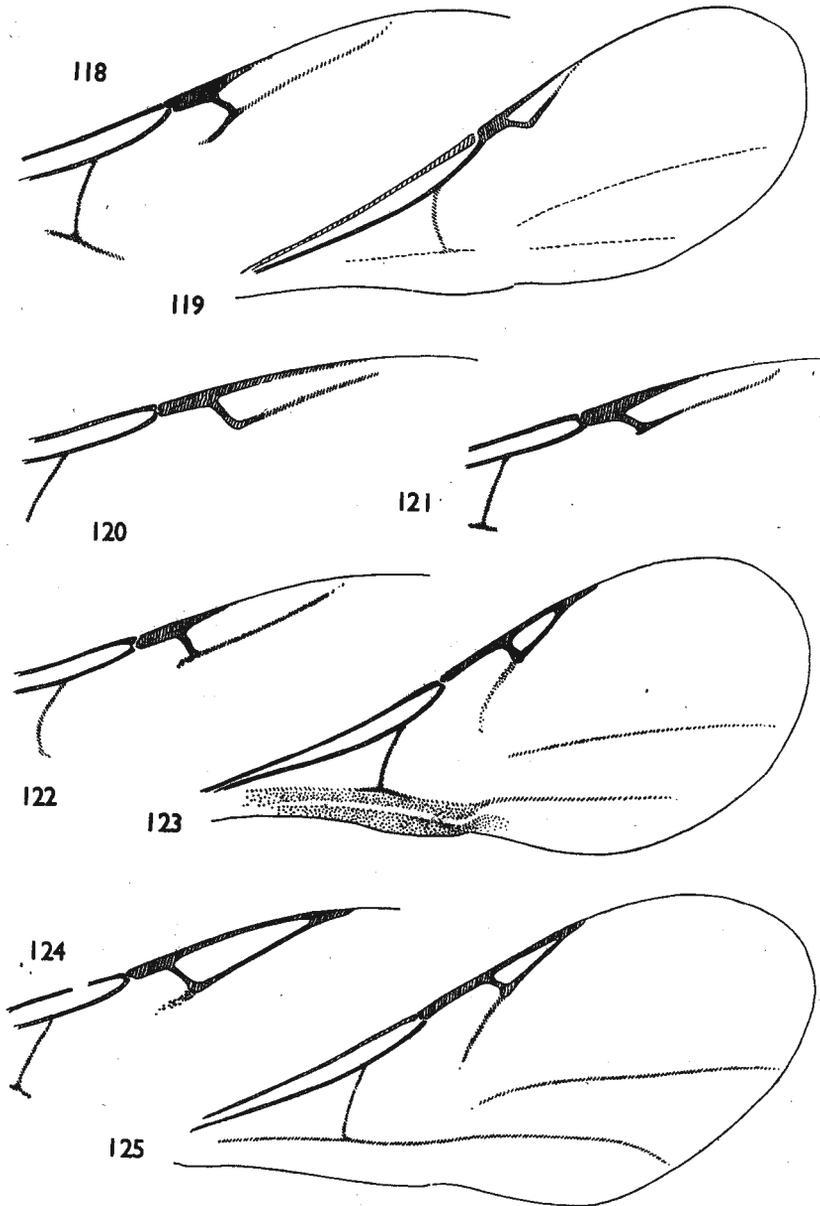
England. Ireland. France. Sweden. Not common. The short first flagellar segment and keel at side of pronotum are very important for the recognition of this species.

- Flagellum longer, especially segment 1, which is much longer than the pedicel; pubescence of scape and flagellum extremely short; only a trace of such a keel present, right at tip of shoulder itself; facial furrows short, deep, smooth, widely separated from the area of unusually weak rugosity beneath the antennal insertions (much weaker than in *longipennis*). (Scape reddish but darkened on basal third; radial cell considerably longer and venation more blackened than in *longipennis*; dorsal areas of propodeum slightly shorter, the inner lateral keel ending behind in a much less prominent tooth). *macrotoma* Kieffer
- England: Beds. 1 ♀. Sweden: Jansson coll. 1 ♀.
14. Scutellum with a short, sharp keel behind and the surface slightly impressed on each side of it; posterior margin of pronotum in front of the lateral lobe of the mesoscutum showing as a free, raised rim; basal half of large tergite pale brownish-yellow; flagellum thicker and with more transverse segments than in *brevior*; gaster slightly more pointed than in *similis* but its apical segment and degree of hairiness of this and preceding segment much as in that species; no trace of a furrow between the posterior margin of the pronotum and the middle lobe of the mesoscutum. *carinata* (Thomson), comb. n.
(= *Acropiستا carinata* Thomson)

England: 1 ♂. Sweden: Skåne, 1 ♀, 3 ♂.

- Scutellum without trace of a keel, posterior margin of pronotum in front of lateral lobe of mesoscutum (except in *scotica*) hidden or partly hidden by a close-fitting projecting flange around anterior margin of lateral lobe of mesoscutum; large tergite virtually unicolorous. 15
- 15 Between the posterior margin of the pronotum and the middle lobe of the mesoscutum a relatively wide, rugulose furrow; posterior margin of pronotum in front of the lateral lobe of the mesoscutum not hidden by the mesoscutal flange. (Side of propodeum between the two lateral keels not produced backwards to form a webbed process that reaches beyond base of petiole (cf. *similis*); antenna rather short, thick; second flagellar segment slightly transverse and first but little longer than the pedicel (fig. 99); furrow at base of large tergite short and on each side of it some extremely short, feeble striation; apex of gaster, especially tergite 7, much more hairy than in *similis*). **scotica* (Kieffer), comb. n.
(= *Aclista scotica* Kieffer). Type ♀ in British Museum (Nat. Hist.).

Scotland: type ♀. S.E. Finland: Sortavala, 1 ♀. On the structure of the pronotum resembles *longipennis* but differs sharply in having apex of gaster as in *similis*.



FIGS. 118-125.—Venational details of: 118, *Zygota macroneura* (Kieffer), ♂; 119, *Z. fossulata* (Thomson), ♀; 120, *Z. praetor* sp. n., ♀; 121, *Z. subaptera* (Thomson), ♂; 122, *Z. claviscapa* (Kieffer), ♀; 123, *Leptorhaptus politus* (Thomson), ♀; 124, *Pantoclis obscuripes* Kieffer, ♀; 125, *Cinetus iridipennis* Lepeletier, ♀.

- Between the posterior margin of the pronotum and the middle lobe of the mesoscutum no rugulose furrow; posterior margin of pronotum in front of the lateral lobe of the mesoscutum more or less hidden by the mesoscutal flange. (Species with segment 1 of flagellum (except in *trisulcata*) considerably longer than the pedicel; second segment of flagellum never transverse).....16
- 16 Apical tergite in the form of a narrow triangle, fully twice as long as wide at base, highly polished at least along the middle line and with its pores about as far from the basal margin as they are from each other. (Gaster conspicuously lengthened and sharply pointed behind; only very long, sparse hairs stand out from the side of the apical sternite when the gaster is seen from above; face below the antennal insertions finely shagreened or minutely scaly-reticulate; between this sculptured area and the ends of the facial furrows lies a smooth, unsculptured area).....17
- Apical tergite forming a much shorter triangle (*numen* sp. n. somewhat exceptional) at most one and a half times as long as wide at base, its pores almost touching the basal margin and because of its small size not appearing particularly polished along the middle line. (Gaster less attenuated behind; these hairs shorter and more numerous).....19
- 17 Gaster beyond petiole not or hardly more than twice as long as wide, plump but very sharply tapered to apex (fig. 139). (Flagellum thinner than in *brevior* (fig. 101); tergite 8 distinctly longer than the preceding segment and virtually without a trace of oblong punctures; scutellar fovea not in the least reniform)
striola (Thomson), comb. n.
 (= *Acropiasta striola* Thomson)
England. Ireland. Sweden. 15 ♀. *Shape of gaster and rather thin flagellum are important for this species. Resembles similis in general appearance but has petiole more transverse, apart from longer apical gastral segments; the head is also shorter with frontal prominence less pushed forwards and the eyes a little larger.*
- Gaster beyond petiole from two and a quarter to two and a half times as long as wide, narrow and gradually tapering to apex. (Flagellum thicker than in *striola*; scutellar fovea distinctly reniform in the sense that the posterior border is slightly pushed forwards at middle).....18
- 18 Pronotal shoulders hardly indicated; apical tergite with a few, more or less oblong, punctures and its pores lying at the anterior end of a shallow, ill-defined groove that extends almost to apex of segment; tergite 8 hardly longer than 7 (fig. 138)
brevior (Kieffer), comb. n.
 (= *Acropiasta breviar* Kieffer)
England. Ireland. Scotland. Germany. Sweden. 3.5-4 mm. *One of the largest species and could be confused only with orodes sp. n.*
- Pronotal shoulders prominent; apical tergite without such punctures and its pores not lying in such a groove; tergite 8 distinctly longer than 7. (Apex of gaster, seen in profile, with longer and sparser hairs than in *brevior* (fig. 132); scutellum and dorsal areas of propodeum paler, more reddish, than the rest of the dorsal surface of the thorax; 4-3 mm.).....*orodes* sp. n.
Switzerland: Berneroblerland, Grindelwald, viii. 1937, 1 ♀, the type (G. E. J. Nixon).
- 19 Posterior edge of propodeum between the two lateral keels produced backwards to form a conspicuous, hook-like process that overreaches the base of the petiole; in consequence, the posterior margin of the propodeum between the extremities of the inner lateral keels is more or less deeply emarginate.....20
- Posterior edge of propodeum between these keels much less produced backwards and not showing an exaggerated form. (Very like *similis* but intensely black with the sulcation at base of tergite 2 deeper and more characteristic; seen from in front, the head is less rounded and the cheeks are very slightly angled at about middle; scape and legs deep reddish; the 4 ring segments beyond tergite 2 together less transverse than in *similis*).....*merope* sp. n.
Sweden: Skåne, Dalby, 23.v. 1938, 1 ♀ the type, (D. M. S. Perkins and J. F. Perkins).
- 20 The two lateral keels of the propodeum very close together and not or hardly divergent at apex (fig. 126); gaster very dark brown, the thorax virtually black; scape deeply infusate, the legs on the whole dark. (Wings virtually hyaline with the radial cell small; pedicel shorter in proportion to flagellum 1 than in *similis*;

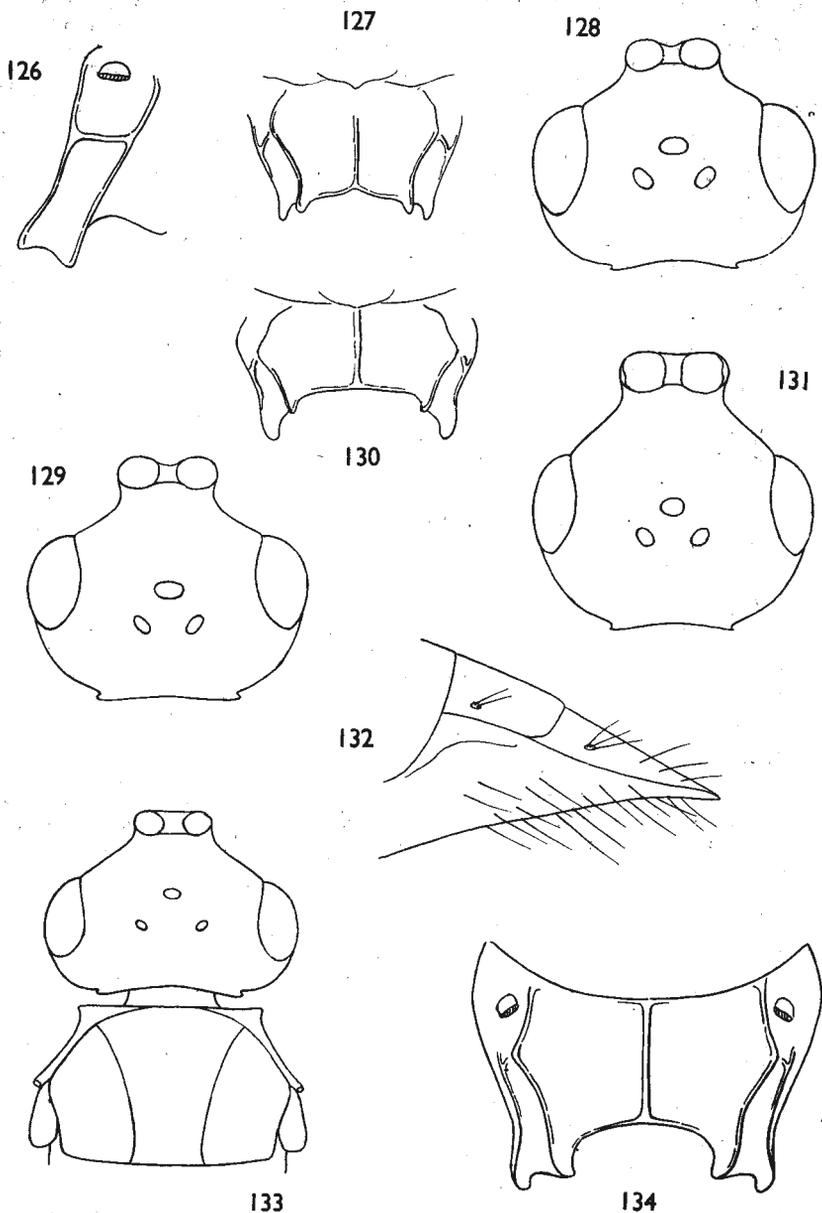


FIG. 126.—Spiracular area (shown at its longest and widest) of propodeum of *Pantoclis trisulcata* Kieffer, ♀.

FIG. 127.—Propodeum of *Pantoclis evanescens* Kieffer, ♂.

FIGS. 128-129.—Head, from above, of: 128, *Zygota dentatipes* Kieffer, ♂; 129, *Pantoclis hirtistilus* Kieffer, ♂.

(continued opposite)

pubescence of dorsal surface of thorax denser and shorter than in *similis*; large tergite frequently medially scabrous)..... *trisulcata* Kieffer

A smallish species, 3-3.3 mm., fairly common in NW. Europe. Most readily recognized by the short radial cell and the closeness of the lateral keels of the propodeum; between these keels the propodeum is more produced and hook-like than in similis. Probably hibernates as adult.

- These keels less close together and markedly divergent at apex (fig. 134), the area they enclose shorter than in *trisulcata*; gaster, and sometimes thorax, reddish-brown; legs usually bright reddish-yellow. (Wings faintly yellowish and longer than in *trisulcata*; radial cell slightly longer and less sharply marked).....21
- 21 Between the dorsal extremities of the facial furrows and the rugosity beneath the antennal insertions lies a smooth, unsculptured area; (apex of gaster, fig. 135)
- similis* (Thomson), *comb. n.*
(= *Acropiesta similis* Thomson)
(= *Pantoclis rufiventris* Kieffer, *syn. n.*)

Widely distributed in NW. Europe. Probably the commonest species of the genus.

- Facial furrows extending into the subantennal rugosity by means of a line of foveate rugosity. (Flagellum slightly more thickened distally than in *similis* with the more apical segments slightly more transverse; the thickened distal part of the antenna is more blackened than in *similis* and in sharper contrast with the yellowish basal segments; apical tergite slightly longer than in *similis*)

numen sp. n.

England: Hants., Lyndhurst, 2.viii.1939, 1 ♀ (G. E. J. Nixon). Scotland: 1 ♀ (Cameron coll. in British Museum (Nat. Hist.)). Sweden: Skåne, Höördist., 17.vi.1938, 1 ♀, the type (D. M. S. Perkins and J. F. Perkins). This species shows the faintest indication of a keel extending from the prominent pronotal shoulder towards the spiracle of the pronotum. Easily confused with similis.

(Males).

- 1 *Epomia* wanting in the sense that no ridge separates the side of the pronotum from the collar. (Small spp., 2.5-2.8 mm.; radial cell always very long, at least one and a half times as long as the abscissa of the subcostalis between the marginalis and the basalis; scutellar fovea large, transverse, always very distinctly wider than the distance between the posterior extremities of the notaulices.)

obscuripes-group....2

- *Epomia* distinct (rather feeble in *hirtistilus*), there being always a distinct, sharp ridge separating the side of the pronotum from the collar.....4
2. Shortest distance between the antennal sockets hardly less than the diameter of one of them; pronotal shoulders from above showing as subangular tubercles. (Flagellum rather short; petiole not or hardly longer than apically wide)

? *gaudens* Nixon

(See key to females)

England. Ireland. Sweden. 10 ♂.

- Shortest distance between the antennal sockets very distinctly less than the diameter of one of them; pronotal shoulders much less well developed.....3
- 3 Anterior lateral corners of the large tergite showing as sharply angular points, the distance between which is greater than the apical width of the petiole. (Deep black species with the radial cell shorter than in the other related species)

? *mese* Nixon

(See key to females)

- Anterior lateral corners at most feebly angled; radial cell longer than in the doubtful males of *mese*; petiole almost always very distinctly longer than apically wide.....Composite group containing probably males of *ruralis* and *obscuripes*

FIG. 130.—Propodeum of *Pantoclis numen* sp. n., ♂.

FIG. 131.—Head, from above, of *Zygota ruficornis* (Curtis), ♀.

FIG. 132.—Apex of gaster, from side, of *Pantoclis orodes* sp. n., ♀.

FIG. 133.—Head and thorax, from above, of *Pantoclis sulcata* (Thomson), ♀.

FIG. 134.—Propodeum of *Pantoclis similis* (Thomson), ♀.

- 4 Radial cell very long, about twice as long as the distance between the marginalis and the basalis. (Belongs to the *obscuripes*-group but differs from all the foregoing in having distance between the posterior ocelli hardly one and a half times as great as the longer diameter of one of them (as against distinctly more than twice the diameter for the *obscuripes*-group s. str.) and distinct though weak epomia. Reddish species with the pronotal collar and sometimes the scutellum contrasting paler, yellowish or reddish; preapical segment of flagellum 3 times as long as wide; pronotum with hardly a trace of shoulders; anterior corners of large tergite sharply dentiform; frons more produced forwards than in the other species of the *obscuripes*-group (fig. 129)). *hirtistilus* Kieffer
Austria. Switzerland.
- Radial cell rarely approaching this length (*brevior, magnicornis*); epomia fully and strongly developed; petiole never more than one and a third times longer than its apical width. 5
- 5 Scutellum posteriorly with at least a very short, easily overlooked keel. 6
- Scutellum posteriorly without a trace of a keel 7
- 6 Marginalis punctiform; radial cell rather short; modification of flagellum I well defined, covering fully two-fifths; head very strongly transverse; thorax markedly truncate in front, with sharply dentiform pronotal shoulders, the distance between which is much greater than the distance between one of them and the pronotal spiracle (fig. 133); inner, concave side of the scape bare when seen in profile; size, ca. 2.5 mm. (Preapical segment of flagellum about one and a half times longer than wide; head from in front very characteristic, the mouth opening narrow and the cheek between the base of the eye and the deep impression at side of clypeus markedly bulging; between the tip of the pronotal shoulder and the pronotal spiracle runs a fine keel). *sulcata* Thomson
- Marginalis fully twice as long as wide; radial cell considerably longer; modification of flagellum I very short, very feebly developed, its edge almost straight (fig. 98); head with normal transverseness; thorax not markedly truncate in front, the shoulders much less obviously dentiform and the distance between them much less great in proportion to the distance between one of them and the pronotal spiracle; inner, concave side of the scape hairy all over. (Flagellum short, thick, tapering somewhat to apex; scape entirely brown; prepectal margin angularly produced forwards between the front coxae; posterior margin of pronotum raised and free in front of the lateral lobe of the mesoscutum, the flange of this lying slightly below it). *carinata* Thomson
England: Herts. Sweden. 4 ♂. One of the largest species, ca. 4 mm., related to the brevior-striola-group, easily recognized on antennal characters and scutellar keel.
- 7 Scutellar fovea small, circular or subreniform, distinctly narrower than the distance between the notaulices behind, hardly more than half as long as the convex shield posterior to it; medial keel of propodeum narrowly, often inconspicuously forked at apex; inner side of scape, seen in profile, virtually free from hairs; posterior margin of pronotum showing as a free, raised rim from tegula to tegula and separated from the mesoscutum by a percurrent furrow. . . . *brevicornis* Kieffer
12 ♂. Differs from all other species in having a forked propodeal keel and free, posterior pronotal margin. See key to females.
- Scutellar fovea only in one species (*subatricornis*) nearly as small as this, otherwise very distinctly transverse and its width at least equal to that between the notaulices behind; keel of propodeum never forked; inner, concave side of scape always with some hairs no matter how viewed; posterior margin of pronotum never as completely free as this. 8
- 8 Scutellar fovea somewhat small and almost circular; outer, apical margin of the front tibia with a short spine (very hard to see). (A distinctly foveate furrow between the posterior margin of the pronotum and the middle lobe of the mesoscutum; in front of the lateral lobe of the mesoscutum, the posterior margin of the pronotum is just free and shows as a fine, sharp ridge; radial cell decidedly short. Size: ca. 2.5 mm.). *subatricornis* Kieffer
England. Ireland. Scotland. Sweden. 4 ♂. In size, dark antennae and general appearance this species is extremely like trisulcata Kieffer, but the pronotal angles are much sharper and the distance between them greater.

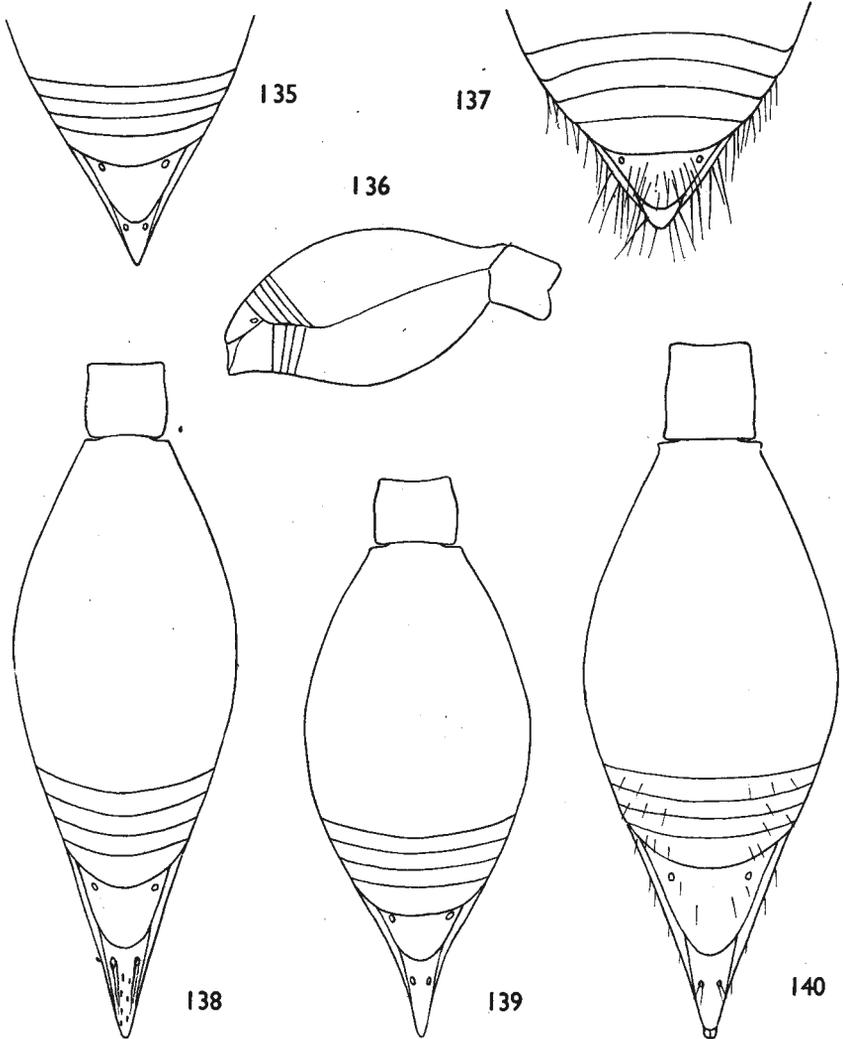


FIG. 135.—Apex of gaster of *Pantoclis similis* (Thomson), ♀.
 FIG. 136.—Gaster, from side, of *P. longipennis* (Thomson), ♀.
 FIG. 137.—Apex of gaster, seen from behind, of *P. subatricornis* Kieffer, ♀.
 FIGS. 138–140.—Female gaster of: 138, *Pantoclis brevior* Kieffer; 139, *P. striola* (Thomson); 140, *P. mese* sp. n.

- Scutellar fovea large, usually very large and obviously transverse, its width distinctly greater than that between the notaulices behind; outer, apical margin of front tibia without a spine.....9
- 9 Longest bristles of the anterodorsal surface of the front tibia fully three quarters the greatest width of the tibia in the same view. (Legs virtually yellow throughout with the scape usually as pale; pronotum wide between the prominent shoulders; a distinctly foveate furrow between the posterior margin of the

pronotum and the middle lobe of the mesoscutum ; emargination of flagellum 1 covering nearly half ; between the facial furrows and the finely scaly-reticulate sculpture beneath the antennal insertions is a smooth, unsculptured area ; dorsal areas of the propodeum not longer than wide and tending to have a reddish translucent appearance).....*magnicornis* Kieffer

Germany. Sweden. Switzerland. No other species has the bristles of the front tibia so long. Size: 3.2-3.4 mm. May be the male of orodes sp. n.

- Longest bristles of the front tibia shorter, at most approaching two-thirds the width in the same view..... 10
- 10 Antenna almost black throughout ; legs almost as dark ; the two lateral keels of the propodeum close together, the distance between their tips much shorter than the distance between the inner of these keels and the posterior end of the middle keel. (Very black-looking species with wings somewhat hyaline and the radial cell short ; size small : ca. 2.5 mm.).....*trisulcata* Kieffer
The two lateral keels of the propodeum are sufficiently produced backwards to form a conspicuous projection. No other species has them so close together.
- Antenna rarely as dark as this and then the radial cell is considerably longer ; these keels much less close together. (Spp. on the whole much less dark than *trisulcata* and in large individuals the legs predominantly reddish-yellow).... 11
- 11 Antenna very short, the preapical segment hardly one and a half times longer than wide ; between the pronotal shoulder and the spiracle runs a fine keel
longipennis Thomson
- Antenna less short, the preapical segment at its shortest hardly less than twice as long as wide ; side of pronotum without such a keel..... 12
- 12 Face beneath the antennal insertions appearing either finely shagreened or minutely scaly-reticulate but without obvious raised rugosity ; between this sculptured area and the facial furrows is a smooth, unsculptured area..... 13
- Face here with coarser, distinctly raised and confused rugosity, the sculpture spreading downwards on each side of the face as a vaguely foveate line continuous with the facial furrows. (Emargination of flagellum 1 covering half or almost half)..... 14
- 13 Scutellar fovea more transverse and very slightly reniform ; larger : ca. 3-3.5 mm.
brevior Thomson
- Scutellar fovea less transverse and not in the least reniform ; smaller, ca. 2.5-3 mm..... males of ? *striola* and ? *similis*
- 14 Marginalis about one-third as long as its distance from the basalis ; dorsal areas of the propodeum slightly transverse (fig. 130) ; punctuation of underside of gaster sparse and less distinct ; face shorter, the cheeks strongly convex seen from in front
numen Nixon
- Marginalis about half as long as this distance ; dorsal areas of the propodeum slightly longer than wide (fig. 127) ; punctuation of underside of gaster much denser ; face longer, the cheeks only very weakly convex. (Emargination of flagellum 1 longer than in *numen*, covering nearly half ; head slightly narrower in proportion to the width of the thorax ; pronotal shoulders considerably less prominent than in *numen* and the distance between them less great)

**evanescens* Kieffer

England. Germany. Sweden. 21 ♂.

Genus *Zygotia* Förster.

KEY TO SPECIES.

(Females).

- 1 Micropterous species..... 2
- Macropterous species..... 6
- 2 Fore wing reaching just beyond middle of large tergite. (Distal 10 segments of antenna markedly thickened and with segments 7-14 distinctly transverse (fig. 168) ; between the pronotal shoulder and the spiracle is a fine keel that runs close to, and parallel with, the lateral dorsal margin of the pronotum ; base of large sternite, in profile, markedly convex by reason of a strong medial keel ;

large tergite frequently with traces of scaly-reticulation but without obvious punctation)..... **hemiptera** (Thomson), **comb. n.**

(= *Belyta nigriceps* (Cameron) in Kieffer, **syn. n.**)

England. Ireland. Scotland. Sweden. Variable in colour, the entire body, excepting the head, becoming almost yellow in smallest examples. May be a micropterous form of fossulata Thomson.

- Fore wing not surpassing the petiole..... 3

3 Antenna rather abruptly widened after the sixth segment, segments 7-14, seen at their widest, being strongly transverse..... 4

- Antenna without any obvious thickening after the sixth segment, segments 7-14 being almost moniliform. (Ocelli in a triangle with base very distinctly longer than sides; flagellum 1 very distinctly longer than the pedicel (fig. 169); antenna very characteristically yellowish throughout; colour varying from blackish through brown to almost yellow but the head almost always uniformly darkened; large tergite sharply and very distinctly punctate; gaster very hairy, the hairs extending right to the base of the large tergite; apical tergite very short, not longer than basally wide; in this respect *subaptera* resembles *brevipennis* but differs from both *cursor* and *caecutiens*)..... **subaptera** (Thomson), **comb. n.**

(= *Achista tenuicornis* Kieffer, ♂, **syn. n.**)

England. Scotland. Sweden. viii-x, 13 ♀; v-vi, 11 ♀. Probably hibernates as adult. The large sternite is not convex at base as in hemiptera.

4 A more or less distinct ridge between the tip of the pronotal shoulder and the pronotal spiracle; scape with sparse, upstanding hairs as well as fine pubescence; apical tergite (eighth) seen from above hardly longer than its basal width. (Seventh tergite and basal half of large tergite paler than the rest of the gaster; fore wing just reaching end of thorax; large tergite densely, finely punctate; apical tergite roughened along the middle; base of large sternite as convex as in *hemiptera*)..... ***brevipennis** (Kieffer), **comb. n.**

Austria. Finland. Switzerland. 4 ♀.

- No trace of a ridge between the tip of the pronotal shoulder and the pronotal spiracle; scape without upstanding hairs; apical tergite, seen from above, in a narrower triangle with base clearly shorter than sides..... 5

5 Ocelli forming a small, distinct equilateral triangle; gaster more attenuated behind, the apical tergite obviously longer than basally wide and more or less smooth and polished along the middle (fig. 158); large tergite less hairy, the hairs more upstanding; entirely reddish fulvous with only the occipital region blackened; fore wing reaching to middle of petiole..... ***cursor** (Kieffer), **comb. n.**

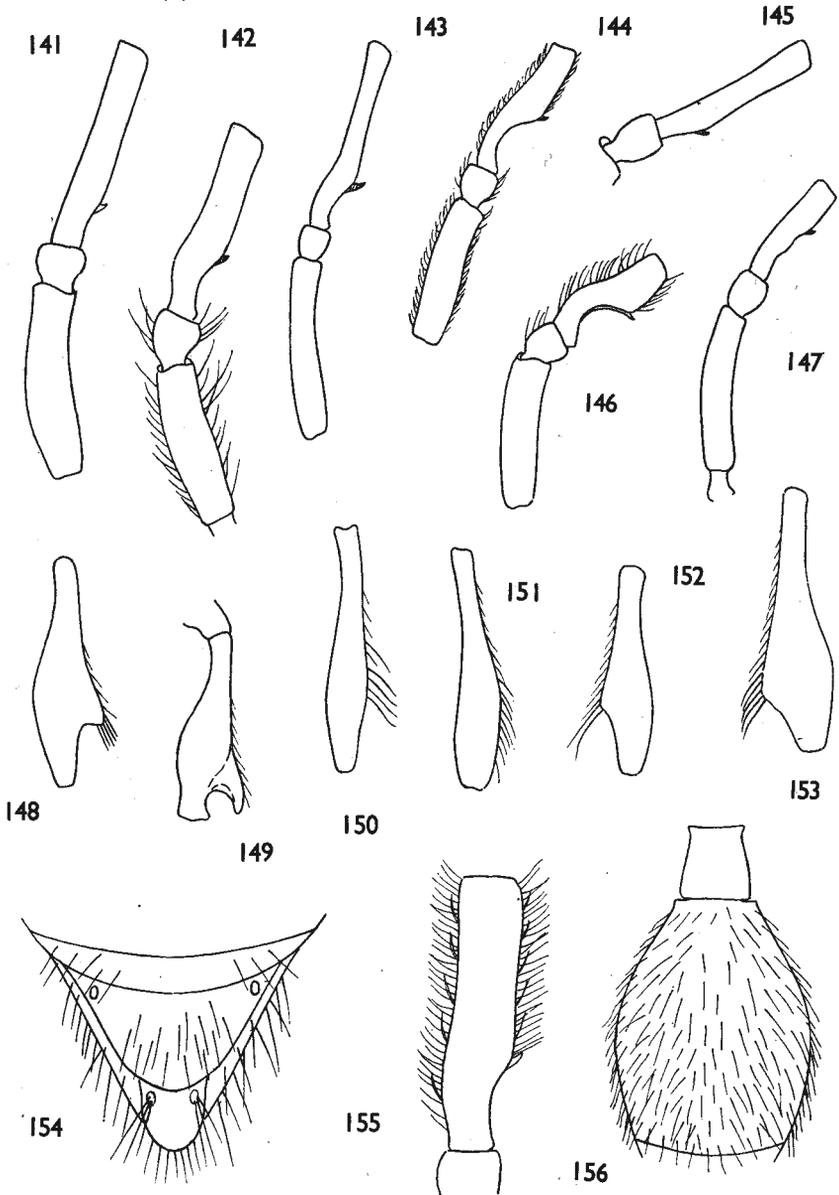
Germany: Heidelberg, vii, 1 ♀. Readily distinguished from the other micropterous species by the shape of the apical tergite and its absence of sculpture; apically, the gaster is exactly like that of soluta.

- Ocelli forming a very indistinct triangle with base distinctly longer than sides; gaster less attenuated behind; apical tergite almost ridged along the middle and finely, vaguely striated; large tergite more closely, densely pubescent than in *cursor* and hence appearing less polished; dull, brownish fulvous with head unicolorous (one example only!); fore wing scale-like, not quite reaching the propodeal spiracle. (Species of subtly characteristic facies, very densely pubescent; posterior, smooth shelf of the pronotum almost horizontal; inner, lateral keels of the propodeum very strongly developed with the dorsal areas of the propodeum vaguely scaly-reticulate; large tergite extremely finely punctate)

caecutiens (Kieffer), **comb. n.**

Austrian Alps: Oberlaussa (Franz). The wings of this species are shorter than in any other.

6 Hypopygium greatly lengthened, gutter-shaped and extending beyond the apical tergite; apical tergite much longer than wide, smooth and polished with its pores situated about middle (fig. 163). (Antenna long and slender, the two preapical segments slightly longer than wide, the whole antenna almost black; facial furrows virtually wanting; the whole body black and shiny, the pubescence of the upper part of the head and of the mesoscutum not dense enough to render these parts pale; venation like that of *nigra*, but darker, with the wings more hyaline; posterior margin of pronotum with a distinct keel that extends laterally to the tip of the pronotal shoulder; no fringe of fine pubescence stands



FIGS. 141-147.—Basal antennal segments of male of: 141, *Zygota macroneura* (Kieffer); 142, *Z. nigra* (Thomson); 143, *Z. croton* sp. n.; 144, *Z. comes* sp. n.; 145, *Z. praetor* sp. n.; 146, *Z. larides* sp. n.; 147, *Z. soluta* (Kieffer).

FIGS. 148-153.—Front tibia of male of: 148, *Z. dentatipes* (Kieffer); 149, *Z. spinosipes* (Kieffer); 150, *Z. croton* sp. n.; 151, *Z. praetor* sp. n.; 152, *Z. comes* sp. n.; 153, *Z. nigra* (Thomson).

FIG. 154.—Apex of gaster of *Z. ruficornis* (Curtis), ♀.

FIG. 155.—First flagellar segment of *Z. excisipes* (Kieffer), ♂.

FIG. 156.—Large tergite of *Z. subaptera* (Thomson), ♂.

out from the side of the gaster in posterior half; seventh tergite strongly shining and clothed only with sparse, long hairs)..... *cilla* sp. n.

Austrian Alps: Tauern, Waldhorn, 1 ♀, the type. (Sunhold-Mitterling). An aberrant species with no close allies and on structure of gaster not well placed in Zygotia.

- Hypopygium never as long as this and the apical tergite different..... 7
- 7 Marginalis short, only in one species nearly half as long as its distance from the basalis, usually very much shorter; radial cell as indicated by the imaginary continuation of the incomplete radialis tending to be short, about as long as the distance between the marginalis and the basalis; when the gaster is seen from above, its lateral margin in posterior half is fringed with long, outstanding hairs with which shorter ones are often mixed..... 8
(Group of fuscata Thoms. Because of the form of the radial cell and better development of the radialis this group is transitional between Pantoclis and Zygotia and has perhaps more natural affinity with the former genus than with Zygotia s. str.)
- Marginalis longer, at least half as long as its distance from the basalis; radial cell very indistinct, the radialis being indicated only by a darkened line, but the cell, as indicated, always considerably or much longer than the distance between the marginalis and the basalis; when the gaster is seen from above, its lateral margin in posterior half is fringed with a very short, dense pubescence, except in *ruficornis* Curtis. (Apical tergite always very short, not longer than the all-over width between the pores, the gaster hence never sharply attenuated behind as sometimes in the *fuscata*-group. Group of *breviuscula* Thomson)..... 13
- 8 Scutellar fovea very distinctly reniform; marginalis very short, punctiform or almost so; rarely (in individuals) as long as one-third its distance from the basalis. (No trace of a keel between the pronotal shoulder and the pronotal spiracle; petiole not longer than its apical width)..... 9
- Scutellar fovea by no means distinctly reniform; marginalis elongate, at least two-fifths as long as its distance from the basalis..... 11
- 9 Gaster less attenuated behind (fig. 164). (Size as in *microtoma*, 2.5-3 mm.; ocelli larger, arranged in a triangle with base distinctly longer than sides; posterior ocellus separated from the eye-margin by very slightly more than 3 times the longer diameter of the ocellus; scutellum less flattened than in *microtoma* and its fovea less clearly reniform; often a sharp contrast between the yellowish basal segments of the flagellum and the blackened 9-10 apical segments)
fuscata (Thomson), comb. n.
 (= *Achista lasiorum* Kieffer, ♀, syn. n.)
England. Ireland. Germany. Sweden. 25 ♀. Could be confused only with microtoma.
- Gaster decidedly attenuated behind and narrower than in *fuscata*. (Ocelli in a triangle with base virtually not longer than side; posterior ocelli slightly nearer to eye-margin)..... 10
- 10 Head less transverse, more gently rounded from occiput to frontal prominence; dorsal areas of the propodeum not longer than wide, the inner lateral keel less convergent behind; scutellar fovea more distinctly reniform; posterior part of mesoscutum, and the scutellum, more flattened; large tergite without remote, sharp punctures..... **microtoma* (Kieffer), comb. n.
England. Ireland. Germany. Sweden. Switzerland. 10 ♀. (Type in British Museum (Nat. Hist.)).
- Head more transverse, more abruptly rounded from occiput to frontal prominence; dorsal areas of propodeum appearing distinctly longer than wide, the inner lateral keel more convergent behind; scutellar fovea less distinctly reniform; this part of the thorax less flattened; large tergite with remote, sharp punctures and traces of scaly-reticulation. (Between the posterior margin of the pronotum and the middle lobe of the mesoscutum a broader, much more distinctly foveate furrow than is sometimes indicated in *microtoma* and, more rarely, in *fuscata*)
striata (Kieffer), comb. n.
England. Ireland. France. Sweden. 4 ♀. In the structure of the head and thorax, this species is like fuscata but the shape of the gaster is that of microtoma. The three species are very closely related and need further study.
- 11 If the gaster is seen from above, its margin, at least in posterior half, shows a dense fringe of short pubescence from which stand out, more especially from the sides of the apical sternite (hypopygium), longer, erect hairs. (Scape uniformly reddish-

yellow; no trace of a keel between the pronotal shoulder and the pronotal spiracle; mesoscutum unusually densely pubescent; fovea of scutellum very distinctly transverse; antennal segments 7-14 transverse; furrow at base of large tergite deep; marginalis two-fifths as long as its distance from the basalis; gaster broader than thorax and rather abruptly narrowed to apex)

brevinervis (Kieffer), **comb. n.**

England: Berks., x, 3 ♀, Sweden: Skåne, 1 ♀, vii. Size: ca. 3.5 mm. In two of the females, the middle of the large tergite is densely sprinkled with pits of irregular size.

— Thus seen, the margin of the gaster lacks an obvious, short fringe, long and short hairs being about equally mixed. 12

12 Gaster narrow and much attenuated towards apex, the apical tergite considerably longer than wide at base (fig. 165); hairs standing out from side of apical sternite almost all long and rather sparse; no differentiated furrow at base of large tergite. (A faint keel between the pronotal shoulder and the pronotal spiracle; fore wing reaching almost to apex of tergite 7; 3.5 mm.) . . . **soluta* (Kieffer), **comb. n.**
(= *Pantoclis soluta* Kieffer, type ♂ in British Museum (Nat. Hist.))

England: Surrey. 2 ♀. Readily separated from all the other species on the shape of the gaster, especially that of the apical segment.

— Gaster less narrow and not attenuated towards apex, the apical tergite almost in the form of an equilateral triangle; these hairs on the whole shorter and denser; a more or less clearly differentiated, though not deep, furrow at the base of the large tergite. (Almost always a distinct keel between the pronotal shoulder and the spiracle; scutellar fovea large and very slightly transverse; fore wing variable in length, not reaching beyond the apex of the gaster and more often reaching only about as far as the apex of the large tergite (fig. 119); large tergite frequently showing fine scaly reticulation; petiole very slightly longer than its apical width; large sternite thickly covered with sharp, rather large punctures; first 4-5 antennal segments usually bright reddish-yellow and contrasting rather sharply with the darker segments beyond; 2.8-3.2 mm. Most exs. nearer the smaller measurement) *fossulata* (Thomson), **comb. n.**

England. Scotland. Sweden. ii-x. Hibernates. May be only a macropterous form of hemiptera.

13 Scape remarkably swollen; scutellar fovea very small, almost circular, occasionally distinctly reniform; segment 1 of the flagellum usually markedly shorter than the pedicel, rarely almost as long. (Flagellum very short (fig. 170); head, seen from above, unusually long; venation (fig. 122)) . . . *claviscapa* (Thomson), **comb. n.**

England. Ireland. Scotland. Sweden. 38 ♀. Extremely distinct on account of scape.

— Scape of ordinary form; scutellar fovea larger; segment 1 of the flagellum at least as long as the pedicel. 14

14 Antenna very long and slender, the 4 preapical segments distinctly longer than wide; segment 2 of the flagellum at least one and a half times longer than wide; postmarginalis extending at least half the length of the radial cell. (Spp. with the propodeum not at all produced backwards between the two lateral keels; gaster beyond petiole rather abruptly narrowed behind and from above showing the same fringe of pale pubescence as in *cameroni* and close allies) 15

— Antenna shorter, the 4 preapical segments not longer than wide; second segment of flagellum at most one and a third times longer than wide; postmarginalis never as long as this. 16

15 Large tergite slightly less narrowed basally, its basal corners slightly less pointed (fig. 160); petiole slightly shorter; postmarginalis distinct to about half length of radial cell (fig. 120); facial furrows coarsely rugose and confluent with the subantennal rugosity; median lamella of postscutellum, as seen from side, more strongly developed and rounded (fig. 157); antenna (fig. 172) *praetor* sp. n.

Ireland: Wicklow, Clara, 22. iv. 1934, 1 ♀ (A. W. Stejfoz); Athdown, 24. vii. 1938, 1 ♀, (A. W. S.). Sweden: Skåne, Röstänga, 7. vii. 1938, 1 ♀, the type, (D. M. S. Perkins and J. F. Perkins)

— Large tergite slightly more narrowed basally, its basal corners more pointed; petiole slightly longer; postmarginalis distinct to tip of radial cell; facial furrows not confluent with the subantennal rugosity; median lamella of the postscutellum

- less well developed.....croton sp. n.
Scotland: Angus, Clova, 11-30.vi.1939, 1 ♂, the type, (R. B. Benson).
France: Nord, Loos, 1 ♀ (O. Sjöberg). *Sweden: Skåne, Skärvalid, 8.vii.1938,*
1 ♀ (D. M. S. Perkins and J. F. Perkins). *If the female is correctly associated*
with the male then the females of praetor and croton are much less easily separated
than the corresponding males.
- 16 In a dorsal view of the gaster, virtually only long, separated hairs stand out from the side of the apical sternite.....17
 — Thus seen, the sides of the apical sternite show a dense, short fringe of pale pubescence as well as a few outstanding hairs.....18
- 17 Gaster not sharply pointed at apex, the apical tergite not obviously longer than wide nor markedly triangular (fig. 154); flagellum short, infusate at apex, the 4 preapical segments more or less transverse; in a dorsal view, the gaster lacks a short fringe even at sides of large tergite; scutellar fovea not particularly large, sometimes distinctly subreniform and in any case not longer than the convex part posterior to it; posterior margin of pronotum in front of the middle lobe of the mesoscutum slightly raised and extended laterally as a straight, somewhat uneven keel to the tip of each pronotal shoulder; facial furrows separated from the sculptured area beneath the antennal insertions by a large unsculptured area; large tergite usually with faint traces of scaly reticulation and with widely scattered punctures; head somewhat elongate (fig. 131)
 ruficornis* (Curtis), **comb. n.
England. Ireland. France. Sweden, Törne, Lappmark. 40 ♀. Easily distinguished by the relatively sparse pubescence of the gaster but otherwise extremely like norvegica.
- Gaster sharply pointed at apex; the apical tergite being very obviously longer than wide and markedly triangular; the sides of at least the large tergite show a dense, short fringe in dorsal view; flagellum longer, reddish-yellow throughout, the 4 preapical segments almost square in outline; scutellar fovea very large, not in the least subreniform and slightly longer than the convex part posterior to it; posterior margin of pronotum in front of middle lobe of mesoscutum of ordinary form; large tergite without scaly reticulation but densely peppered with fine punctures. (The mid-basal furrow of the large tergite broadens out and reaches nearly to middle of segment).....**sulciventris* (Kieffer), **comb. n.**
Yugoslavia: Croatia, type loc. 1 ♀. This species is transitional between the fuscata- and breviscula-groups.
- 18 Apical tergite sharply, longitudinally keeled as a result of being deeply impressed on each side; posterior margin of the pronotum in front of middle lobe of mesoscutum not extended laterally, as a keel, to the tip of the pronotal shoulder; pronotal shoulders smoothly rounded and hardly indicated. (Flagellum long, its segments loosely articulated and with the 4 preapical segments submoniliform; scape blackened with pale tip (fig. 167); propodeum between the 2 lateral keels strongly produced backwards; petiole evenly widened from front to back; large tergite slightly wider between the basal teeth than the posterior width of the petiole (fig. 161); length: 3.8 mm.).....*loris* sp. n.
Switzerland: Bernerobersland, Oeschinensee, 4.viii.1937, 1 ♀, the type. A very distinct species, especially on shape of apical tergite, though the keel is hard to see.
- Apical tergite not longitudinally keeled; faintly so in *norvegica* but this species has the flagellum quite different; posterior margin of the pronotum in front of the middle lobe of the mesoscutum raised as a keel that is extended laterally (hardly indicated in *norvegica*) to the tip of the pronotal shoulder; pronotal shoulders hence somewhat conically pointed.....19
- 19 Flagellum short (fig. 166), the 4 preapical segments very distinctly transverse; apical tergite very faintly keeled; pronotum posteriorly without a distinct margin extending to tip of shoulder; hardly a trace of a furrow between the posterior margin of the pronotum and the middle lobe of the mesoscutum. (Facial furrows not confluent with the rugose subantennal area; marginalis pale and rather thin; length ca. 2.5 mm.).....*norvegica* (Kieffer), **comb. n.**
Sweden. Possibly female of spinosipes Kieffer.
- Flagellum longer, the 4 preapical segments, seen at their longest, more or less spherical or only slightly transverse; apical tergite flattened or even slightly hollowed out, somewhat raised along the middle only in *nigra* but this species

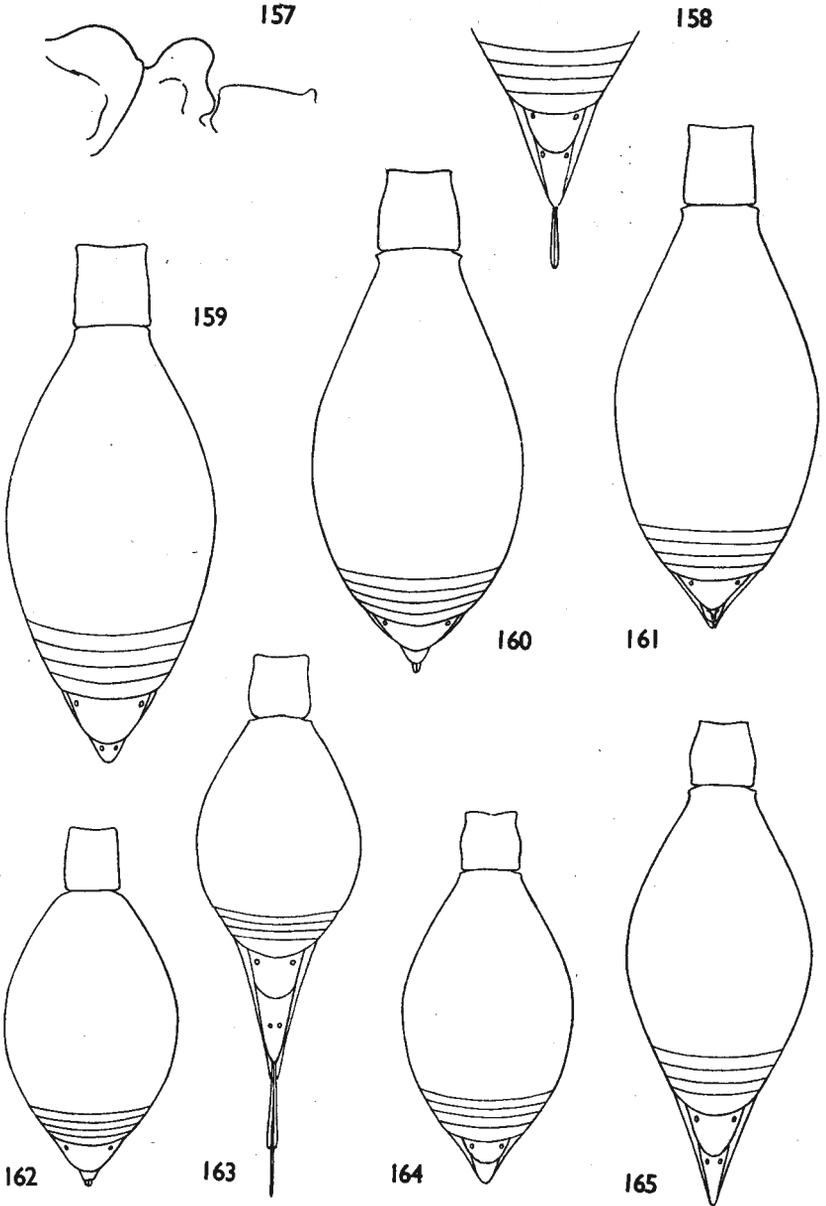


FIG. 157.—Postscutellum, from side, of *Zygota praetor* sp. n., ♀.
 FIG. 158.—Apex of gaster of *Z. cursor* (Kieffer), ♀.
 FIGS. 159–165.—Gaster of female of: 159, *Z. nigra* (Thomson); 160, *Z. praetor* sp. n.;
 161, *Z. loris* sp. n.; 162, *Z. breviscula* (Thomson); 163, *Z. cilla* sp. n.; 164, *Z.*
fuscata (Thomson); 165, *Z. soluta* (Kieffer).

has the gaster much longer and narrower than in *norvegica*; posterior margin of pronotum, in front of the middle lobe of the mesoscutum, showing as a raised keel that extends to tip of pronotal shoulder. 20

- 20 Gaster beyond petiole short and broad, about one and a half times as long as wide (fig. 162); facial furrows confluent with the subantennal rugose area. (Four preapical flagellar segments about as long as wide; no furrow between the posterior margin of the pronotum and the middle lobe of the mesoscutum)

breviuscula (Thomson), **comb. n.**

Austria. Germany. Sweden. 5 ♀. Easily confused with norvegica and semirufa.

- Gaster beyond petiole at least one and two-thirds times as long as wide; facial furrows separated from the subantennal rugose area by a smooth space. 21

- 21 Posterior margin of the propodeum between the 2 lateral keels markedly produced backwards; scape blackened on about basal half. (Flagellum long, its 4 preapical segments submoniliform (fig. 171); a very distinct furrow between the posterior margin of the pronotum and the middle lobe of the mesoscutum; petiole slightly transverse; large species, *ca.* 3-8 mm.)

maconeura* (Kieffer), **comb. n.

Sweden: Skåne, 2 ♀. In general build much like cameroni but the gaster is a little less slender. 36 ♂ from Sweden, Scotland, Germany, Italy. (Type ♂ from Scotland in British Museum (Natural History)).

- Posterior margin of the propodeum between the 2 lateral keels not produced backwards; scape entirely pale, reddish-yellow or simply obscurely yellowish. 22

- 22 Gaster beyond petiole fully twice as long as wide; petiole distinctly longer than wide (fig. 169); hardly a furrow between the posterior margin of the pronotum and the middle lobe of the mesoscutum; larger, 3-5-3-8 mm.

nigra (Thomson), **comb. n.**

(= *Pantoclis *cameroni* Kieffer, ♂, **syn. n.**)

England. Ireland. Germany. Sweden: Skåne. The long, narrow gaster is characteristic of this species.

- Gaster beyond petiole about one and two-thirds times as long as wide; petiole not longer than wide; a moderately well-developed furrow between the pronotum and the middle lobe of the mesoscutum; size smaller, 3-2-3-6 mm.

semirufa (Kieffer), **comb. n.**

Scotland, 1 ♀. Germany, 1 ♀. Sweden: Skåne, 1 ♀. Switzerland, 2 ♀. Petiole slightly longer than wide but in the German specimen it is somewhat swollen medially and is not longer than its middle width. Species extremely like breviscula but apart from characters given in the key, the scape of semirufa is very slightly thicker and has finer pubescence.

(Males).

- 1 Radial cell very long, with the postmarginalis extending at least about half its length. (Marginalis much longer than wide and fully half as long as its distance from the basalis; flagellum very slender, the emargination of its first segment not covering more than basal third; pronotum very narrow between the shoulders; front tibia without a projection; scutellum strongly convex behind; petiole about one and a half times as long as its middle width. Aberrant group). 2
- If the radial cell is long, then the postmarginalis is much shorter or the marginalis is much shorter in relation to its distance from the basalis. 4
- 2 Preapical segment of flagellum fully 4 times as long as wide; emargination of first flagellar segment covering basal quarter; posterior margin of the pronotum, where it abuts on to the middle lobe of the mesoscutum, raised and extended laterally as an uneven keel to the pronotal shoulder. 3
- Preapical segment of the flagellum 3 times as long as wide; emargination of first flagellar segment covering basal third; posterior margin of the pronotum not raised or extended laterally to the shoulders, these smooth, rounded and the declivous surface of the pronotum between them likewise smooth. (Facial furrows very weak and not confluent with the rather weak subantennal sculpture; postmarginalis well developed and reaching the tip of the radial cell; marginalis more than half as long as its distance from the basalis; front tibia

without a sharply differentiated row of bristles).....*bensoni* sp. n.

N. Sweden : *Abisko*, 25-30.vi.1954, 1 ♂, the type (*J. R. and R. B. Benson*).

Closely related to the next two species but, in addition to the characters given above, has the scutellar fovea slightly larger and the posterior ocelli much further apart.

- 3 Postmarginalis not usually extending the full indicated length of the radial cell ; front tibia without a differentiated row of stout bristles (fig. 151) ; first flagellar segment not bowed opposite to the emargination (fig. 145) ; projection of post-scutellum more raised and more prominent. (Facial furrows rugose-costate and confluent with the coarse subantennal rugosity ; the transverse, declivous surface of the pronotum between the shoulders markedly rugose ; genitalia (fig. 311))

praetor Nixon

(See key to females)

Ireland. Austria. Sweden. 13 ♂.

- Postmarginalis extending a little beyond the indicated length of the radial cell and thus more or less completely closing it ; front tibia with a differentiated row of 4-5 stout bristles (fig. 150) ; this projection less raised and less prominent ; first flagellar segment distinctly bowed opposite to its emargination, the tooth at the apex of the emargination more prominent than in *praetor* (fig. 143)

croton sp. n.

(See key to females)

(*This species has the emargination of flagellum 1 deeper than in praetor ; the facial furrows are hardly rugose.*)

- 4 Inner margin of the front tibia (the tibia being directed forwards) angularly produced a little distal to middle. (Radial cell always of the form shown in fig. 118) . . . 5
- Inner margin of the front tibia simple or sometimes abruptly widened here but then the edge distal to the widest part runs in a straight line to apex of tibia . . . 8
5 Tibial projection long, acutely angled, bare at tip or at most surmounted by a few minute hairs which are not longer or thicker than those proximal to them ; between the apex of the tibia and the projection is a deep emargination which is greater than a semicircle (fig. 149). (Emargination of first flagellar segment covering almost half ; digitus (fig. 309)).....*spinosipes* (Kieffer), comb. n.

Less common than dentatipes. England. Austria. Sweden. Switzerland.

- Tibial projection shorter, showing as a rounded obtuse angle, its tip surmounted by a row of 4-5 bristles which, on the whole, are longer and thicker than those proximal to them ; between the apex of the tibia and the projection is only a feeble emargination.....6

- 6 Emargination of flagellum 1 very deep (fig. 146), covering half the length of the segment which is strongly bowed opposite to it ; scape, as seen when emargination of flagellum 1 is in fullest view, with unusually long hairs towards its apex

larides sp. n.

Sweden : *Skåne, Röstänga*, vii.1938, 6 ♂, one the type ; *Höör dist.*, vi.1938,

3 ♂ (*D. M. S. Perkins and J. F. Perkins*) ; *Törne Lappmark, Björkliden*, vii ; *Abisko, vi-vii*, 9 ♂ (*R. B. Benson*).

- Emargination of flagellum 1 feeble, covering only a third to two-fifths and the side opposite to it virtually not bowed ; scape here without these long hairs 7

- 7 Antenna dark brown throughout ; flagellum with denser, more upstanding pubescence (fig. 155) ; head slightly more transverse. (Genitalia markedly different ; digitus with 3 feeble teeth (fig. 308) ; whole structure narrower than in *dentatipes*).....**excisipes* (Kieffer), comb. n.

Scotland : *Type* ♂. *Sweden* : *Skåne*, 11 ♂.

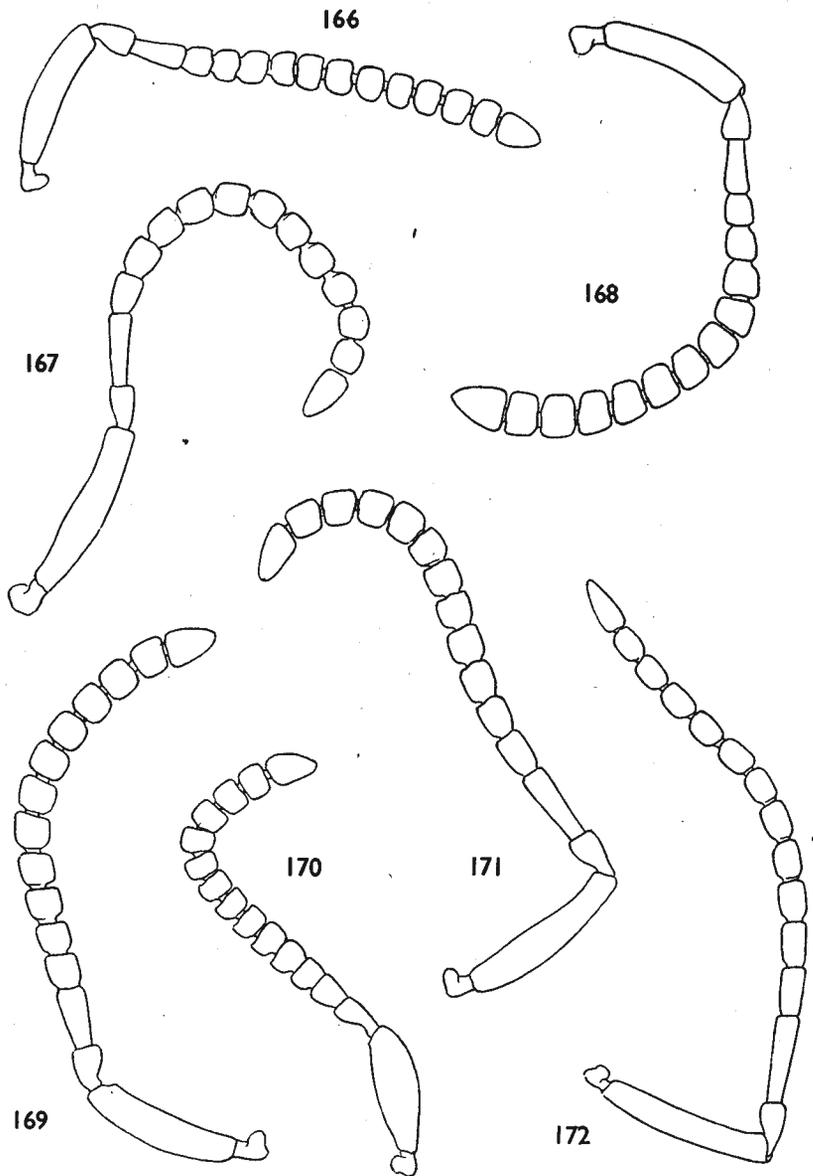
- Antenna with scape almost always yellowish or very pale brownish ; pubescence of flagellum less erect, less dense and somewhat shorter (these differences hard to appreciate) head slightly less transverse (fig. 128). (Genitalia thicker and more heavily sclerotized than in *excisipes* ; digitus ending in a single, long, thick tooth (fig. 310) ; emargination of front tibia (fig. 148))

**dentatipes* (Kieffer), comb. n.

Common all over NW. Europe. Probably male of ruficornis, Curtis.

- 8 Marginalis often nearly punctiform, at its longest not more than one-third as long as its distance from the basalis. (Spp. with the flagellum short, the preapical segment from one and a half to one and two-thirds times as long as wide ; radial cell as indicated by the incomplete radialis tending to be very short ; scutellar fovea usually more or less reniform ; front tibia without a cluster of differentiated

- bristles ; length at most 2.5 mm. but the unrecognized male of *striata* is likely to be longer).....0
- Marginalis not punctiform, at least nearly half as long as its distance from the basalis and then the preapical segment of the flagellum is about 3 times as long as wide. (Scutellar fovea never reniform).....10
 - 9 Radial cell longer ; head more transverse ; ocelli in a triangle with slightly wider base ; preapical segment of the flagellum about one and two-thirds times longer than wide ; colour tending to be darker.....*fuscata* (Thomson)
 - Radial cell shorter ; head less transverse ; ocelli in a triangle with slightly shorter base ; preapical segment of flagellum about one and a half times longer than wide ; colour tending to be paler, more reddish.....*microtoma* (Kieffer)
- This species and fuscata are not satisfactorily distinguished and need further study. All the characters given above seem to overlap.*
- 10 Scape at most as long as flagellum 1 ; front tibia with at least one modified and differentiated bristle. (Postmarginalis hardly as long as the stigmalis ; petiole straight-sided but slightly widened posteriorly ; base of large tergite sub-rectangular at each lateral corner or almost dentiform here).....11
 - Scape at least slightly longer than flagellum 1, or, if not, the base of the large tergite without rectangular lateral corners and petiole somewhat swollen medially ; inner margin of front tibia without differentiated bristles.....13
 - 11 Flagellum 1 very deeply emarginate (fig. 144), the emargination covering fully half ; front tibia with a single much thickened bristle (fig. 152) (only one specimen seen !). (Antenna black throughout, the preapical segment 4 times as long as wide ; flagellar pubescence very short and even ; basal corners of large tergite dentiform, the distance between them slightly greater than the posterior width of the petiole ; the two lateral propodeal keels very weakly developed ; wings brownish, the venation not heavily blackened).....*comes* sp. n.
Austrian Alps : Schladm. Tauern, Hopfriesen, Gigglachsee, 1 ♂, the type (in coll. H. Franz). The deep emargination of the first flagellar segment is important for the recognition of this species.
 - Flagellum 1 less deeply emarginate and then it does not cover more than two-fifths of the segment ; front tibia with an irregular row of about 4-6 differentiated bristles. (Large spp., 3.2-4.2 mm.).....12
 - 12 Emargination of flagellum 1 very feeble and hardly covering one-fourth its length, the side opposite to the emargination not in the least bowed (fig. 141) ; inner edge of front tibia, seen from above, rather abruptly widened just distal to middle but the surface internal to this widest part not markedly hollowed out and not glabrous ; radial cell longer, narrower and less triangular than in *nigra* (fig. 118)
macroneura (Kieffer)
- Easily recognized by the structure of the first flagellar segment ; the flagellum is very slender, the preapical segment being about 5 times as long as wide.*
- Emargination of flagellum 1 deeper and more conspicuous, covering about basal two-fifths (fig. 142), the side opposite to the emargination distinctly bowed ; inner edge of front tibia almost angled here and the surface internal to this widest part much hollowed out and with fewer hairs than in *macroneura*, almost glabrous (fig. 153) ; radial cell less long, more triangular ; when the 3 basal segments of the antenna are so viewed that the emargination of flagellum 1 is in profile, the hairs towards apex of scape and beneath pedicel longer than in *macroneura* (fig. 142) ; scape thicker and more obviously shorter than flagellum 1 than in *macroneura* ; preapical segment of flagellum slightly shorter than in *macroneura*.....*nigra* (Thomson)
England. Ireland. Germany. Sweden : Skåne. 12 ♂.
 - 13 Radial cell short, sharply tapered apically with the postmarginalis almost as long as the indicated length of the radial cell. (Emargination of flagellum 1 covering fully basal half ; scape, pedicel and basal part of flagellum 1 usually obscurely yellowish ; basal corners of large tergite sub-rectangular).....14
 - Radial cell very long, with a long spurious radialis distally tending to curve parallel to wing edge ; postmarginalis much shorter than indicated length of radial cell, usually not obviously longer than the marginalis ; emargination of flagellum 1 covering hardly more than basal one-third. (Radial cell of the form shown in fig. 122).....15
 - 14 Emargination of flagellum 1 showing an uneven edge, being slightly humped just



FIGS. 166-172.—Female antenna of: 166, *Zygota norvegica* (Kieffer); 167, *Z. loris* sp. n.; 168, *Z. hemiptera* (Thomson); 169, *Z. subaptera* (Thomson); 170, *Z. claviscapa* (Thomson); 171, *Z. macroneura* (Kieffer); 172, *Z. praetor* sp. n.

distal to middle and extending fully two-thirds the length of the segment (fig. 147); a feebly developed keel between the pronotal shoulder and the pronotal spiracle **soluta** (Kieffer)

Scotland: Type loc. Ireland. Germany. Sweden: Skåne. Distinct from all the other species on the form of the emargination of the first flagellar segment though this needs to be carefully appreciated.

- Emargination of flagellum 1 forming an even curve which extends over about basal half; usually a slightly more distinct keel between the pronotal shoulder and the spiracle (frequently the gaster shows a vague scaly reticulation which is occasionally coarsened medially to form longitudinal rugosity, 3 ♂, Germany and Sweden); genitalia (fig. 312).....**fossulata** (Thomson)

England. Ireland. Germany. Sweden. Apart from the structure of the first flagellar segment, hardly different from soluta. May be composite with two species differing perhaps in the length and depth of the emargination of the first flagellar segment.

- 15 Scape not longer than flagellum 1; petiole somewhat swollen medially. (Intensely black with wings somewhat hyaline and the marginalis thick and heavily blackened; basal lateral corners of the large tergite not in the least angled; pubescence of petiole somewhat thick and silky) **parallela** (Thomson), comb. n. *N. Sweden: Lappmark, vi, vii. 2 ♂ (R. B. Benson).*

- Scape at least slightly longer than flagellum 1; petiole not swollen medially....16
- 16 Lateral basal corners of large tergite dentiform, the distance between them greater than the apical width of the petiole (fig. 156); large tergite covered virtually all over with unusually long hairs. (Radial cell shorter, narrower, the post-marginalis frequently distinct for a length obviously greater than that of the stigmatis (fig. 121)).....**subaptera** (Thomson)

England. Ireland. Sweden. The gaster is frequently rather pale brownish and is more hairy than in any other species.

- Lateral basal corners of large tergite not or hardly indicated as dentiform angles, the distance across the base of this tergite not greater than the apical width of the petiole; large tergite with shorter hairs and these present more towards sides and apex.....17

- 17 Very slender, long-legged species; petiole fully twice as long as its apical width; base of large tergite without lateral corners; flagellum slender, the preapical segment about three and a half times as long as wide; flagellum 1 longer, its emargination relatively shorter and its pubescence shorter than in **claviscapa**; marginalis thick and slightly longer than its distance from the basalis

vigil sp. n.

- *Austria, Bosruck, type ♂ (E. Rumpf). Tirol, Serlesgruppe, 1 ♂ (Franz).* Not unusually slender; petiole about one and one third times as long as its apical width; base of large tergite with feebly indicated angular corners; flagellum less slender, the preapical segment two and a half to three times as long as wide; flagellum 1 a little shorter, its emargination relatively longer and shallower; marginalis less thick and slightly shorter than its distance from the basalis

claviscapa (Thomson)

In spite of differing from vigil only in degree, this species is probably more closely related to the dentatipes-spinosipes group.

Genus Paroxylabis Kieffer.

(= *Acanthomiota* Jansson, 1942, *Ent. Tidskr.* 63: 210, syn. n.).

KEY TO SPECIES.

(Males and Females).

- 1 Postscutellum medially produced to form a conspicuous spine (fig. 52); mandibles not long nor widely crossing at the tips (fig. 54); scutellum posteriorly bordered with a band (widest medially) of foveae; dorsal areas of the propodeum longer, the inner, lateral keels ending in a more prominent tooth; from the dentiform, pronotal shoulder a short, transverse keel extends inwards but does not touch the posterior margin of the pronotum; sculpture of face beneath the antennal

sockets very coarse; gaster beyond petiole more brownish; size larger, ca. 4 mm. *spinifer* sp. n.

England: Surrey, Horsley, 14.vi.1930, 1 ♀, the type, 1 ♂, paratype (G. E. J. Nixon); Hants., Brockenhurst, 13.vi.1938, 1 ♀, (G. E. J. N.). Sweden: Skåne Höör dist., 16.vi.1938, 1 ♂ (D. M. S. Perkins and J. F. Perkins). A most distinctive species on account of its spinose postscutellum and the long antennal scape of the female.

- Postscutellum medially with a prominent, angular projection (fig. 51); mandibles very long, sickle-shaped and widely crossing at tips; scutellum posteriorly without trace of foveae; dorsal areas of the propodeum shorter, the inner lateral keel ending in a less prominent tooth; this keel sharper and inwardly reaching the posterior margin of the pronotum; sculpture of the face here slightly less coarse; gaster (fig. 53) beyond petiole usually more brightly coloured, often almost yellowish-red, especially in males; size smaller, ca. 3.5 mm.

semirufa Kieffer

(= *Acanthomiota* **oxylaboides* Jansson, syn. n.)

(= *Paroxylabis* *fuscicornis* Kieffer, syn. n.)

(= *Xenotoma* **arcitenens* Kieffer, syn. n.)

(= *Xenotoma* **festiva* Kieffer, syn. n.)

England. Ireland. Sweden. Not common. Differs widely from *spinifer* on the shape of the mandibles and is almost generically distinct from that species. The scape and pedicel of the males of both species are yellow and the scape is as long as the two following segments together. This species is excluded from *Aclista* only on rather trivial characters.

Genus *Aclista* Förster (formerly *Xenotoma*, s.l.).

KEY TO SPECIES.

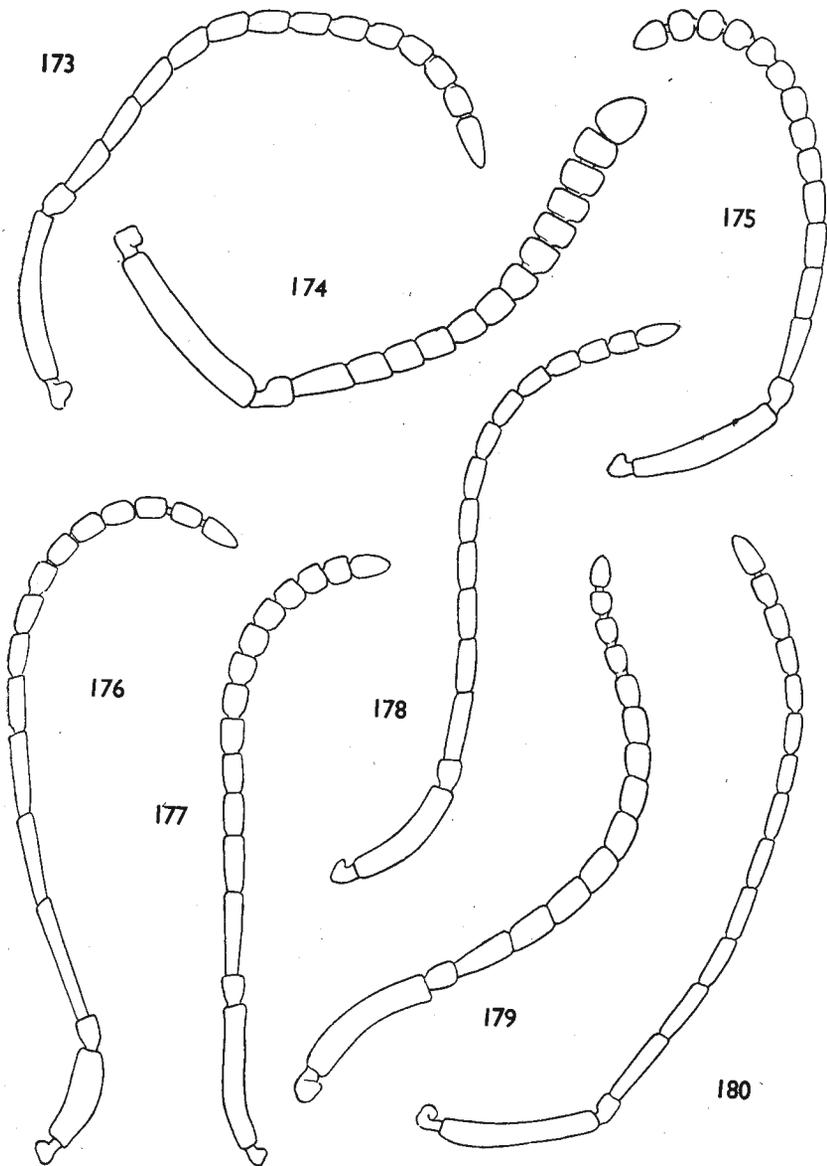
(Females).

- 1 Both scape and flagellum much thickened in the middle. (Mandibles shorter and much less obviously sickle-shaped than in typical *Aclista* (fig. 193); a deep cleft between the antennal insertions when the head is seen from above (fig. 191); facial grooves indistinctly foveate and confluent with the subantennal rugosity; this last showing as transverse rugosity that spreads up on to each antennal socket; antenna powerfully developed, long and of exaggerated appearance (fig. 187); *marginalis* fully two-thirds as long as its distance from the basalis (fig. 112); from the pronotal shoulder a fine keel extends backwards, parallel with the upper lateral margin of the pronotum, and nearly reaches the posterior spiracle; antenna with 15 segments)..... *insolita* sp. n.

England: Somerset, Porlock dist., 21.v.1934, type ♀ (J. F. Perkins).

Sweden: Skåne. (12 ♀, 41 ♂ in British Museum (Nat. Hist.)). A most distinctive species on the structure of the antenna.

- At most the scape thickened in the middle. 2
- 2 Antenna 14-segmented. 3
- Antenna 15-segmented. 7
- 3 Cheek with a sharp keel extending upwards from the posterior basal angle of the mandible to a point about midway between the mandible and eye and then backwards towards the occipital margin; antenna not thickened towards apex, the 3 preapical segments fairly closely articulated; *marginalis* at most about two-thirds as long as its distance from the basalis; scape not at all thickened in the middle; mandibles long and strongly developed; petiole not more than one and two-thirds as long as apically wide. (A closely knit group of species with short scape which is not narrowed apically. Not closely related to *angusta*)... 4
- Cheek without such a keel; antenna distinctly thickened towards apex and with at least the 3 preapical segments almost spherical and loosely articulated (fig. 181); *marginalis* virtually as long as its distance from the basalis; scape usually imperceptibly thickened in the middle, almost as brown as the flagellum; mandibles considerably less well developed than in typical *Aclista*, showing the same degree of development as in *insolita* (cf. fig. 193); petiole twice as long as apically



FIGS. 173-180.—Female antenna of: 173, *Aclista alticollis* (Thomson); 174, *A. prolongata* (Kieffer); 175, *A. atriceps* (Kieffer); 176, *A. praeclara* sp. n.; 177, *A. fractinervis* (Kieffer); 178, *A. arisa* sp. n.; 179, *A. acuta* (Kieffer); 180, *A. haemorrhoidalis* (Kieffer).

wide. (Gaster with short, sharp, apical tip (fig. 199) ; lower lateral tooth of the propodeum usually strongly developed and projecting beyond the upper one)

**angusta* (Kieffer), comb. n.

(= *Anectata angusta* Kieffer)

England: Gloucester, Herts., Surrey, v-vi, 29 ♀, 1 ♂. Aberrant on account of the poorly developed mandibles and different in facies from the other species with 14-segmented antenna.

- 4 A distinct, but not easily seen, sharp, longitudinal keel between the antennal sockets ; antenna short with segment 3 hardly more than twice as long as apically wide ; segments 8-10 virtually not longer than wide. (Virtually black species with dark brown antenna and short radial cell ; no keel between the pronotal shoulder and the spiracle) *neglecta* (Kieffer), comb. n.

England: Herts. Sweden: Skåne. 5 ♀. No other species in this synopsis has a keel between the antennal sockets though there is a weak elongate tubercle in pallida.

- No trace of a keel between the antennal sockets ; antenna longer, segment 3 (first flagellar) being very distinctly more than twice as long as apically wide ; at least segment 8 clearly longer than wide ; radial cell longer than in *neglecta* 5

- 5 No keel between the pronotal shoulder and the pronotal spiracle ; head slightly less transverse ; radial cell slightly longer and narrower. (Gaster as narrow as in *bitensis* but striation at base of large tergite more regularly fan-shaped with the median sulcus less differentiated ; 2 preapical segments of antenna slightly longer than in *bitensis*) *szelenyiti** (Moczar), comb. n.

Hungary only. Type examined but in poor condition.

- A more or less distinct keel between the pronotal shoulder and the spiracle ; head slightly more transverse ; radial cell slightly shorter 6

- 6 Segment 1 of the flagellum about two and a half times as long as apically wide (fig. 210) ; blackish species with, at most, the gaster piceous. (Antenna with at least basal third pale, bright-to-dusky reddish-yellow ; propodeum somewhat elongate with the dorsal areas distinctly a little longer than wide ; gaster narrower than in *soror*) *bitensis* (Kieffer), comb. n.

(= *Anectata bitensis* Kieffer)

England. Germany. Sweden. 7 ♀. 1 ♀ bred from pupa of *Mycetophilid* (C. Morley coll. in British Museum (Nat. Hist.)).

- Segment 1 of the flagellum fully 3 times as long as wide ; gaster shorter than in *bitensis* (fig. 196), the apical segments more telescoped ; thorax usually distinctly reddish, the gaster even paler *soror* (Kieffer), comb. n.

(= *Anectata soror* Kieffer)

England. Sweden: Skåne. 10 ♀. The radial cell is slightly longer than in *bitensis* and the dorsal areas of the propodeum rather less elongate. The most readily appreciated difference between the two species lies in the more elongate basal flagellar segments of *soror*.

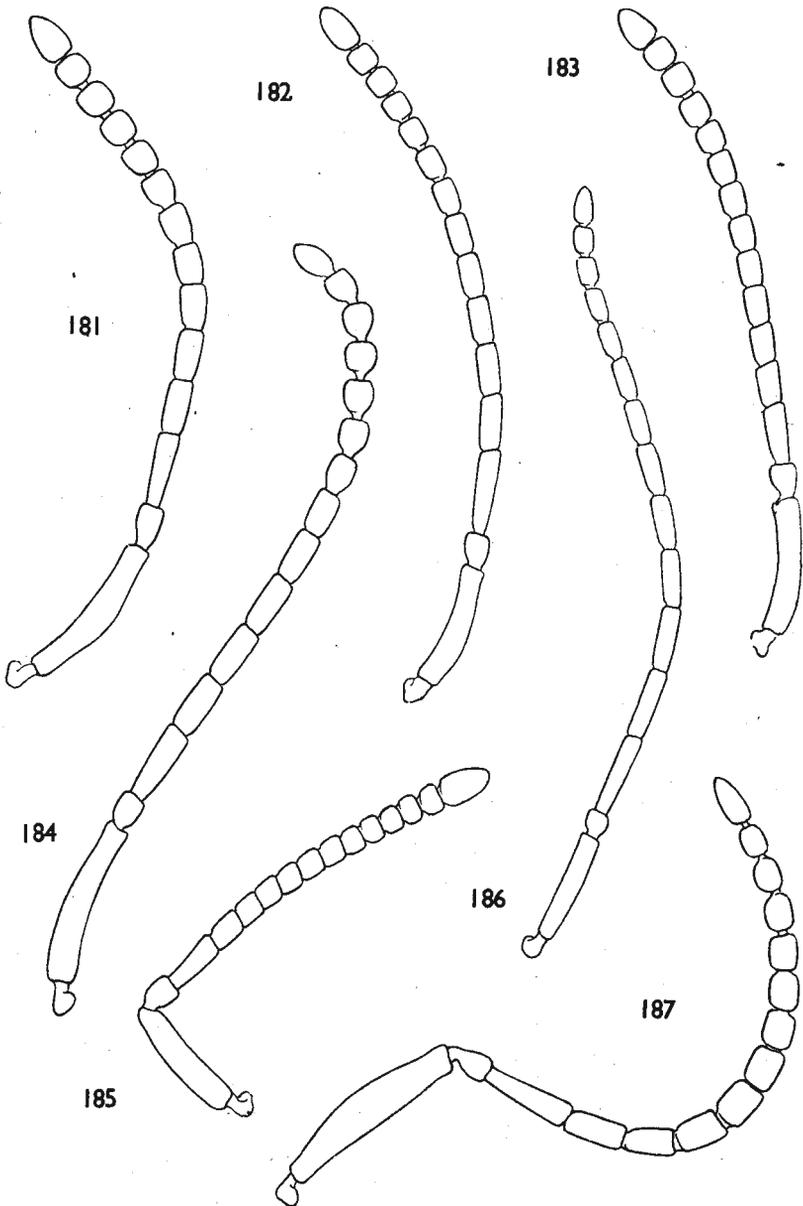
- 7 Segment 3 of the gaster disproportionately longer than 4 which it may hide ; or, if 4 is not hidden, it is not more than half as long as 3 ; apex of the large tergite (segment 2) shallowly emarginate right across. (Frontal prominence with only the merest trace of a furrow ; marginalis rarely as long as half its distance from the basalis ; large tergite without regular basal furrowing ; on each side of the mid-basal furrow there is a broad longitudinal impression in which there may be traces of aciculation or somewhat coarse rugosity as in *cantianus*) 8

- Segment 3 of the gaster not disproportionately longer than 4 or, if it appears so, then the apex of the large tergite is not emarginate right across 11

- 8 Scape at most two and a quarter times as long as flagellum 1 ; segment 3 of gaster strongly transverse, ring-shaped and shorter than combined lengths of the freely exposed segments beyond it (fig. 228). (Gaster decidedly flattened, yellowish or yellowish-brown to the naked eye ; petiole slightly longer than in *rufopetiolata* and *cantianus* and hardly swollen medially) *marshalli* (Kieffer), comb. n.

England. Ireland. Germany. Switzerland. viii-ix. 6 ♀. On the shape of the third segment of the gaster not so aberrant within the genus (s.l.) as the three following species.

- Scape between three and three and a half times as long as flagellum 1 ; segment 3 of the gaster less obviously transverse or appearing considerably longer than the much telescoped segments beyond it 9



FIGS. 181-187.—Female antenna of: 181, *Aclista angusta* (Kieffer); 182, *A. subfuscicornis* (Kieffer); 183, *A. elevata* (Thomson); 184, *A. dubia* (Thomson); 185, *A. evadne* Nixon; 186, *A. striolata* (Thomson); 187, *A. insolita* sp. n.

- 9 Sides of large tergite in apical half unusually densely hairy, the hairs somewhat stiff; apex of large tergite less clearly emarginate than in *rufopetiolata* and *cantianus*; tergite 3 shorter (fig. 227). (Flagellum slightly thickened apically, the preapical segment hardly longer than wide; pubescence of flagellum longer and more conspicuous than in either *rufopetiolata* or *cantianus*; frontal prominence with a distinct but very weak emargination) . . . **rufipes** (Kieffer), **comb. n.**
(= *Xenotoma* (X.) *rufipes* Kieffer)
England. Sweden. 2 ♀. *The pubescence of the gaster is characteristic.*
- Sides of large tergite here with only sparse hairs; apex of large tergite much more obviously emarginate; tergite 3 longer 10
- 10 Antennal segments 13–14 about one and a third times longer than wide; pronotum frequently reddish and paler than the mesoscutum; petiole swollen in basal half and above without longitudinal ridges, smooth-looking and its sculpture almost effaced; gaster somewhat flattened above (fig. 223); venation (fig. 110)
rufopetiolata (Nees), **comb. n.**
(= *Xenotoma* (X.) **pleuralis* Kieffer, ♀, **syn. n.**)
(= *Xenotoma* (X.) **versicolor* **versicolor* Kieffer, ♀, **syn. n.**)
(= *Xenotoma* (X.) **castaneiventris* Kieffer, ♂, **syn. n.**)
- Very common in NW. Europe. Could be confused only with cantianus Curtis.*
- Antennal segments 13–14 not obviously longer than wide; pronotum rarely noticeably paler than the mesoscutum; petiole less swollen anteriorly and usually with distinct, if feeble, vermiculate rugosities; gaster virtually not flattened and shorter than in *rufopetiolata*. (Basal flagellar segments much less elongate than in *rufopetiolata* and the third gastral segment shorter; marginalis slightly thicker; radial cell slightly shorter) **cantianus** (Curtis), **comb. n.**
(= *Cinetus cantianus* Curtis)
(= *Xenotoma* (X.) **nigrescens* Kieffer, ♀, **syn. n.**)
- Common in NW. Europe.*
- 11 Flagellum very short, with tightly articulated segments; except for the apical segment which is large, somewhat spherical and wider than the preceding segments, the segments of the flagellum are very slightly transverse (fig. 185). (Flagellum dark brown throughout; face with sharply defined, feebly rugose furrows extending half-way; frontal prominence only very shallowly emarginate (fig. 216). Related to *elevata*-group on structure of large sternite at base though the basal keel is not very prominent as seen in profile) **evadne** **nom. nov.**
(= *Xenotoma* (Z.) *microtoma* Kieffer, 1909: 542 *nec* 1909: 453)
Sweden: Skåne. 5 ♀. *No other species has the antenna so short, but cf. prolongata, which has it nearly as short, but differs from evadne in having the frontal prominence deeply cleft and the base of the large sternite without a keel.*
- Flagellum much less short and with antennal segment 10 at least as long as wide; apical segment of simple form and not wider than the preceding segment. (See note on *prolongata* above) 12
- 12 Scape unusually thick and in marked contrast with the long, thin flagellum; distinctly shorter than flagellum 1. (Five basal segments of flagellum very long and thin, the flagellum thickening and shortening rather abruptly after the sixth segment but the 6 preapical segments still about one and a half times longer than wide (fig. 176); only an extremely shallow emargination between the antennal insertions; no trace of a keel between the pronotal shoulder and the spiracle but the projecting flange of the lateral mesoscutal lobe more or less obscuring the upper edge of the pronotum; both inner and outer lateral keels of the propodeum virtually obliterated; cubitalis of the fore wing quite straight; marginalis unusually long, as long as its distance from the basalis; legs very long and slender; basal segment of hind tarsus slightly more than twice as long as petiole; petiole slightly more than one and a half times as long as its middle width; large sternite simple at base (cf. *striolata* Thomson))
- praeclara** **sp. n.**
Austria: Gieglachseegeb., Schladminger-Tauern, 1 ♀, *the type, (H. Franz).*
Distinct from all other species on the structure of the antenna. Only striolata has an antenna comparable in slenderness but in this species the scape is not thickened.
- Scape never thus thickened nor in marked contrast with a slender flagellum; never shorter than flagellum 1, usually much longer 13

- 13 Large sternite at base with a transverse keel so that, seen from the side, its extreme base is at a lower level than the apex of the petiole beneath (fig. 195). (Frontal prominence with at most a shallow emargination, never deeper than in *subfusciornis* (fig. 220); edge of pronotum above between shoulder and tegula interrupted (partly hidden) by a flange that projects forwards from the lateral lobe of the mesoscutum (fig. 6)).....14
- Large sternite at base without such a keel so that, seen from the side, its extreme base is at a higher level than the apex of the petiole (fig. 197).....21
- 14 Flagellum 1 about three-quarters as long as the scape. (Flagellum very slender, the preapical segment about one and a half times longer than wide, its pubescence long and bristly; frontal prominence hardly emarginate (fig. 217); no keel between the pronotal shoulder and the pronotal spiracle; marginalis about two-thirds as long as its distance from the basalis; petiole thin, fully twice as long as its middle width; gaster beyond petiole short, sharply upturned at apex, its basal striation even and regularly fanshaped (fig. 200))
- striolata* (Thomson), *comb. n.*
(= *Xenotoma (Zelotypa) hamifera* Kieffer, ♀, *syn. n.*)
- NW. Europe. Generally distributed. Thirty-two specimens examined. Provided the keel at the base of the large sternite has been fully appreciated, this species is easily recognized by its long, thin antennae.*
- Flagellum 1 at most two-thirds as long as the scape and then the flagellum is thick with the preapical segment not obviously longer than wide.....15
- 15 Inner, lateral keel of the propodeum ending in a prominent dentiform projection. (Antenna on the whole rather stout with segment 6 about one and a half times longer than wide and 12-14 not longer than wide; face smoothly convex with facial furrows not or hardly indicated; frontal prominence weakly emarginate; a well-defined keel between the pronotal shoulder and the spiracle; marginalis about two-thirds as long as its distance from the basalis).....16
- Inner, lateral keel of propodeum much less well developed and not thus ending in a conspicuous tooth.....17
- 16 Gaster narrow, elongate; beyond the petiole not more than 3 times as wide as the rather stout petiole; petiole longer (figs. 195 and 202). (Antenna (fig. 183))
- elevata* (Thomson), *comb. n.*
- England. Ireland. Austria. France. Sweden. 36 ♀. Easily recognized by its narrow gaster.*
- Gaster short and appearing broad because the apical segments are very short; slightly more than 3 times as wide as the petiole (fig. 201); petiole shorter. (Apical dentiform projection of the inner lateral keel of the propodeum sharper and more obviously reaching the apex of the outer lateral keel; dorsal areas of the propodeum slightly less elongate; large tergite with a more regular, fan-shaped area of sulcation at base than in *elevata*) *janssoni* sp. n.
- Ireland: W. Cork, Glengarriff, 19.vii.1935, 1 ♀ (A. W. Stelfox). Scotland: M. Perth. Lawers, 27.vi.1954, 1 ♀ (A. W. S.). Sweden: Örebro, Oset, 25.viii.1949, 1 ♀, the type (A. Jansson). (In coll. A. Jansson). The antenna is dark brown throughout.*
- 17 Scape not more than one and a half times as long as flagellum 1. (Antenna somewhat thin and with the first flagellar segment unusually long and about three and a half times longer than wide (fig. 182); frontal prominence shallowly but quite distinctly emarginate (fig. 220); antenna dark brown throughout; no trace of a keel between the pronotal shoulder and the spiracle; petiole twice as long as wide; gaster beyond petiole decidedly elongate; base of large tergite with a perfectly regular, fan-shaped area of strong sulcation)
- subfusciornis* (Kieffer), *comb. n.*
- England. France. Sweden. 15 ♂, 2 ♀. Extremely like analis and differing from this species most readily in the form of the frontal prominence and the absence of a lateral pronotal keel; the notaulices are much more divergent posteriorly and the scutellar hollow more sharply margined in front than in analis.*
- Scape at least twice as long as flagellum 1.....18
- 18 Antennal segments 13-14 not longer than wide; distance between the posterior ocelli two-thirds, or slightly more, the distance between one of them and the eye-margin. (Flagellum rather thick; frontal prominence without trace of an emargination; facial furrows indicated throughout as a row of irregular, transverse foveae which merge into the area of rugosity beneath the antennal insertions). . 19

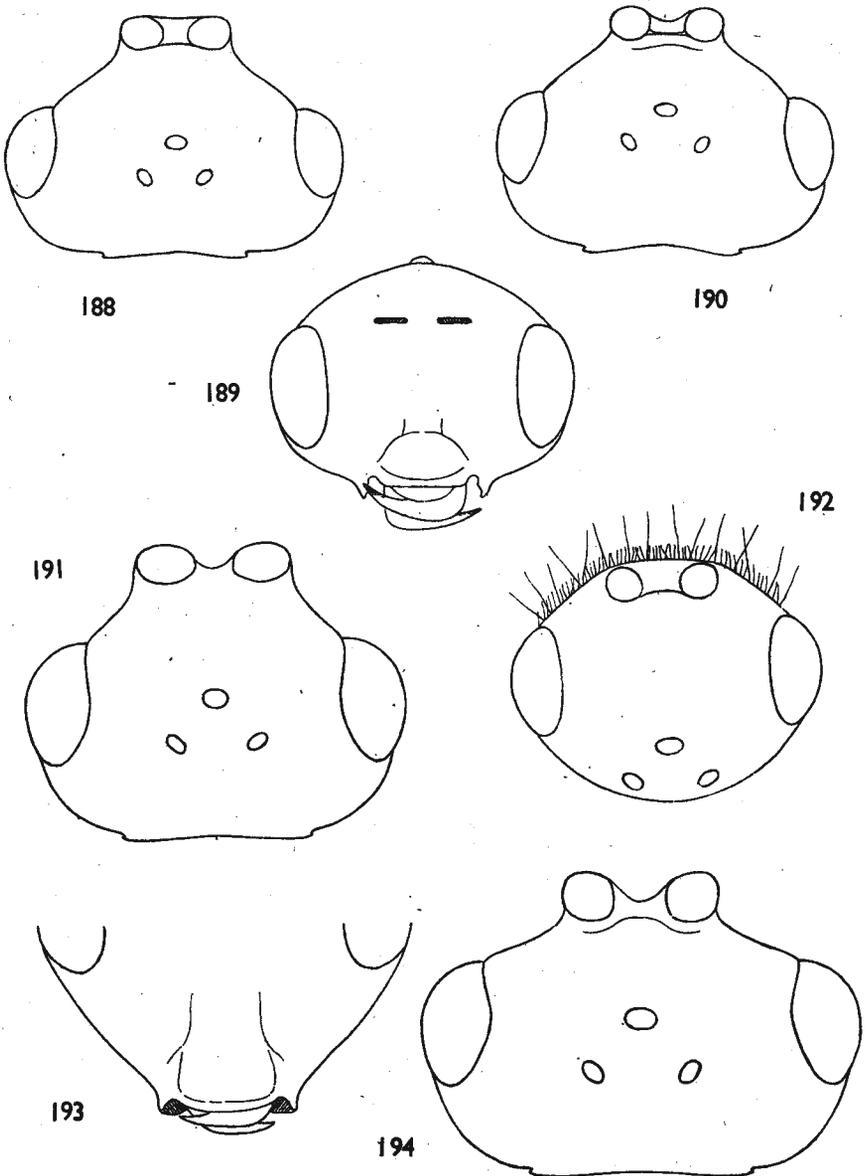


FIG. 188.—Head, from above, of *Aclista flavicornis* (Kieffer).

FIG. 189.—Head, from in front, of *A. rufopetiolata* (Nees).

FIGS. 190-191.—Head, from above, of: 190, *A. flicicornis* (Kieffer); 191, *A. insolita* sp. n.

FIG. 192.—Head, from above and to show long hairs of face, of *A. alticollis* (Thomson).

FIG. 193.—Lower part of head, from in front, of *A. insolita* sp. n.

FIG. 194.—Head, from above, of *A. dubia* (Kieffer).

- Antennal segments 13-14 very distinctly longer than wide; this distance only about one-third the distance between a posterior ocellus and the eye-margin, the ocellar triangle being unusually small. (Flagellum with long, rather bristly pubescence; scape not at all narrowed apically; gaster long, narrow, gradually tapered behind)..... 20

- 19 Larger, 4 mm.; flagellum dark brown; body almost black; petiole twice as long as wide (fig. 231); lateral pronotal keel more strongly developed

**analis* (Kieffer), comb. n.
(= *Anectata analis* Kieffer).

England. France. Sweden. 17 ♂, 1 ♀.

- Smaller, ca. 3.2 mm.; flagellum pale brownish-yellow; whole body reddish-brown; petiole not more than one and a half times longer than wide; lateral pronotal keel very feebly developed. (Scutellar hollow, large, transverse, but slightly smaller than in *analis*, more concave in front and with a clearer indication of a margin anteriorly. Structurally very close to *analis* with main difference lying in the length of the petiole. Might be confused with *flavicornis* because of the pale flagellum but, in addition to the characters given in the key, differs from *flavicornis* in having the flagellum shorter, with much shorter, less bristly flagellar pubescence)..... *folia* sp. n.

Germany: Bavaria, Oberstdorf, 12-29.viii.1936, 1 ♀, the type (G. E. J. Nixon). Ireland: Kildare, Landenstown, vii-ix, 2 ♀, 2 ♂ (A. W. Stefoz); R. Canal, viii. 1 ♂ (A. W. S.); Queen's County, Portarlington, vii, 1 ♂ (A. W. S.).

- 20 Flagellum markedly yellow or pale brownish-yellow; facial furrows distinct as foveate or rugulose lines that are lost in the rather coarse rugosity beneath the antennal insertions; frontal prominence (fig. 188) without trace of an emargination; a deep continuous furrow behind the antennal sockets; large tergite somewhat depressed at base and here with a fairly even, fan-shaped area of deep sulcation; scutellar fovea small, deep, almost circular and sharply margined in front and at sides. (Petiole about one and two-thirds times longer than medially wide (fig. 203); stigmatalis curiously thickened and rather short—a useful but by no means striking character; lateral pronotal keel moderately well developed)

**flavicornis* (Kieffer), comb. n.

England. Sweden: Skåne. Switzerland. 6 ♀, 7 ♂.

- Flagellum dark brown throughout; facial furrows only just indicated above clypeus; frontal prominence with a very feeble emargination; a mere slit behind the antennal sockets; large tergite not depressed at base and without a regular fan-shaped area of sulcation, the middle furrow being fully twice as long as the short, lateral ones; scutellar fovea slightly less circular and less distinctly margined in front and at sides. (Posterior ocelli further apart than in *flavicornis*; flagellum I is longer in proportion to the length of the scape than in *flavicornis* and the whole flagellum is more bristly; radial cell and petiole slightly longer)

clito sp. n.

Sweden: Skåne, Röstänga, 4-6.vii.1938, 5 ♀, one the type (D. M. S. Perkins and J. F. Perkins).

- 21 Petiole rarely as short as two and a half times as long as its greatest width and then the inner, lateral keel of the propodeum is wanting. (Frontal prominence with at most an extremely shallow emargination; face smooth and without furrows; pronotal margin between shoulder and spiracle free, not obscured anywhere by the flange of the lateral lobe of the mesoscutum (fig. 5); cubitalis sharply defined and abruptly downcurved a little beyond its junction with the stigmatalis (more evenly curved in *prudens* sp. n.); no trace of a lateral pronotal keel; gaster beyond petiole large and somewhat flattened (hardly so in *parvula* Kieffer), not upturned at apex and the ring segments not closely telescoped (but cf. *pallida* Thomson))..... 22
- Petiole at most about two and a half times as long as wide and then the inner, lateral keel of the propodeum is distinct throughout..... 27
- 22 Clypeus transversely keeled across the middle so that in profile it appears sharply angled and is composed of two planes; inner, lateral keel of the propodeum distinct throughout. (No trace of an emargination, between the antennal insertions when head is seen from above; flagellum evenly filiform and with the preapical segment distinctly longer than wide)..... 23
- Clypeus with at most a feeble indication of such a keel and then the preapical segment of the flagellum not longer than wide..... 24

- 23 Petiole four to four and a half times as long as its greatest (middle) width; segments 4-6 of gaster so short (telescoped) that they are not easily made out (fig. 221); between the antennal sockets is an elongate tubercle (flattened keel) visible at a magnification of $\times 40$; scape less strongly narrowed apically; flagellum more bristly. (Pale species of very delicate build with the head blackened, pronotum reddish and large tergite almost honey-yellow). **pallida** (Thomson), **comb. n.**
England. Ireland. Austria. Germany. Sweden. 5 ♀.
- Petiole hardly 3 times as long as its greatest width (fig. 224), segments 4-6 longer and easily seen; between the antennal sockets (wider apart than in *pallida*) no trace of a tubercle; scape rather conspicuously narrowed towards apex (fig. 209), flagellum less bristly. (Darker than *pallida* and more robust, with the large tergite reddish-brown; clypeus more sharply divided into two planes than in *pallida*)..... **prudens** sp. n.
Germany: Bavaria, 1 ♀, the type (in the Staatssammlung, München). Sweden: Orebrö, 3 ♀ (A. Jansson).
- 24 Inner, lateral keel of the propodeum incomplete or wanting; black species... 25
— Inner, lateral keel of the propodeum complete; pale species; body brown with sides of pronotum almost reddish and at least the scape and pedicel bright reddish-yellow. (Frontal prominence with a distinct but shallow emargination; petiole fully 3 times as long as wide; scape twice as long as flagellum 1)
boops (Thomson), **comb. n.**
Sweden. Preapical segment of the antenna distinctly longer than wide; gaster broad and much flattened (fig. 230).
- 25 Flagellum slightly thickened towards apex, the preapical segment not longer than wide; scape about two and a half times as long as flagellum 1. (Gaster less flattened than in the following 2 species; base of large tergite on each side of the middle furrow without even sulcation but showing a characteristic rugosity (fig. 218); marginalis much shorter than its distance from the basalis)
parvula (Kieffer), **comb. n.**
England: Hereford, Herts., Surrey. Germany: Bavaria. 4 ♀, 3 ♂. May be two species here: two of the females have the marginalis distinctly less than half the distance from the basalis and the scutellar fovea semicircular; the other two have the marginalis slightly more than half the distance from the basalis with the scutellar furrow more transverse.
- Flagellum virtually not thickened towards apex, the preapical segment longer than wide; scape hardly more than twice as long as flagellum 1. (Spp. of very slender build with the petiole fully 3 times as long as its middle width and the gaster beyond the petiole much flattened. In habitus much like the *iridipennis*-group of *Cinetus*)..... 26
- 26 Base of large tergite showing a sculpture similar to that of *parvula* (cf. fig. 218) and without even aciculation on either side of the middle furrow; sculpture of petiole consisting of vague, obsolescent rugosity without obvious longitudinal elements; marginalis fully half as long as its distance from the basalis (fig. 111); radial cell longer. (Antenna, fig. 180)..... **haemorrhoidalis** (Kieffer), **comb. n.**
England: Surrey, Bookham, 10 ♀, 4 ♂, bred xi, from fungus fly (Mycetophilidae) (L. Parmenter). This species and parvula differ from all others in the curious distortion of the lateral basal furrows of the large tergite.
- Base of large tergite with fine aciculation tending to obscure the basic arrangement of keels; sculpture of petiole consisting of fine, close aciculation; marginalis less than half as long as its distance from the basalis; radial cell shorter
lineare sp. n.
England: Surrey, Ashtead, 9.v.1931, 1 ♀, the type (G. E. J. Nixon). France: Finisterre, Huelgoat, 31.v.1954, 1 ♀ (J. F. Perkins). The aciculation at base of large tergite is much less well developed in the French specimen than in the type. The species is extremely like haemorrhoidalis but, in addition to the characters already given, has the preapical segment of the flagellum slightly longer and the petiole a little shorter.
- 27 Flagellum very slightly tapering from middle to apex; antennal segments 11-14 moniliform. (Scape short, rather thick, not narrowed distally (fig. 179); frontal prominence with an extremely shallow emargination but the rims of the antennal sockets quite strongly raised; marginalis two-thirds as long as its distance from the basalis; lateral pronotal keel moderately well developed; petiole about one

and a half times longer than wide (fig. 229); base of large tergite with a regular, fan-shaped area of strong sulcation; gaster short, upturned at apex

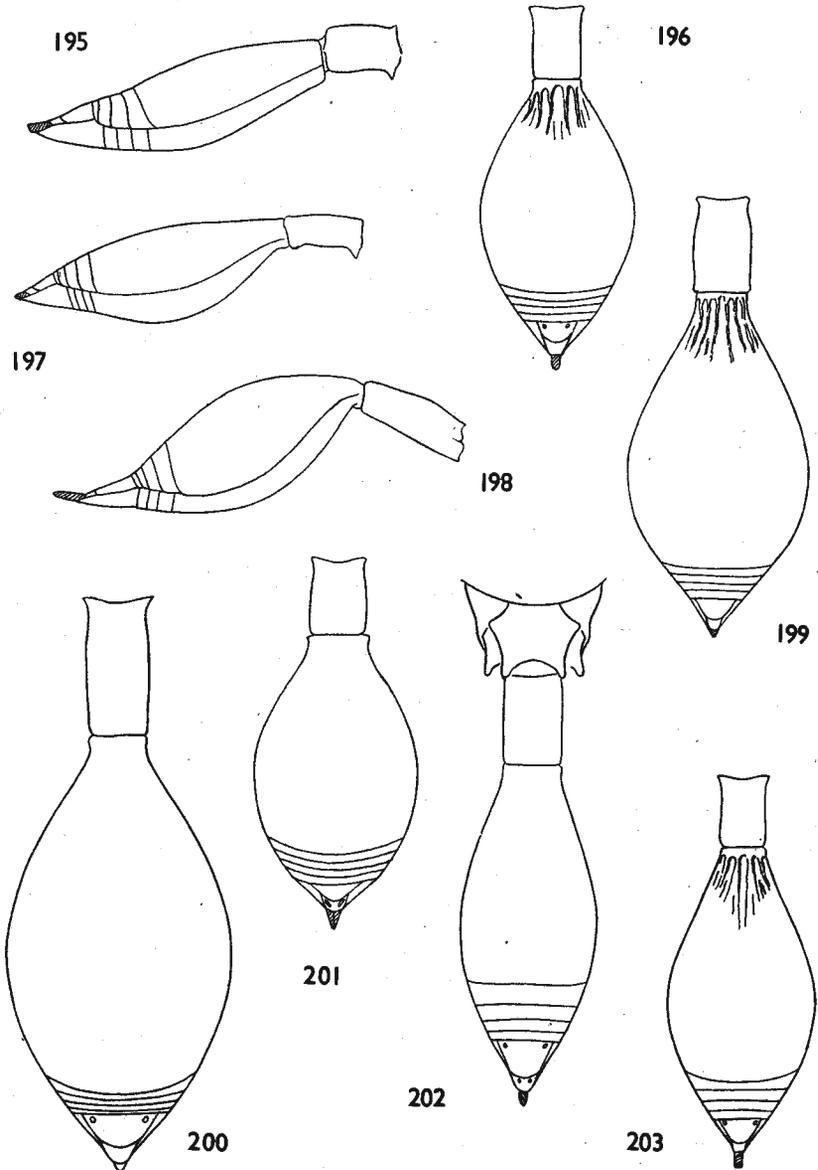
acuta (Kieffer), **comb. n.**

(= *Xenotoma (Zelotypha) alticollis acuta* Kieffer)

England. Corsica. Sweden. Distinguished from all other species by the distally tapering flagellum, though this is a difficult character to appreciate.

- Flagellum not in the least tapering towards apex.....28
- 28 Frontal prominence virtually without an emargination. (Spp. with the flagellum filiform, the preapical segment not in the least moniliform; petiole fully twice as long as wide).....29
- Frontal prominence with a distinct, even if weak emargination.....32
- 29 Scape long in proportion to length of flagellum 1, at least 3 times as long as this and very distinctly narrowed apically; edge of pronotum between shoulder and spiracle completely free, nowhere obscured by flange from lateral lobe of mesoscutum. (Facial furrows not indicated; large tergite without an even fan-shaped area of strong sulcation, the middle furrow always much longer than the lateral ones).....30
- Scape much shorter in proportion to length of flagellum 1, about two and a third times longer than this and not obviously narrowed apically (fig. 178); pronotal edge between shoulder and spiracle partly hidden by the flange that projects from the lateral lobe of the mesoscutum. (Flagellum almost black and in sharp contrast with the bright reddish-yellow scape and pedicel; flagellum filiform, not in the least thickened towards apex and the preapical segment very distinctly longer than wide (ca. one and a third times); petiole twice as long as its middle width; gaster beyond petiole long and narrow, with an almost even fan-shaped area of strong sulcation at base; marginalis almost as long as its distance from the basalis; radial cell long).....*arisba* sp. n.
- Sweden: Lule Lappmark, Messaure, 18.vii.1952, 1 ♀ (A. Jansson). (Type in coll. Jansson.)*
- 30 Frontal prominence with the faintest trace of an emargination; when the head is seen from above, so that the pubescence of the face is seen in profile, numerous long hairs stand out from the shorter, even, basic pubescence, more especially towards the eyes (fig. 192). (Small, dark-legged species with entirely dark, rather bristly flagellum; head and thorax black; hairs of the subcoxa rather long and of uneven length; gaster of simple form with closely telescoped apical segments; antenna (fig. 173)).....*alticollis* (Thomson), **comb. n.**
 (= *Xenotoma (Zelotypha) fallax fallax* Kieffer, ♀, **syn. n.**)
 (= *Xenotoma (Xenotoma) nigra* Kieffer, ♀, **syn. n.**)
 (= *Xenotoma (Xenotoma) cilipes* Kieffer, ♂, **syn. n.**)
- NW. Europe. Common. A poorly characterized species. The long hairs of the face are important for its recognition.*
- Frontal prominence without trace of an emargination.....31
- 31 Scape yellow and almost 4 times as long as flagellum 1; flagellum more bristly, its preapical segment distinctly longer than wide; hairs of the scape decidedly long; pronotum reddish, wide across the shoulders; these very prominent; marginalis short, less than half as long as its distance from the basalis and about as long as the stigmatis; gaster much attenuated towards apex and evenly upcurved here (fig. 198); the subhorizontal surface between the antennal sockets without trace of a keel, somewhat characteristically flat and very slightly wider than the width of the socket, reddish and in rather sharp contrast with the black frons.....*oxytoma* (Kieffer), **comb. n.**
Sweden. 4 ♀. The head of this species is somewhat larger and more transverse than usual; the completely un-emarginate frontal prominence and the short marginalis are important for its recognition.
- Scape about three and a half times longer than flagellum 1; flagellum less bristly, its preapical segment as long as wide; hairs of the scape short; pronotum black like the rest of the thorax; narrow across the shoulders; these not at all prominent; marginalis fully two-thirds as long as its distance from the basalis and obviously longer than the stigmatis; gaster more gradually narrowed towards apex, where it is not at all upcurved (fig. 225); gastral segments 3-6 less telescoped than in *oxytoma* but segments 7-8 less lengthened than in that species
tristis sp. n.

England: Herts., Bozmoor, 3.vii.1938, 1 ♀, the type (R. B. Benson). Characterised chiefly by the elongate gaster.



FIGS. 195-203.—Female gaster of: 195, *Aclista elevata* (Thomson); 196, *A. soror* (Kieffer); 197, *A. prolongata* (Kieffer); 198, *A. oxytoma* (Kieffer); 199, *A. angusta* (Kieffer); 200, *A. striolata* (Thomson); 201, *A. janssoni* sp. n.; 202, *A. elevata* (Thomson); 203, *A. flavicornis* (Kieffer).

- 32 Cheek with a sharp keel (knife-like edge) extending upwards from the posterior basal corner of the mandible about halfway towards the eye. (Frontal prominence with a very deep cleft (fig. 194); antenna gradually becoming darker distal to middle; scape twice as long as flagellum 1; basal flagellar segments markedly cylindrical while the 3-4 preapical segments are loosely articulated and more or less moniliform (fig. 184); lateral pronotal keel sharply developed; petiole with broken, longitudinal wrinkles).....**dubla* (Kieffer), comb. n.
England. Germany. Sweden. 3 ♀, 1 ♂. Differs from all other species, excepting those with 14-segmented antennae, in having the cheek keeled. This, together with the form of the flagellum and the deeply cleft frontal prominence, makes the species very distinct.
- Cheek without trace of a keel.....33
- 33 Three preapical segments of the flagellum not at all longer than wide, transverse or moniliform; pronotal edge between shoulder and spiracle in part hidden by a flange that projects from the lateral lobe of the mesoscutum. (Frontal prominence deeply cleft; scape not narrowed apically; large tergite with strong sulcation on each side of the mid-basal furrow).....34
- Three preapical segments of the flagellum at least slightly longer than wide and in any case never moniliform; the whole flagellum has an even filiform appearance; pronotal edge here free, nowhere hidden by the flange of the lateral lobe of the mesoscutum. (Large tergite without strong sulcation on each side of the mid-basal furrow, this in consequence appearing exaggerated in length; scape and legs markedly yellowish).....38
- 34 Flagellum rather short and distinctly thickened towards apex, the 4 preapical segments slightly transverse; scape fully 4 times as long as flagellum 1; this about one and a third times longer than the pedicel (fig. 174); second flagellar segment one and a third times longer than wide. (Gaster somewhat elongate, the apical segments not very short (fig. 197); facial furrows distinct and extending about one-third of face).....*prolongata* (Kieffer), comb. n.
England. Ireland. Scotland. Sweden. 28 ♀. The antenna is characteristic; no other species, except microtoma, has it so short.
- Flagellum longer and if at all thickened apically then, on the contrary, decidedly long; 4 preapical segments more or less spherical; scape less than 3 times as long as flagellum 1; this at least about twice as long as the scape.....35
- 35 Antenna very long and thickened apically (fig. 177); flagellum 1 very long, more than half as long as the scape. (Petiole twice as long as wide; the large tergite somewhat markedly narrowed at base (fig. 222). Scape and pedicel bright reddish-yellow; flagellum brown to dark brown)..... *fractinervis* (Kieffer), comb. n.
Sweden. 2 ♀.
- Antenna less long and not thickened apically though it may be thick throughout; flagellum 1 shorter, not more than two-fifths as long as the scape.....36
- 36 Clypeus showing as a bright yellowish spot on the otherwise brown head; whole body reddish-brown with the head darker; facial furrows more or less distinct but smooth; scape longer; basal flagellar segments more elongate (fig. 175); scape yellow,..... *atriceps* (Kieffer), comb. n.
*Austria: Tyrol, Oberau. vii-viii, 2 ♀. Germany: Bavaria, Oberstdorf. Apart from the colour and the form of the antenna, hardly distinguishable from *prolongata* and *nigriceps*.*
- Clypeus entirely black like the rest of the head; whole body black or blackish; scape deeply infusate, shorter; basal flagellar segments shorter; no trace of facial furrows.....37
- 37 Dorsal areas of propodeum distinctly longer than wide and markedly narrowed behind; propodeal spiracles unusually large and prominent; wings darker; radial cell slightly shorter. (Large species, ca. 4.5 mm. with the whole body deep black; dorsal areas of propodeum highly polished and only very sparsely pubescent; petiole twice as long as wide, the surface between its smooth, straight keels, smooth and highly polished; 3 preapical segments of the flagellum more or less spherical and in sharp contrast with the elongate basal segments; radial cell rather short; gaster beyond the petiole covered almost everywhere with long hairs).....*mycale* sp. n.
*Sweden: Skåne, Röstänga, 6.vii.1938, 1 ♀, the type, 4 ♂ (D. M. S. Perkins and J. F. Perkins). A most distinct species, equal in size to *analis* and *subfusci-**

cornis but at once different from these on the structure of the base of the large sternite. The large propodeal spiracles seem to be a good character.

- Dorsal areas of the propodeum not longer than wide and not narrowed behind; wings paler, with the radial cell slightly longer; spiracles of the propodeum smaller and not at all prominent. (Flagellum black except for the 2-3 basal segments)..... *nigriceps* (Kieffer), comb. n.
 Ireland. Scotland. Sweden. 6 ♀. Differs from *prolongata* only in the form of the flagellum, also extremely like *acuta* in general facies but differs in having a much deeper cleft between the antennal insertions and also in the form of the flagellum.
- 38 Emargination of frontal prominence deeper (fig. 190); gaster beyond petiole very narrowly fusiform, tapering behind to a sharp point (fig. 226); petiole longer; scape virtually not narrowed towards apex. (Marginalis about half as long as its distance from the basalis; gastral segments 3-6 smooth, shining)
 **flicornis* (Kieffer), comb. n.
 (= *Xenotoma* (X.) **similis* Kieffer, ♂)
 England. Ireland. France. Sweden. Could easily be confused with *clito* but this last, in addition to having an easily appreciated difference in the structure of the basal part of the large sternite, has the radial cell considerably longer and a feebly indicated, lateral pronotal keel.
- Emargination of frontal prominence less deep, or the gaster not at all narrow; gaster beyond petiole more abruptly narrowed to apex, segments 3-6 being more closely telescoped; petiole slightly shorter; scape more or less distinctly narrowed towards apex; pubescence of the flagellum longer..... 39
- 39 Emargination of frontal prominence shallower and broader; gaster beyond petiole more sharply narrowed apically and distinctly upturned at apex; gastral segments 3-6 dull and finely scaly-reticulate; petiole very slightly longer
*myle*s nom. nov.
 (= *Xenotoma* (*Zelotypa*) *fallax arcuata* (Kieffer), 1909: 544 nec 1909: 349)
 Sweden: Skåne. 5 ♀. This species has the frontal prominence exactly as in *alticollis* and differs from this species only in being more brightly coloured and (much more important) in having no long hairs amongst the pubescence of the face.
- Emargination of frontal prominence deeper (as in *flicornis* but the head more transverse); gaster less sharply narrowed apically and not upturned at apex; gastral segments 3-6 much more shining and virtually without trace of scaly-reticulation at $\times 40$; petiole shorter..... *subaequalis* Kieffer, comb. n.
 France. Sweden: Skåne. 5 ♀. This species, together with *arcuata*, *flicornis*, *alticollis*, *tristis* and *oxytoma* form a closely-knit species-group in need of further study. All have a filiform flagellum with the preapical segment never transverse or spherical and the lateral furrows at the base of the large tergite always disproportionately shorter than the middle one.

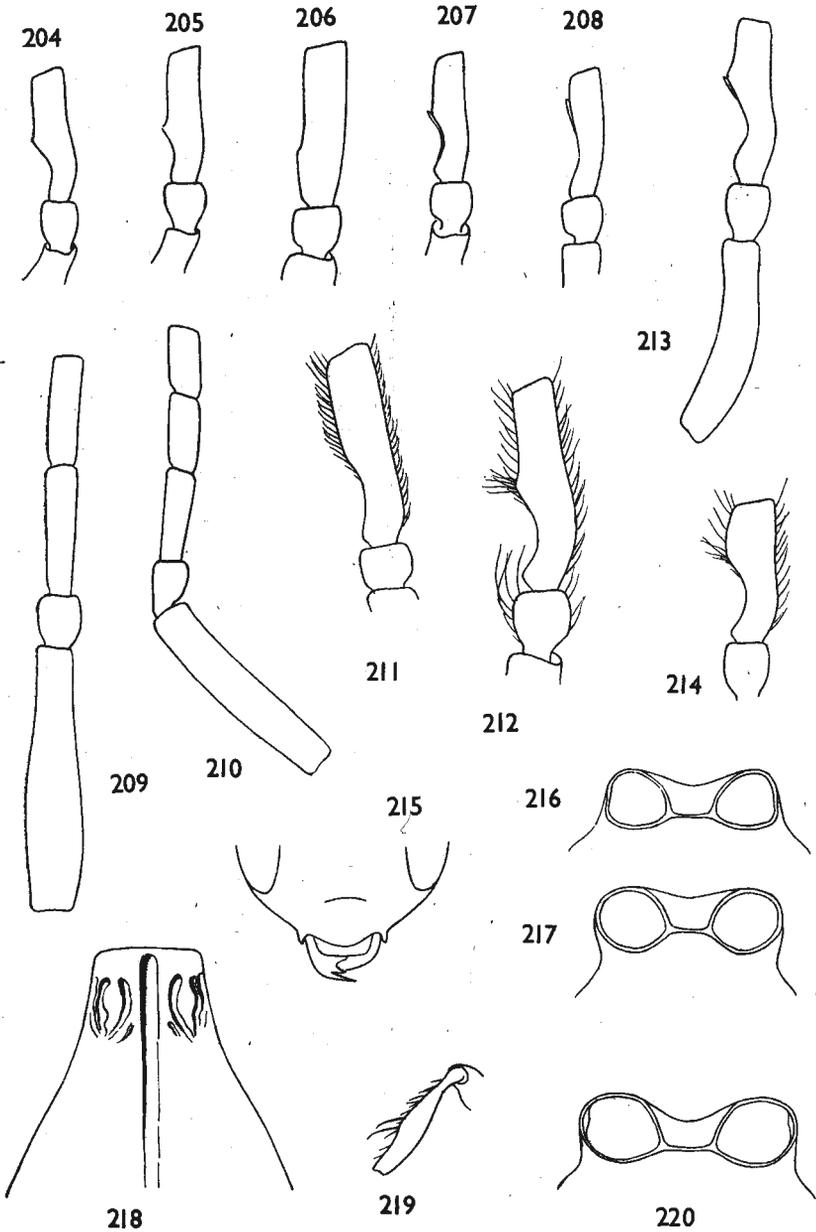
(Males).

- 1 Mandibles much less well developed than in typical *Aclista* (fig. 193, ♀, and fig. 215). (Antenna very dark, the scape deeply infuscated)..... 2
- Mandibles long, conspicuously sickle-shaped and widely crossing at tips..... 4
- 2 Front surface of front tibia at middle with two, thickened, differentiated bristles (fig. 219). (Very black-looking species; frontal prominence from above with only a very feeble emargination; venation somewhat thick and dark; outer, lateral keel of propodeum ending in a conspicuous tooth)

scutellaris (Thomson), comb. n.

N. Sweden: Lappmark, 1 ♂ (R. B. Benson) (In *British Museum* (Nat. Hist.)).

- Figs. 211-214.—First flagellar segment of male of: 211, *A. acuta* (Kieffer); 212, *A. lugens* (Kieffer); 213, *A. insolita* sp. n.; 214, *A. cantianus* (Curtis).
- Fig. 215.—Lower part of head, from in front, of *A. scutellaris* (Thomson).
- Figs. 216-217.—Frontal prominence, to show emargination, of: 216, *A. evadne* Nixon; 217, *A. striolata* (Thomson).
- Fig. 218.—Furrows at base of large tergite of *A. parvula* (Kieffer).
- Fig. 219.—Front tibia of *A. scutellaris* (Thomson).
- Fig. 220.—Frontal prominence of *A. subfuscicornis* (Kieffer).



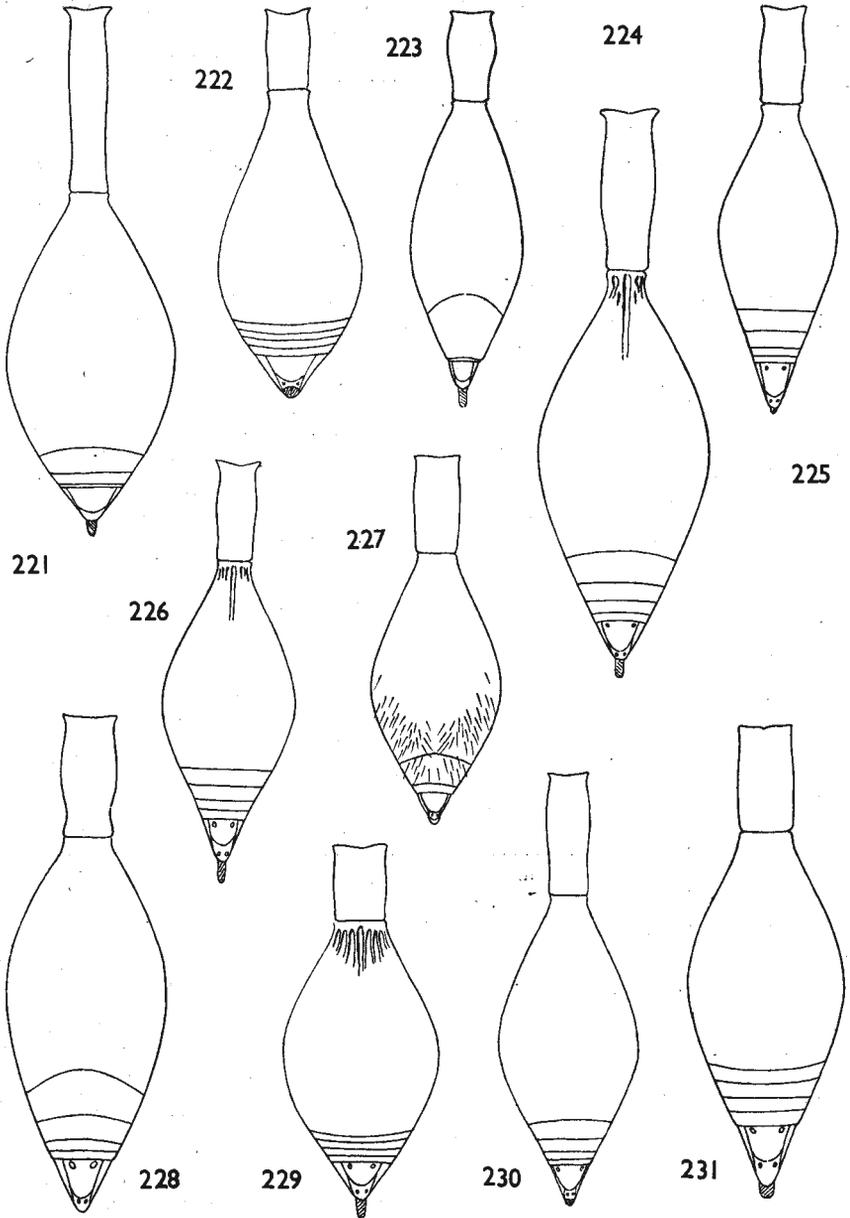
FIGS. 204-208.—First flagellar segment of male of: 204, *Aclista neglecta* (Kieffer); 205, *A. elevata* (Thomson); 206, *A. mycale* sp. n.; 207, *A. prolongata* (Kieffer); 208, *A. bitensis* (Kieffer).
 FIGS. 209-210.—Basal antennal segments of female of: 209, *A. prudens* sp. n.; 210, *A. bitensis* (Kieffer).

(continued opposite)

Drawings made from type, in Rikemuseum, Stockholm. I know no other species of Aclista with two such sharply differentiated bristles on front tibia.

- Front tibia without such bristles. (Very hairy-looking species; frontal prominence with a very distinct though wide emargination; marginalis at least two-thirds as long as its distance from the basalis).....3
- 3 Emargination of flagellum 1 deep, reaching slightly beyond middle of segment (fig. 213); facial furrows represented by a band of rugosity that extends as far as the antennal socket; marginalis two-thirds as long as its distance from the basalis; pronotum with a distinct keel between the shoulder and the spiracle; genitalia (fig. 306)..... *insolita* Nixon
(See key to females)
- Emargination of flagellum 1 very shallow and very short, covering only slightly more than basal third; face smooth; marginalis hardly shorter than its distance from the basalis; pronotum without a keel between shoulder and spiracle. (Petiole slightly more than twice as long as wide)..... *angusta* (Kieffer)
- 4 Large sternite at base with a transverse keel; hence, seen from side, its extreme base lies at a lower level than the apex of the petiole (fig. 195). (Frontal prominence with at most a shallow emargination, never deeper than in *subfuscicornis* (fig. 220, ♀); upper edge of pronotum between shoulder and spiracle hidden by a narrow, shelf-like flange that projects over it from the anterior margin of the lateral lobe of the mesoscutum).....5
- Large sternite without such a keel at base; hence, seen from side, the extreme base of the segment is at a higher level than the apex of the petiole (fig. 197).....10
- 5 Distance between the posterior ocelli half as great as that between one of them and the eye. (Frontal prominence with only the merest trace of an emargination; emargination of flagellum 1 moderately deep; a more or less distinct keel between the pronotal shoulder and the spiracle; scutellar fovea hardly transverse, its sides margined; stigmalis short, rather thick, as in female; petiole short, one and a half times as long as its middle width; sulcation at base of large tergite as in female)..... *flavicornis* (Kieffer)
- Distance between the posterior ocelli from two-thirds to three-fourths as long as the distance between one of them and the eye.....6
- 6 Dorsal areas of propodeum very distinctly longer than their middle width, markedly convergent behind, the inner, lateral keel ending in a strong tooth. (Scape always much infuscated, distinctly longer than flagellum 1; emargination of flagellum 1 weak but ending in a fairly prominent tooth (fig. 205); facial furrows only feebly indicated, smooth; a distinct keel between the pronotal shoulder and the spiracle; gaster narrow)..... *elevata* (Thomson)
- Dorsal areas of propodeum not distinctly longer than their middle width nor markedly convergent behind; inner, lateral keel not ending in a strong tooth....7
- 7 Frontal prominence without trace of an emargination; facial furrows indicated as vaguely rugose (foveate) lines as far as antennal sockets. (A more or less distinct keel between the pronotal shoulder and the spiracle).....8
- Frontal prominence with a distinct, though feeble, emargination; facial furrows less strongly indicated, if at all. (Scutellar fovea very distinctly transverse)...9
- 8 Scape and pedicel deeply infuscate; petiole slightly longer; deep black; size large, 3.5-3.8 mm..... *analis* Kieffer
- Scape and pedicel yellow, contrasting rather sharply with the dark first flagellar segment; petiole slightly shorter..... *folia* Nixon
(See key to females)
- 9 No trace of a keel between the pronotal shoulder and the spiracle; gaster more hairy, especially on basal half; scutellar fovea usually distinctly margined in front; scape brown..... *subfuscicornis* (Kieffer)
As large as, and superficially very like, analis, from which it differs most readily in the structure of the pronotum.
- A more or less distinct keel between the pronotal shoulder and the spiracle; gaster less hairy; scutellar fovea not margined in front, or at most very feebly; scape yellow or yellowish..... *striolata* (Thomson)
The marginalis is longer than in subfuscicornis and the emargination of flagellum 1 is weaker. The very slender, pale flagellum and the weak emargination of its first segment provide two of the best characters for recognizing this species; the petiole is longer and narrower in proportion to the width of the gaster beyond it than in subfuscicornis.

- 10 Cheek behind with a keel that has its origin at the posterior corner of the mandible. (Emargination of flagellum 1 very shallow; petiole thick, not more than one and two-thirds times longer than its middle width; large tergite with a more or less evenly fan-shaped area of strong sulcation at base)..... 11
- Cheek behind without trace of a keel..... 13
- 11 A distinct, *longitudinal* keel between the antennal insertions; virtually no trace of a keel between the pronotal shoulder and the spiracle. (Legs dark reddish-brown; flagellum thicker than in *bitensis* and with the preapical segment about one and a half times longer than wide; emargination of flagellum 1 covering fully three-fifths, slightly deeper than in *bitensis* (fig. 204))
- neglecta* (Kieffer), **comb. n.**
[*Pantoclis neglecta* Kieffer, not in Das Tierreich but in Broteria 1907, 6: 36]
England, 1 ♂. Scotland, type ♂. (In British Museum (Nat. Hist.)).
- No trace of a keel between the antennal insertions, the surface here being smoothly and slightly excavate; a distinct lateral pronotal keel present..... 12
- 12 Emargination of flagellum 1 very short, its feeble keel covering hardly more than one-third; keel of the cheek simple, straight, reaching a point about two-thirds the distance between mandible and eye; surface between the antennal sockets deeply sunken so that, seen from above, the frontal prominence is deeply cleft; flagellum dark brown throughout, very slender, the preapical segment about three and a quarter times longer than wide..... *dubla* (Kieffer)
- Emargination of flagellum 1 very long, its keel covering *ca.* three-fourths (fig. 208); keel of the cheek angled at about middle and above curving inwards towards occiput; surface between the antennal sockets less sunken, the frontal prominence in consequence with only a rather shallow emargination; flagellum shorter, the preapical segment about two and a half times longer than wide. (Radial cell about one and a half times as long as the marginalis)..... *bitensis* (Kieffer)
- With the exception of pallida, this species has the keel of the emarginate first flagellar segment longer than in any other species.*
- 13 Flagellum 1 without an emargination but with a short, straight-edged keel that covers about basal two-fifths (fig. 206). (Frontal prominence with a deep cleft; scape dark brown; dorsal areas of the propodeum longer than wide, markedly narrowed behind, appearing deep black and highly polished; spiracles of the propodeum unusually large and conspicuous; size large *ca.* 4 mm.)
- mycale* Nixon
(See key to females)
- Flagellum 1 always with a distinct emargination, the keel having a curved (concave) edge..... 14
- 14 Petiole 3-4 times as long as its middle width. (Scape very distinctly longer than flagellum 1)..... 15
- Petiole usually about two and a half times as long as its middle width, rarely approaching 3 times as long as its middle width (and then the scape is not distinctly longer than flagellum 1)..... 17
- 15 Predominantly pale brownish species with the gaster beyond petiole almost yellow over most of its medial surface; petiole almost smooth, about 4 times longer than its middle width and slightly swollen medially; emargination of flagellum 1 long, shallow, the keel covering almost three-fourths the length of the segment; frontal prominence without trace of an emargination but the space between the antennal sockets slightly raised along middle to form a blunt longitudinal keel ($\times 40$); clypeus with a transverse keel..... *pallida* (Thomson)
- Black or blackish species, the petiole about three and a half to four times longer than its medial width, not swollen medially and always with some sort of sculpture; emargination of flagellum 1 deeper, the keel covering hardly more than half; frontal prominence with a shallow emargination; no longitudinal swelling between the antennal sockets; clypeus without such a transverse keel. (Scape yellow, distinctly longer than flagellum 1; flagellum dark brown, very thin; sculpture at base of large tergite as in female (*cf.* fig. 218 ?); inner, lateral keel of the propodeum virtually absent)..... 16
- 16 Marginalis hardly more, usually distinctly less, than half its distance from the basalis..... *parvula* (Kieffer)
- Marginalis distinctly more than half its distance from the basalis. (Radial cell



FIGS. 221-231.—Female gaster of: 221, *Aclista pallida* (Thomson); 222, *A. fractinervis* (Kieffer); 223, *A. rufopetiolata* (Nees); 224, *A. prudens* sp. n.; 225, *A. tristis* sp. n.; 226, *A. filicornis* (Kieffer); 227, *A. rufipes* (Kieffer); 228, *A. marshalli* (Kieffer); 229, *A. acuta* (Kieffer); 230, *A. boops* (Thomson); 231, *A. analis* (Kieffer).

- longer than in *parvula*).....**haemorrhoidalis** (Kieffer)
This species and parvula are not very satisfactorily separated and the unknown male of lineare is likely to resemble them very closely; see key to females.
- 17 Frontal prominence with at least a feeble, but distinct, emargination..... 18
 — Frontal prominence with at most the merest trace of an emargination..... 22
- 18 Pronotum with a more or less distinct lateral keel between the shoulder and the spiracle; upper, lateral edge of pronotum hidden by a narrow flange projecting from the lateral lobe of the mesoscutum; if the emargination of flagellum 1 is seen in profile it shows at apex only hairs similar to those beyond and forms with them a more or less evenly graded series (fig. 211)..... 19
 — Pronotum without a keel here. Upper, lateral edge of pronotum entirely unobscured by such a flange; if the emargination of flagellum 1 is seen in profile, it shows at apex a cluster of hairs that do not form a continuous series either in length or direction with those distal to them..... 20
- 19 Frontal prominence deeply cleft; emargination of flagellum 1 moderately deep (fig. 207); petiole about twice as long as wide; middle furrow at base of large tergite tending to be disproportionately longer than the lateral ones; radial cell longer.....**prolongata** (Kieffer)
Sweden: Large series. Fewer from England and Ireland. Fifteen specimens from Switzerland and Bavaria show considerable variation in the depth of the emargination of flagellum 1, some having it obviously deeper than in typical prolongata. These may represent another species, though all specimens otherwise closely resemble the typical form. The postmarginalis is well developed in this species.
- Frontal prominence shallowly emarginate; emargination of flagellum 1 shallow (fig. 211); petiole shorter, about one and two thirds times longer than wide; middle furrow at base of large tergite not disproportionately longer than the lateral ones and forming with them an even, fan-shaped area of strong sulcation; radial cell shorter.....**acuta** (Kieffer)
- 20 Petiole more or less swollen medially; base of large sternite with a cluster of shorter hairs in addition to the longer, sparser ones; epomia almost always widely interrupted at middle and obsolete; flagellum short, with segment 1 dark brown like the segments distal to it. (Small dark species; emargination of frontal prominence extremely weak; radial cell short; marginalis very short, about one-third as long as its distance from the basalis; the sculpture of the petiole fades out in proportion to the amount of swelling it shows; flagellum 1 (fig. 214))
cantianus (Curtis)
Extremely like rufopetiolata but darker in colour, has a deeper emargination to flagellum 1 and the petiole tends to be less swollen.
- Petiole not swollen medially; base of large sternite with only long hairs; epomia complete, distinct throughout; flagellum 1 almost always pale or yellowish at least over basal two-thirds. (Species with the scape not longer than the 2 follow-segments together; hairs beneath the pedicel decidedly long and more or less bent at middle; radial cell considerably longer than in *cantianus*; marginalis nearer half as long as its distance from the basalis)..... 21
- 21 Petiole two and two-thirds times as long as medially wide; vestiture of the flagellum longer (fig. 212); hairs beneath the pedicel longer and more obviously bent at middle; scape bright, clear yellow.....**lugens** (Kieffer), comb. n.
Austria. Sweden. The antenna tends to be bright yellow from base to middle of flagellum 1. This, in combination with the long hairs beneath the pedicel, appears to render the species fairly distinctive, though it is obviously extremely closely allied to the following species, i.e. filicornis. May be the male of myles or an allied species.
- Petiole about two and a quarter times longer than its middle width; vestiture of the flagellum slightly shorter; hairs beneath the pedicel a little shorter, their medial bend less marked; scape usually markedly infusate....**filicornis** (Kieffer)
- 22 Petiole usually markedly swollen just anterior to middle and here becoming quite smooth; emargination of flagellum 1 very shallow. (Scape, pedicel and most of flagellum 1 usually bright yellow; when the head is seen from above, the hairs of the face are all of one length, forming an even pubescence; large sternite at base with a cluster of short hairs among the longer ones; colour usually medium brown with the prothorax contrasting reddish; lateral depression on each side

of the mid-basal furrow of large tergite frequently with a little, fine, adpressed pubescence).....**rufopetiolata** (Nees)

The marginalis is short, slightly less than half its distance from the basalis.

This species has a distinctive facies and closely resembles cantianus; the two species are easily confused but cantianus is smaller, much darker, has the first flagellar segment more deeply emarginate but the frontal prominence with only a slight emargination; the radial cell is also slightly shorter.

- Petiole not swollen medially; emargination of flagellum 1 rather deep.....23
 23 *Epomia* very strongly raised, so that, seen from above, the pronotal shoulders appear as sharp, almost spiniform, teeth; scape hardly longer than flagellum 1 and not noticeably narrowed apically; upper edge of pronotum between shoulder and spiracle hidden by the narrow flange that projects from the lateral lobe of the mesoscutum; *marginalis* as long as its distance from the basalis. (No trace of a keel between the pronotal shoulder and the spiracle)

fusciventris (Kieffer), **comb. n.**

Scotland only. (Type ♂ in British Museum (Nat. Hist.)).

- *Epomia* less strongly raised so that, seen from above, it forms a much less conspicuous tooth at the shoulder; scape considerably longer than flagellum 1 and markedly narrowed apically; upper lateral edge of pronotum completely free; *marginalis* slightly more than half as long as its distance from the basalis. (Scape, pedicel and flagellum infuscate; when the head is seen from above, the face shows numerous long hairs as well as shorter pubescence, more especially towards sides (cf. fig. 192); large sternite with only long hairs at base; colour more or less evenly blackish; lateral depression at base of large tergite replaced with 2-3 extremely short furrows and without pubescence).....**alticollis** (Thomson)

Genus *Leptorhaptus* Förster.

KEY TO SPECIES.

(Females).

- 1 Inner spur of hind tibia very long, fully twice as long as the shorter one, almost equal to half the length of the basal segment of the hind tarsus. (Flagellum 1 as long as the scape; flagellum not in the least thickened apically, the preapical segment one and two-thirds times longer than wide; *epomia* sharp, conspicuous, surmounting the pronotal shoulder; pubescence of antenna, especially that of the scape, extremely fine and without outstanding hairs; propodeum short, the dorsal areas slightly transverse; the posterior, bounding keel nowhere raised as a translucent flange; posterior face of propodeum unusually long, its middle length fully equal to the length of the medial keel; gaster at apex narrowly pointed, much as in *fungorum* Kieffer (cf. fig. 237); radial cell long, narrow, sharply pointed distally; the thick post-*marginalis* extends by two-thirds beyond the radial cell).....***costalis** Thomson
Lapland. Only type ♀ seen. Very distinct on the length of the hind tibial spur.
- Inner spur of hind tibia very short, much less than half the length of the basal segment of the hind tarsus and not twice as long as the poorly developed outer spur.....2
- 2 Flagellum very slender, its first segment at least as long as, usually distinctly longer than, the scape; preapical segment of the flagellum very distinctly longer than wide; *epomia* wanting, there being no trace of a ridge separating the dorsal surface (collar) of the pronotum from the lateral surface; hence the shoulders of the pronotum, seen from above, show merely as rounded humps or blisters. (Antennal sockets not united by a transverse keel).....3
- Flagellum much less slender; segment 1 rarely very slightly longer than the scape and then the *epomia* is fully developed so that, seen from above, the pronotal

FIGS. 238-239.—Basal antennal segments of male of: 238, *L. egregius* Kieffer; 239, *L. docilis* sp. n.

FIG. 240.—Gaster, from side, of *L. abbreviatus* Kieffer.

FIG. 241.—Head, from in front, of *L. docilis* sp. n.

FIGS. 242-243.—Gaster of female of: 242, *L. tenuicornis* Kieffer; 243, *L. atriceps* Kieffer.

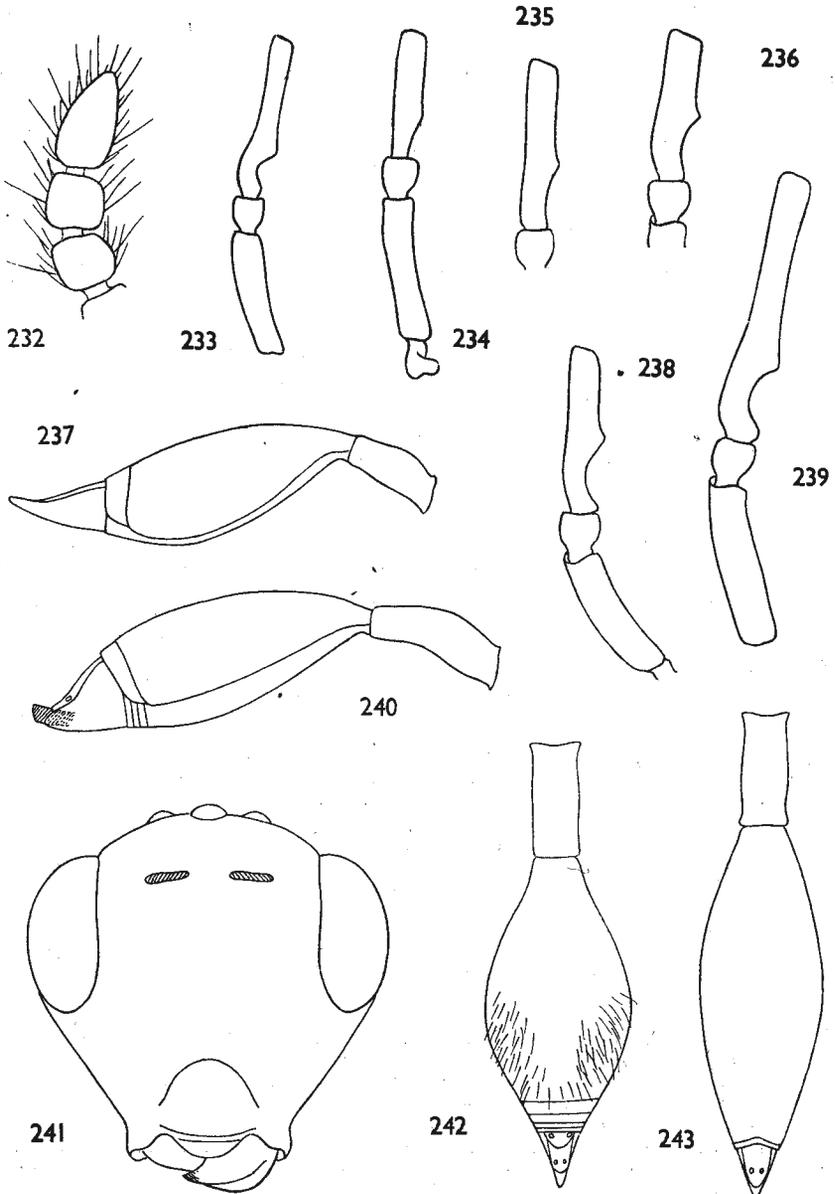
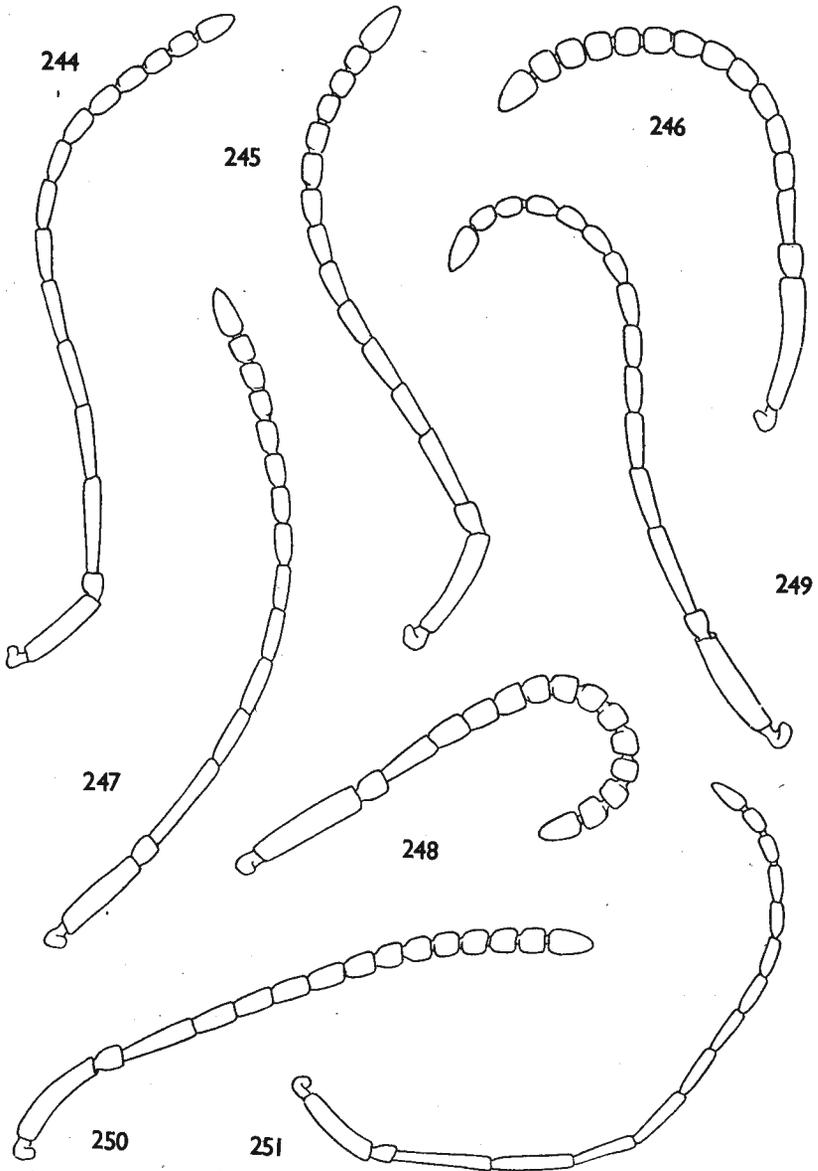


FIG. 232.—Apical antennal segments of *Leptorhaptus monilicornis* (Kieffer), ♀.
 FIGS. 233–236.—Basal antennal segments of males of: 233, *L. fungorum* Kieffer; 234, *L. incisus* Kieffer; 235, *L. politus* Thomson; 236, *L. tenuicornis* Kieffer.
 FIG. 237.—Gaster, from side, of *L. fungorum* Kieffer.

(continued opposite)

- shoulder shows as a sharp tooth; in all species the epomia is developed and separates the collar of the pronotum from the lateral surface, though it does not always completely surmount the pronotal shoulder.....6
- 3 Petiole not unusually long, not more than 3 times as long as its middle width and not thickened proximally; head very distinctly transverse. (Head, seen from in front, not elongate; preapical segment of the antenna not more than one and a half times longer than wide).....4
- Petiole considerably longer, at least three and a half times as long as its middle width; head considerably less transverse. (Dorsal areas of the propodeum very distinctly longer than wide).....5
- 4 Antenna less slender, the preapical segment about one and a third times longer than wide; flagellum very slightly thickened apically (fig. 244). (Pale species with the head blackish; thorax usually fulvous with the pronotum paler and the gaster markedly yellowish; petiole 3 times as long as wide, evenly cylindrical, not in the least arched in profile).....*macrocerus* Kieffer
Sweden: Skåne. vi, 4 ♀.
- Antenna more slender, the preapical segment fully one and a half times longer than wide; flagellum not thickened apically (fig. 251). (Darker than *macrocerus* with the flagellar segments more elongate; gaster longer and narrower, the petiole shorter, two and a half times as long as wide).....*transiens* sp. n.
Switzerland: Bernerobersland, Grindelwald, 7-13. viii. 1937, 1 ♀, the type (G. E. J. Nixon). Extremely like macrocerus but certainly distinct on the characters given.
- 5 Very large species, ca. 5 mm.; preapical segment of flagellum fully twice as long as wide; pronotum not noticeably less dark than the rest of the thorax. (Head from in front more elongate than in any other species (fig. 241))....*docilis* sp. n.
England: Hereford, Capler Wood, 31. v. 1936, 3 ♀, one the type (E. B. Britton and J. F. Perkins). Ireland. Sweden., 15 ♀, 3 ♂. A most distinct species on size alone. Could be confused only with compressus to which it is extremely closely allied.
- Smaller, ca. 4 mm.; preapical segment of flagellum about one and two-thirds times longer than wide; pronotum bright reddish and contrasting sharply with the rest of the thorax; head from in front slightly less elongate than in *docilis*. (The pubescence of the flagellum is more upstanding and bristly than in *docilis*)
**compressus* Thomson
Czechoslovakia. Finland. Sweden.
- 6 Scape at most one and a quarter times as long as flagellum 1. (Flagellum always slender, not obviously thickened towards apex and with the preapical segment never transverse).....7
- Scape usually quite obviously longer than flagellum 1, about one and a half times; if about one and a third times longer, then the flagellum is distinctly if slightly thickened towards apex and its preapical segment is not longer than wide. (In all species the epomia surmounts the pronotal shoulder, so that, seen from above, the shoulder shows as a sharp tooth or angular projection).....9
- 7 The epomia reaches as far as, but does not surmount the pronotal shoulder. (Antennal sockets united by a distinct keel. Brightly coloured species with the head dark and the rest of the body reddish to fulvous with the sides of the pronotum and the gaster paler; at least the apex of the gaster is almost yellow)
petiolaris Thomson
England. Ireland. Sweden. 17 ♀. One of the largest species, ca. 3.5 mm. and in colour deceptively like macrocerus but has the flagellum less slender than in this species with the apical segments shorter (fig. 249); apical tergite also longer than in macrocerus. From all other species, including macrocerus, petiolaris is distinguished by the sharp, even keel between the antennal sockets.
- The epomia reaches and surmounts the pronotal shoulder.....8
- 8 Scape not longer than flagellum 1; flagellum more slender (fig. 247); gaster in profile narrowed to a very fine point, the hypopygium considerably lengthened (fig. 237); sheath of ovipositor not showing through the integument as a dark stub. (Seen from above, the pronotal shoulders show as sharp teeth; gaster dark brown but becoming contrasting yellowish towards tip).....*fungorum* Kieffer
Ireland. Corsica. Sweden. Has the apex of the gaster more finely pointed than in any other species.

- Scape distinctly longer than first segment of flagellum; flagellum less slender (fig. 245); gaster less narrowed apically; sheaths of ovipositor showing through the integument as a dark stub..... **perplexus** Kieffer
England. Ireland. Scotland. Germany. Sweden. 8 ♀. Between the antennal sockets there is a feeble but distinct ridge; at least medially, this ridge does not reach the level of the rim of the sockets; no trace whatever of a ridge in fungorum. Deceptively like fungorum but the gaster less obviously attenuated towards apex.
- 9 Gaster broad, beyond the petiole thickly pubescent on each side and unmodified in the sense that it shows 4 ring segments (3-6) beyond the large tergite, a very short, transverse seventh and a short, triangular eighth (fig. 242). (Scape as long as flagellum 1 plus 2; flagellum thick and widened towards apex, the preapical segment slightly transverse; a well-defined groove along upper lateral edge of pronotum between shoulder and spiracle; no trace of a keel uniting the antennal sockets)..... **tenulicornis** Kieffer
Ireland: Wicklow, v, 1 ♀.
- Gaster here narrower and with at most a few scattered hairs; always modified in the sense that the ring segments (3-6) are entirely or in greater part hidden beneath the large tergite..... 10
- 10 Scape hardly one and a third times as long as flagellum 1. (Flagellum only very slightly thickened towards apex, the preapical segment about as long as wide; a more or less distinct groove between the pronotal shoulder and the spiracle; dorsal areas of propodeum distinctly longer than wide; apical tergite and hypopygium considerably lengthened)..... 11
- Scape at least one and a half times as long as flagellum 1. (Flagellum either thick or thickened apically; apical tergite and hypopygium less lengthened, hence the gaster not at all attenuated apically)..... 12
- 11 Petiole rather long, smooth-looking, somewhat swollen medially, its keels tending to become obliterated; gaster beyond petiole longer, narrower, dark but at least the apical tergite and the hypopygium contrasting yellow; ovipositor sheaths wide and showing as a darkened to blackened obliquely truncated stub (fig. 240); thorax longer and narrower; head more strongly narrowed behind the eyes
abbreviatus Kieffer
England. Ireland. Wales. Sweden. 6 ♀. On the shape of the gaster, perhaps closely related to perplexus and fungorum but has the thorax longer and narrower than in either of these two species.
- Petiole shorter, of ordinary length, sometimes swollen and smooth-looking towards base but usually its keels better defined than in *abbreviatus*; gaster beyond the petiole shorter, usually yellowish (in one example yellowish only at apex); ovipositor sheaths less wide in profile and not thus showing as a characteristic dark stub; head less sharply narrowed behind the eyes; thorax of ordinary form..... **analis** Kieffer
Ireland. Sweden: Skåne. 7 ♀. The antenna is slightly less thick than in abbreviatus (fig. 250). This species has the apical tergite shorter than in fungorum, perplexus and abbreviatus. In colour it closely resembles pale forms of politus but can be separated from this species on the much more slender flagellum.
- 12 Antennal sockets not separated by a continuous furrow, their rims on the inner side thickened and at one point almost touching each other or at any rate united by a very short keel; the epomia does not surmount the shoulder as a sharp ridge so that, seen from above, the pronotal shoulder shows as a subangular prominence; between the shoulder and the spiracle no trace of a groove along upper edge of pronotum; white sensorial hairs of the flagellum unusually numerous and conspicuous. (Scape slightly more than twice as long as flagellum 1; flagellum thick; apical tergite very short)..... **flavidicornis** Kieffer
England. Ireland. 6 ♀. The structure of the antennal sockets, on their inner side, is of the greatest importance for separating this species from politus.
- Antennal sockets separated by a continuous furrow, their rims on the inner side not thus thickened and no trace of a keel between them; the epomia surmounts the pronotal shoulder; between the shoulder and the spiracle a more or less distinct groove is present; sensorial hairs of the flagellum less numerous and less conspicuous..... 13
- 13 Petiole strongly swollen and humped in the middle, without longitudinal keels and usually with a vague, subobsolescent reticulation; flagellum very bristly (figs.



FIGS. 244-251.—Female antenna of: 244, *Leptorhaptus macrocerus* (Thomson); 245, *L. perplexus* sp. n.; 246, *L. politus* (Thomson); 247, *L. fungorum* Kieffer; 248, *L. monilicornis* Kieffer; 249, *L. petiolaris* (Thomson); 250, *L. analis* Kieffer; 251, *L. transiens* sp. n.

232 and 248). (Thorax rather narrow and less pubescent than in the other species, the hairs on the dorsal surface of the propodeum hardly noticeable; femora thickened, the hind pair with a shorter basal stalk than in the other species; cubitalis virtually straight)..... **monilicornis** Kieffer

(= *L. *myrmecophilus* Kieffer, ♀, syn. n.)³

(= *L. brevicornis* Kieffer, ♀, syn. n.)

NW. Europe generally. Commonest species of genus, easily recognized by the bristly antennae and shape of petiole.

- Petiole not thus swollen, though in profile it may be markedly arched; its keels always more or less clearly defined and no reticulation present; only *atriceps* has the antenna somewhat bristly but this species has the thorax much less narrow and the dorsal surface of the propodeum very noticeably pubescent..... 14
- 14 Large tergite very long and narrow, fully two and a half times as long as wide (fig. 243); dorsal areas of propodeum not longer than wide. (Reddish or fulvous species with the gaster usually yellowish; flagellum shorter than in *politus*, its pubescence somewhat bristly)..... **atriceps** Kieffer
- England: Surrey, Westmorland. Sweden. (7 ♀ in British Museum (Nat. Hist.)). Characterized by the narrow gaster and rather short, bristly flagellum. Probably female of *incisus* Kieffer.

- Large tergite altogether broader, not more than twice as long as wide; dorsal areas of propodeum distinctly longer than wide. (Pronotal shoulders, seen from above, less sharply angular than in *atriceps*; venation (fig. 123); flagellum more thickened towards apex and less bristly (fig. 246))..... ***polltus** Thomson
- (= *L. *heterocerus* Kieffer, ♀, syn. n.)
 (= *L. scutellaris* Kieffer, ♀, syn. n.)
 (= *L. fulviventris* Kieffer, ♀, syn. n.)
 (= *L. niger* Kieffer, ♀, syn. n.)

(Common and widely distributed in NW. Europe. A very variable species or perhaps composite as here interpreted. The flagellum varies from entirely brown to entirely yellowish with 2-3 apical segments darkened; the gaster varies from entirely brown to entirely yellowish. A female from Bavaria has the scutellum reddish-yellow (*scutellaris* Kieffer).

(Males).

- 1 Epomia wanting, there being no trace of a ridge separating the side of the pronotum from the pronotal collar; hence, seen from above, the pronotal shoulders appear simply as rounded bosses..... 2
- Epomia well enough developed to separate the lateral surface of the pronotum from the pronotal collar, even if it does not completely surmount the pronotal shoulder..... 3
- 2 Flagellum 1 fully one and a half times as long as the scape, deeply emarginate on slightly less than basal third; petiole 4 times as long as wide. (Head from in front triangularly elongate (fig. 241, ♀); large, dark brown species)

docilis Nixon

(See key to females)

- Flagellum 1 one and a quarter times longer than the scape; its emargination less deep and covering one-third; petiole hardly three and a half times as long as wide..... **macrocerus** Kieffer
- Very different from *docilis* in general facies; smaller with shorter head as seen from in front and broader thorax. On the whole, a pale marked species with reddish pronotum and yellowish gaster. Separated from the other pale species only on complete absence of epomia.

- 3 Sides of the large tergite gaping apart from the gaster; a sharp keel, sometimes less well defined medially, uniting the antennal sockets. (The epomia does not completely surmount the pronotal shoulder so that the shoulder is not sharply dentiform; usually a pale species with the pronotum still paler)

petiolaris Thomson

Easily recognized by the curious conformation of the large tergite, a condition constant in the 42 examples examined.

- Sides of large tergite closely wrapped around the gaster; rarely the antennal sockets united by a keel..... 4

³ *L. myrmecophilus*, nomen nudum, in Donisthorpe, 1927, *Guests of British Ants*: 105.

- 4 Scutellar fovea strongly transverse, slightly reniform, the dome of the scutellum pushed forwards. (Scape slightly shorter than flagellum 1, (9 : 10) ; flagellum very slender, the emargination of its first segment extending virtually to middle ; pronotal shoulder not sharply dentiform) *vacillans* sp. n.
Sweden : Skåne, Skärvald, 3.vii.1938, 1 ♂ the type (D. M. S. Perkins and J. F. Perkins). Characterized by the shape of the scutellar fovea.
- Scutellar fovea neither strongly transverse nor subreniform 5
- 5 A distinct keel uniting the antennal sockets though medially it tends to be less well developed. (Antennal sockets very close together, the shortest distance between them hardly more than half the diameter of one of them) 6
- No trace of a keel uniting the antennal sockets 7
- 6 Scape distinctly shorter than flagellum 1, (8 : 9) ; flagellum very thin, without conspicuous white sensorial hairs ; flagellum 1 longer, its emargination hardly covering more than basal third ; shoulders, from above, sharply dentiform ; an indistinct groove lies along the subhorizontal shelf between the pronotal shoulder and the spiracle. (cf. carefully *fungorum*) *perplexus* Kieffer
- Scape distinctly longer than flagellum 1, (8 : 7) ; flagellum thicker, especially its first segment, and with conspicuous white sensorial hairs ; flagellum 1 shorter, its emargination covering nearly a half ; shoulders more or less right-angled but not dentiform ; hardly an indication of a subhorizontal shelf here and no trace of a groove *flavidicornis* Kieffer
- 7 Petiole 4 times as long as its middle width, unusually smooth, its keels virtually obliterated. (Largish, black species with the head strongly transverse and the first 3-4 segments of the antenna yellow ; epomia sharply defined and reaching the posterior margin of the pronotum opposite the origin of the notaulices ; between the shoulder and the spiracle is a subhorizontal shelf along which there may or may not lie an indistinct groove) *abbreviatus* Kieffer
- Petiole at most about three and a half times longer than wide, lacking this smooth appearance, or, if its keels are more or less wanting, then the segment tends to be swollen on anterior half 8
- 8 Flagellum short, the preapical segment twice as long as wide ; emargination of flagellum 1 shallow, its edge not curved proximally but passing as a more or less straight line into the pedicel (fig. 234). (A fine groove extends between the pronotal shoulder and the spiracle ; antennal sockets wide apart, the distance between them almost equal to the diameter of one of them) *inclisus* Kieffer
England. Ireland. Germany. Sweden. On the whole a pale species, distinguished from other pale species by the two antennal characters. The pronotal shoulders are much more sharply pointed than in any other of the pale species.
- Flagellum longer, its preapical segment at least 3 times as long as wide ; emargination of flagellum 1 never exactly as above 9
- 9 Gaster yellowish to fulvous, densely pubescent on each side in apical half (fig. 242, ♀). (In general facies extremely like *inclisus* but flagellum longer and with much more slender segments ; flagellum 1 slightly widened proximal to the emargination (fig. 236) ; antennal sockets closer together ; pronotal angles less sharp, hardly dentiform ; gaster less narrow ; radial cell longer than in *inclisus* ; cubitalis long and well developed ; petiole somewhat short) *tenulicornis* Kieffer
Ireland. Sweden : Skåne. 7 ♂. No other species has the gaster so pubescent.
Cf. carefully male of egregius.
- Gaster often yellowish but never as pubescent as this 10
- 10 Flagellum 1 very distinctly longer than the scape (ca. 11 : 8), with a sharp, deep emargination covering basal third and the side of the segment opposite to the emargination distinctly bowed (fig. 233). (Antennal sockets rather far apart, the shortest distance between them fully three-quarters the width of one of them ; flagellum very thin ; no trace of a groove between the sharply dentiform shoulders and the spiracle ; postmarginalis unusually well developed ; scutellar fovea deeply concave behind ; gaster evenly dark brown) *fungorum* Kieffer
Species with subtly distinctive facies, perhaps due to the rather strongly transverse head and a narrow, on the whole evenly cylindrical, petiole. Very similar to perplexus but differs in having no trace of a keel uniting the antennal sockets.
- Flagellum 1 less distinctly or not at all longer than the scape, its emargination not answering to the above description 11
- 11 Petiole almost always markedly swollen in anterior half, smooth or with a vague reticulation ; dorsal areas of the propodeum appearing smooth and shiny because

of very sparse, inconspicuous hairs. (Thorax narrow, wide across the prominent, subdentiform pronotal shoulders; flagellum 1 rather deeply emarginate, and somewhat narrowly stalked at base, much as in *incisus* (cf. fig. 234); hind femur much thickened and with a very short basal stalk)..... *monilicornis* Kieffer

The pronotum is almost always reddish and the first 3-4 antennal segments yellow. Could be confused with incisus but differs on length of flagellar segments, shape of thorax and sculpture of petiole.

- Petiole not thus swollen on anterior half or, if somewhat swollen, then without reticulation; dorsal areas of propodeum not thus shiny and having a much denser pubescence. (Pronotal shoulders not prominent nor sharply dentiform).. 12
 - 12 Flagellum 1 thinner, its emargination very shallow (fig. 235); this segment and the scape almost always strongly infuscate; colour darker; scutellar fovea virtually circular..... *politus* Thomson
 - Flagellum 1 thicker, its emargination deeper; this segment and the scape less infuscate, often quite pale; colour paler, the gaster often yellowish; scutellar fovea distinctly transverse..... **egregius* Kieffer
- England: Herts. Sweden: Skåne. Both this species and politus are not easily separated in all individuals; egregius is probably the male of analis.*
Type ♂, Scotland. (In British Museum (Nat. Hist.).)

Genus *Cinelaptus* gen. n.

Mandibles very narrow, sharply pointed and widely crossing at tips. Eyes large, very sparsely hairy. A deep cleft between the antennal sockets, the rims of the sockets much raised. Epomia absent. Pronotal shoulders, seen from above, sharply dentate. Notaulices slightly divergent posteriorly. Marginalis about one and a half times as long as its distance from the basalis and one and a half times as long as the short, completely closed radial cell. Petiole about 3 times as long as wide. Gaster laterally compressed towards apex and here much modified, the segments beyond the third being almost completely telescoped within the third segment.

Type of the genus: *Cinelaptus fragilis* sp. n.

Cinelaptus fragilis sp. n.

Female: Body brown with the head blackish and the pronotum reddish-yellow. Antenna thread-like, pale with yellow scape; flagellum 1 almost as long as the scape, 9:11; preapical segment fully twice as long as wide. Legs very slender. Wing (fig. 107).

Length: ca. 3 mm.

Ireland: Sligo, Trawallua, 10.viii.1933, 1 ♀, the type (in coll. Stelfox) (A. W. Stelfox); 25.vi.1936, 1 ♀ (A. W. S.). Dublin, Lucan, 7.vii.1943, 1 ♀ (A. W. S.).

Differs from Cinetus in the absence of an epomia and from Leptorhaptus in having divergent notaulices; from both in shape of mandibles.

Genus *Cinetus* Jurine.

KEY TO SPECIES.

(Females).

- 1 Large tergite and the one next to it (third) fused without trace of a suture, the segment thus formed strongly narrowed posteriorly and beyond it a free, retractile segment that is slightly longer than wide (when exposed as in death); the apical tergites otherwise completely telescoped (fig. 275). (Antenna very slender with the scape fully twice as long as flagellum 1 and the preapical segment twice as long as wide; scape distinctly narrowed apically; more apical flagellar segments with numerous erect hairs that are equal to the width of the segments; petiole about two and one-third times as long as its middle width)

lancoelatus Thomson

Ireland. Scotland. Sweden. Switzerland: 2 ♀, bred from Mycetophilid fly in Boletus sp. Very distinct because of absence of suture between tergites 2 and 3.

Probably closely related to ennius sp. n. and decipiens Kieffer.

- Either the large tergite, if fused with the third, showing a distinct dividing suture (if suture is very faint, as in *angustatus* Kieffer, then petiole is much longer than in *lancoelatus*), or gaster of more generalized form, the large tergite being followed by two or more, free, strongly transverse, ring-shaped segments..... 2
- 2 Gaster beyond petiole simple, showing a large basal tergite and at least 2-3 ring-shaped segments beyond it; third segment not fused with the large tergite

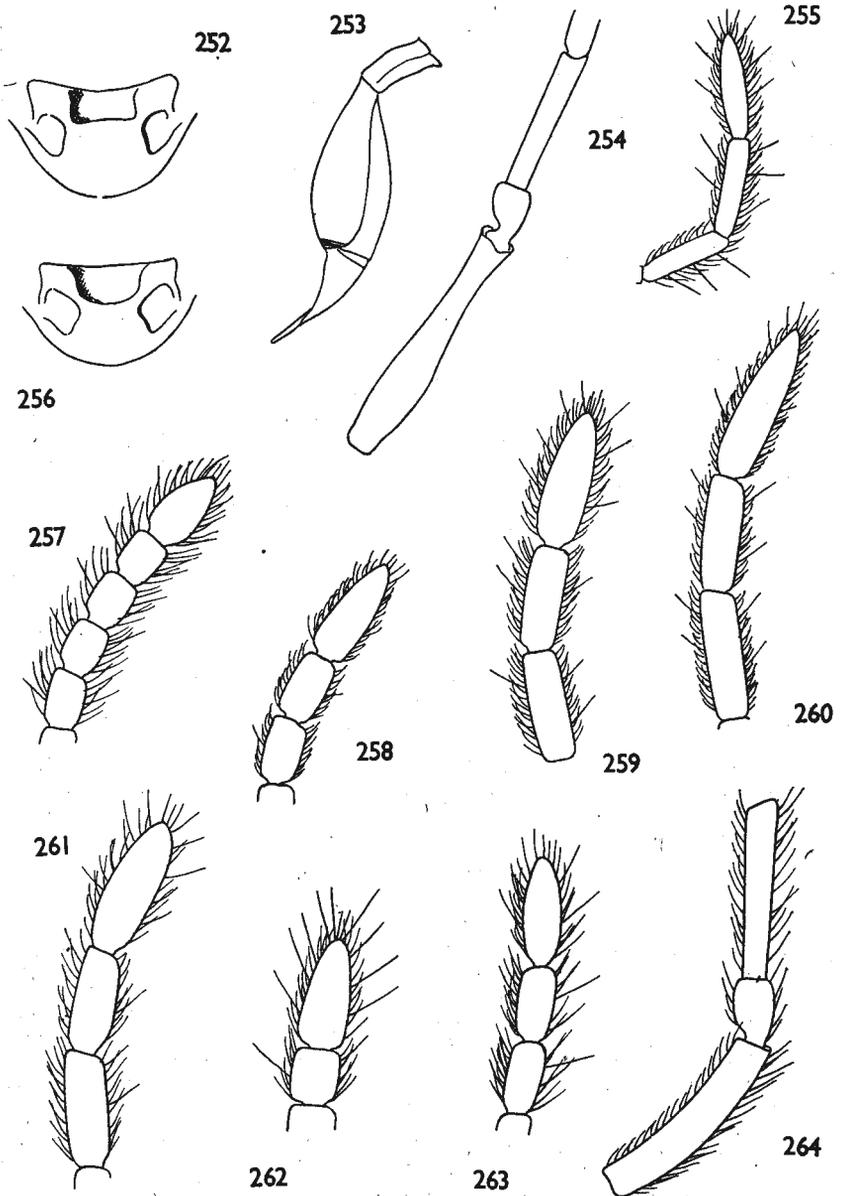


FIG. 252.—Scutellum of *Cinetus iridipennis* Lepeletier.
 FIG. 253.—Gaster, from side, of *C. ilione* sp. n., ♀.
 FIG. 254.—Basal antennal segments of *C. ennius* sp. n., ♀.
 FIG. 255.—Apical antennal segments of *C. ennius* sp. n., ♀.
 FIG. 256.—Scutellum of *C. fuliginosus* Curtis.

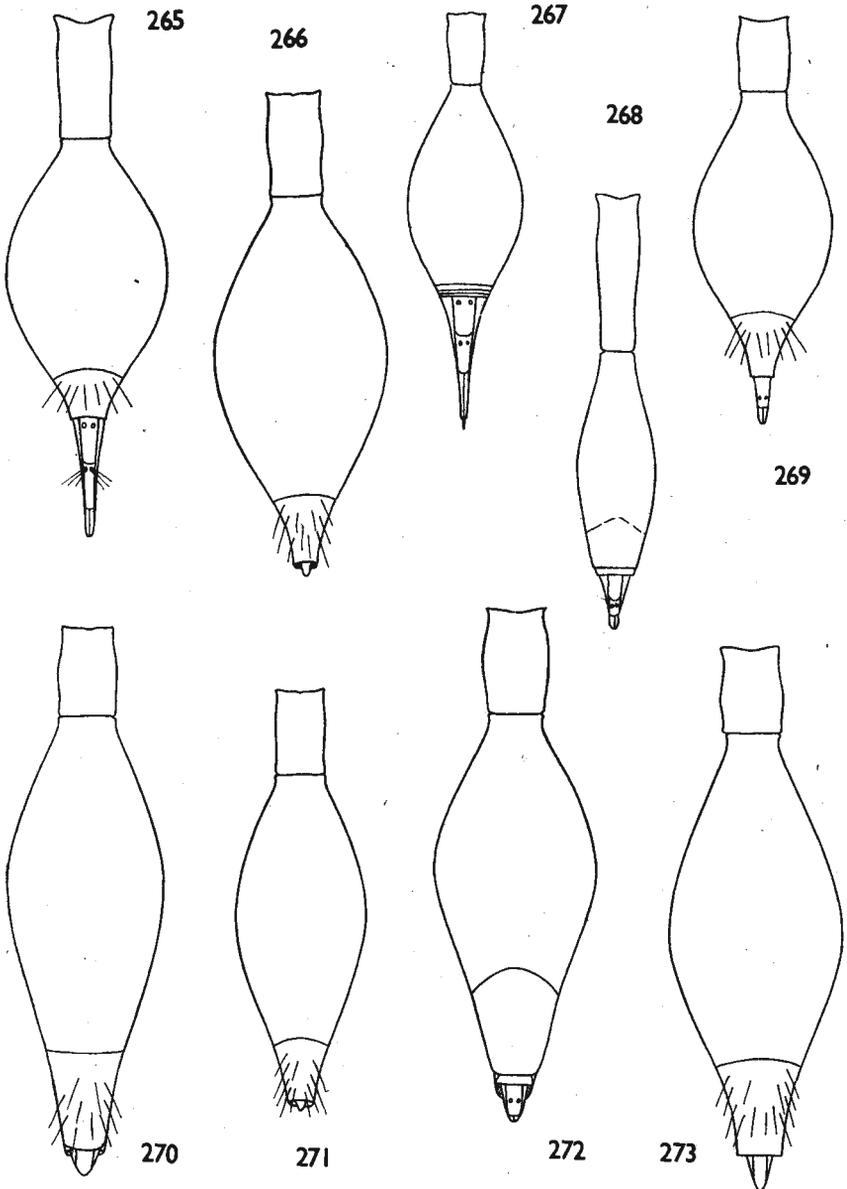
(continued opposite)

- (second) nor differentiated in appearance from the segment distal to it (fourth). (Petiole from one and a half to twice as long as medially wide).....3
- Gaster beyond petiole modified in the sense that it is composed of 2 fused segments (second plus third), the distal part (third) disproportionately longer than the exposed part of the following segment, which is usually retracted beneath it....7
- 3 Gaster drawn out beyond segment 5 in the form of a long, thin, upturned tail, the apical sternite being lengthened to form a narrow sheath in which lies the apical part of the ovipositor; the apical tergite is far over-reached by the apical sternite, though this is not readily apparent (figs. 253 and 267). (Scape shorter than the distance between the eyes across the frons, (5 : 6); antenna short, the scape slightly longer than pedicel plus flagellum 1, (11 : 10); preapical segment of the flagellum one and one-third times as long as wide; no distinct pair of furrows on each side of mid-basal furrow of large tergite).....*Illone* sp. n.
England: Berks., 1 ♀. Germany, 1 ♀. Sweden: Skåne, Fjellföta sjö, 17.viii. 1938, 1 ♀, the type (D. M. S. Perkins and J. F. Perkins). Very distinct on account of non-retractile apical sternite combined with unmodified third gastral segment. Cf. lysis and gaus spp. n.
- Gaster beyond petiole of more or less generalized form, the apical sternite never thus lengthened. (Small spp., 2-2.5 mm.).....4
- 4 Segment 1 of flagellum much shorter than the scape, slightly less than two-thirds as long; scape at least as long as flagellar segments 1 plus 2. (Preapical segment of flagellum hardly one and a half times longer than wide).....5
- Segment 1 of flagellum not obviously shorter than the scape, fully three-quarters as long; scape distinctly shorter than flagellar segments 1 plus 2. (Flagellum short, but thinner than above).....6
- 5 Scape distinctly longer than flagellar segments 1 plus 2; scape, pedicel and at least first flagellar segment bright reddish-yellow; 2-3 deep, sharply defined furrows on each side of the mid-basal furrow of the large tergite (fig. 280).....*sequester* sp. n.
England: Surrey, Oxshott, viii. 1938, 1 ♀, the type (G. E. J. Nixon). The petiole is a little swollen medially, highly polished and with 3 smooth, medial keels.
- Scape hardly longer than flagellar segments 1 plus 2, (11 : 10); scape, pedicel and flagellum dark brown throughout; only a vague trace of furrowing on each side of mid-basal furrow of large tergite.....*mermerus* sp. n.
Ireland: Wicklow, Glenealy, 1.vi. 1937, 1 ♀ (A. W. Stelfox). Sweden: Skåne, Höör dist., vi. 1938, 1 ♀, the type; Löderup, 26.vii. 1938, 1 ♀; Degeberga, vii. 1938, 1 ♀ (D. M. S. Perkins and J. F. Perkins).
- 6 Flagellum dark brown throughout, its pubescence longer and its first segment longer in proportion to the length of the scape (figs. 263 and 264).....*elator* sp. n.
England: Surrey, Byfleet, viii. 1949, 1 ♀ (G. E. J. Nixon). Sweden: Skåne, Kivik, 19.vii. 1938, 1 ♀, the type; Fjellföta sjö, 7.viii. 1938, 1 ♀ (D. M. S. Perkins and J. F. Perkins). This species is characterized by its unusually bristly flagellum.
- Flagellum pale towards base, its pubescence shorter and its first segment slightly shorter in proportion to the length of the scape.....*procris* sp. n.
Germany: Heidelberg, 6-12.vii. 1931, 2 ♀, one the type (G. E. J. Nixon). Whereas in elator the petiole tends to show 3 smooth medial keels, these basic keels, in procris, are obscured by a number of fine striations, the petiole thus having a striated appearance.
- 7 Gaster beyond petiole more or less flattened dorsoventrally, its distal fused segment more or less transverse and rarely as much as one and a half times as long as its apical width. (Scape at most one and a half times as long as flagellar segment 1, except in *ariantes* sp. n. in which it is slightly longer in proportion; flagellum very long and thin with the preapical segment at least one and two-thirds times longer than wide, except in *ariantes* sp. n.; the free, fourth, gastral segment nearly

FIGS. 257-263.—Apical antennal segments of female of: 257, *C. gaus* sp. n.; 258, *C. lusitanica* Kieffer; 259, *C. cameroni* Kieffer; 260, *C. iridipennis* Lepelletier; 261, *C. fuliginosus* Curtis; 262, *C. brevipetiolatus* Thomson; 263, *C. elator* sp. n.

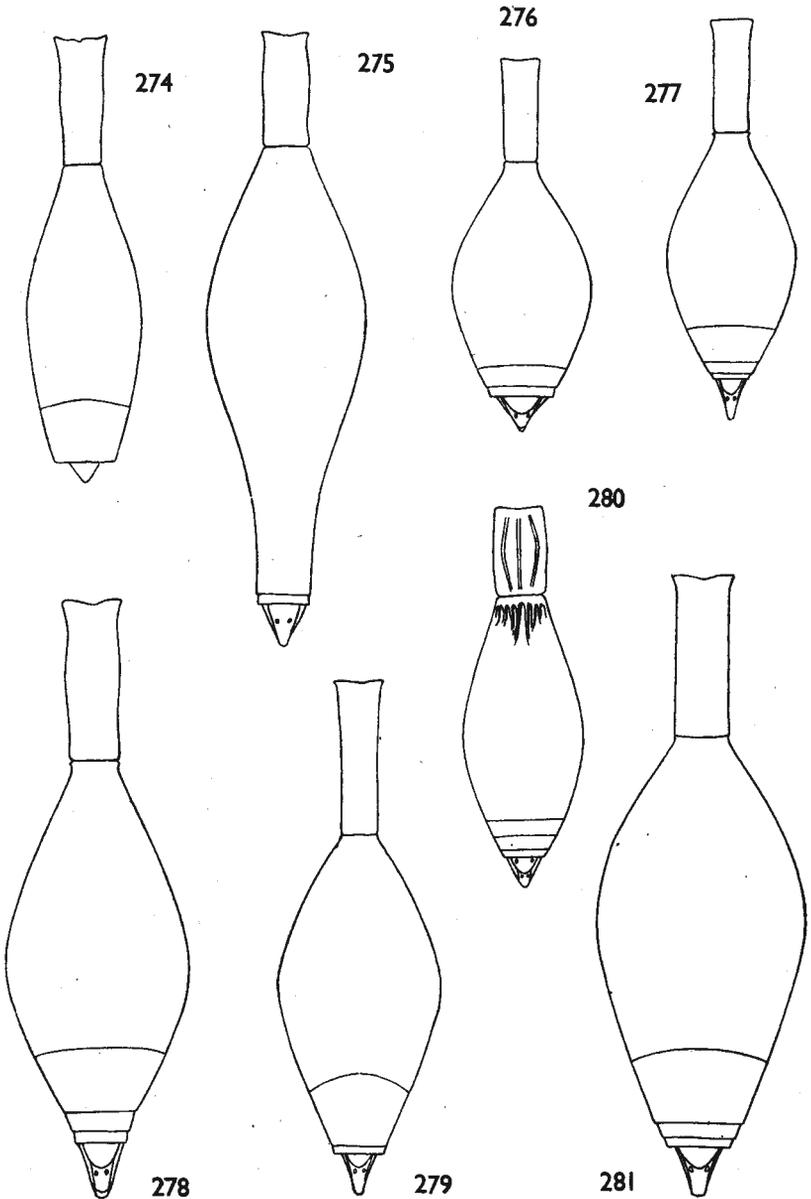
FIG. 264.—Basal antennal segments of *C. elator* sp. n., ♀.

- always showing ; petiole at least 3 times as long as its greatest width and more or less evenly cylindrical).....8
- Gaster beyond petiole not thus flattened, its distal fused segment much longer than its apical width and forming with its corresponding sternite a truncated cone within whose circular apex the following segments are completely or partly telescoped (*angustatus* exceptional).....14
- 8 Third segment of gaster strongly transverse, not more than one-third as long as its apical width (fig. 276). (Flagellum very thin, preapical segment being fully two and a half times as long as wide ; posterior margin of scutellar fovea straight ; hairs of petiole as numerous along its dorsal surface as elsewhere ; scape strongly narrowed to apex ; scutellum more convex than in any other species of the *iridipennis*-group).....*telon* sp. n.
England: Surrey, Berks., Kent, Middlesex. Ireland: Dublin, Wicklow. Sweden: Skåne, Höör dist., vi. 1938, 11 ♀, one the type (D. M. S. Perkins and J. F. Perkins). Small sp., 3-3.2 mm. The longest hairs at tip of flagellum are fully equal to width of apical segment. Not typical of iridipennis-group because of shortness of third gastral segment and less noticeable dorsoventral compression of gaster.
- Third segment of gaster at least two-thirds as long as its apical width.....9
- 9 Third segment of gaster distinctly a little longer than its apical width (fig. 279). (Preapical segment of flagellum two and a half to nearly three times as long as wide ; posterior margin of scutellar fovea more or less semioircular (fig. 256) ; petiole three to three and a half times as long as wide ; thorax dark brown ; pubescence of flagellum rather long (fig. 261)).....*fuliginosus* Curtis
 (= **tenuicornis* Thomson, syn. n.)
England: Devon, Hants., Surrey. Germany. Sweden: Skåne, Switzerland. Common. 46 ♀ in British Museum (Nat. Hist.). Deceptively like cameroni, differing from it only on the shape of the scutellar fovea and of the third gastral segment.
- Third segment of gaster not longer than its apical width.....10
- 10 Gaster beyond petiole unusually narrow, tapering only slightly to the apex of the third segment (fig. 274). (Antenna as in *fuliginosus* in shape and vestiture ; mesoscutum dark brown with pronotum paler ; posterior margin of the scutellar fovea almost straight ; gaster beyond petiole darkened around its edge)
simulans sp. n.
Scotland: Dumfries, Gretna, 1 ♀, doubtfully this species (carded specimen). Switzerland: Berneroblerland, Grindelwald, viii. 1937, 1 ♀, the type (G. E. J. Nixon). Characterized essentially by the structure of the gaster.
- Gaster here much less narrow and markedly tapering towards apex of the third tergite. (Spp. with the fused third tergite from two-thirds to about three-quarters as long as apically wide).....11
- 11 Short, dense hairs of the more apical flagellar segments hardly half as long as the width of the segments12
- These hairs at least half as long as the width of the segments. (Spp. with the scutellar fovea at least half as long as the convex part of the scutellum posterior to it).....13
- 12 Preapical segment of flagellum about one and a half times as long as wide (fig. 289). (Gaster less flattened apically, more tapered to apex (fig. 278) ; scutellar fovea longer in proportion to the length of the convex part behind it ; petiole shorter than in *iridipennis*).....*ariantes* sp. n.
Sweden: Skåne, Höör dist., 8. vi, 1 ♀, the type ; 16. vi, 1 ♀ (D. M. S. Perkins and J. F. Perkins). The difference in the length of the flagellar segments between this species and iridipennis is very striking.
- Preapical segment about two and a third times longer than wide (fig. 260). (Antenna much more slender than in *ariantes* ; gaster more flattened apically with the exposed part of the fourth tergite more transverse (fig. 281) ; scutellar fovea shorter (more so than in any other species) in proportion to the length of the convex part behind it (fig. 252) ; venation (fig. 125)).....*iridipennis* Lepelletier
 (= *C. *gracilis* Curtis, ♀, syn. n.)
 (= *C. *gracilipes* Curtis, ♀, syn. n.)
 (= *C. *flicicornis* Thomson, ♀, syn. n.)
Common and generally distributed in NW. Europe.



FIGS. 265-273.—Gaster of female of: 265, *Cinetus lysis* sp. n.; 266, *C. piceus* Thomson; 267, *C. ilione* sp. n.; 268, *C. angustatus* Kieffer; 269, *C. princeps* sp. n.; 270, *C. decipiens* Kieffer; 271, *C. lusitanica* Kieffer; 272, *C. proclea* sp. n.; 273, *C. ennius* sp. n.

- 13 Size larger, ca. 3.5 mm.; paler, the entire body usually brown; scutellar fovea about twice as wide as long. (Flagellar pubescence, fig. 259)...**cameroni* Kieffer (= *C. iridipennis* **prolongata* Kieffer, syn. n.)
England: Middlesex. Ireland. Poland. Sweden. 11 ♀. *Deceptively like iridipennis, almost equalling it in size and differing only in colour (doubtful value !), length of flagellar pubescence and shape of scutellar fovea.*
- Size smaller, ca. 3 mm.; at least the head and thorax virtually black; scutellar fovea distinctly less transverse.....*atrics* (Kieffer), stat. n. (= *C. iridipennis atriceps* Kieffer)
England. Ireland. Germany. Sweden: Skåne. Switzerland. *Hard to separate from cameroni though consistently smaller and darker in colour; the gaster is slightly more pointed behind and the third segment is slightly more transverse than in both cameroni and iridipennis (fig. 277); the longest hairs along the subcostalis are more conspicuous and longer in proportion to the short ones with which they are mixed than in cameroni.*
- 14 Gaster beyond petiole very narrow, hardly more than twice as wide as the widest part of the petiole; petiole very long, about three and a quarter times as long as its greatest width and two-thirds as long as the two fused segments of the gaster (second plus third), much swollen on basal two-thirds, very smooth, its longitudinal keels obliterated (fig. 268). (Flagellum rather short, the preapical segment about one and a third times as long as wide; large tergite deeply emarginate at apex, though the suture is hard to see; scutellum strongly convex; claws long and deeply curved).....*angustatus* Kieffer
England: Bucks. 1 ♀. *Ireland: Sligo,* 1 ♀. *No other species approaches angustatus in the curious and distinctive form of the gaster.*
- Gaster here much wider in relation to the greatest width of the petiole; petiole rarely as much as twice as long as its greatest width, its longitudinal keels always more or less distinct, or other sculpture present.....(*plecus*-group) 15
- 15 Flagellum very slender, the preapical segment being from two and a half to three times as long as wide. (Scape long, distinctly longer than the distance between the eyes across the frons and markedly narrowed apically; no trace of a short keel extending backwards from the sharp tip of the pronotal shoulder in the direction of the tegula; petiole not more than one and two thirds times as long as wide; gaster decidedly long and narrow, the 2 fused segments together at least two and a half times as long as wide).....16
- Flagellum much less slender, the preapical segment not or hardly more than twice as long as wide and then the gaster beyond the petiole is very broad and abruptly tapered to apex. (A more or less distinct short keel extends backwards from the tip of the pronotal shoulder in the direction of the tegula).....17
- 16 Claws very strongly developed (fig. 286); flagellar segments more elongate, with more ragged pubescence and with more numerous, upstanding hairs (figs. 254 and 255); flagellum yellowish towards base; sides of pronotum more brightly reddish; gaster less narrowed towards apex and with the distal fused segment (third) longer (fig. 273).....*ennius* sp. n.
Austria. Germany. Switzerland: Berneroblerland, Grindelwald, 7-14.viii. 1937, 1 ♀, the type (G. E. J. Nixon).
- Claws weaker (fig. 284); flagellar segments less elongate, their pubescence finer, more even and with fewer outstanding hairs; flagellum less noticeably paler towards base, sometimes brownish throughout; sides of pronotum hardly paler than the rest of the thorax; gaster more narrowed towards apex with the distal fused segment slightly shorter (fig. 270) in proportion to length of large tergite
**decipiens* Kieffer
Germany. Sweden: Skåne. Switzerland. 7 ♀.
- 17 Apical sternite projecting far beyond the tubular opening at apex of fused tergites, forming a narrow gutter which considerably over-reaches the apical tergite and ensheathing both it and a short length of ovipositor both ventrally and laterally (fig. 265); distal fused segment of gaster with only a single row of long hairs that do not extend beyond its apical margin. (Spp. with the flagellum short, lacking an obvious filiform appearance, the preapical segment only about one and a quarter times longer than wide; scutellar fovea large, not more than one and a half times as wide as long; rather small spp., 2.5-3 mm.; in profile, the movable apical segments of the gaster form a finely tapering, upturned point).....18



FIGS. 274-281.—Gaster of female of: 274, *Cinetus simulans* sp. n.; 275, *C. lanceolatus* Thomson; 276, *C. telon* sp. n.; 277, *C. atriceps* (Kieffer); 278, *C. ariantes* sp. n.; 279, *C. fuliginosus* Curtis; 280, *C. sequester* sp. n.; 281, *C. iridipennis* Lapeletier.

- Apical sternite not normally projecting thus far beyond the tubular opening, and not forming a narrow gutter that over-reaches the apical tergite; in profile, the gaster is less finely pointed at apex and less upturned here; hairs of the distal fused segment not arranged in a single row and many of them over-reaching its apical margin except in *princeps* sp. n. which has these hairs as in *lysis* and *gaus* spp. n. but the flagellar segments thin and cylindrical. 19
- 18 Petiole slightly more than twice as long as its middle width, wrinkly rugose, its 3 medial keels not well defined; apical sternite far over-reaching the apical tergite; distal fused tergite shorter, only about half as long as the basal segment of the hind tarsus (fig. 265); apical segment of the flagellum somewhat globose and distinctly wider than the preapical segment; basal flagellar segments more elongate; vestiture of flagellum shorter; gaster of marked globose appearance
lysis sp. n.
Corsica: Vizzavona, 13.vii-5.ix.1931, 3 ♀, one the type (M. E. Mosely).
The rather long, rugulose petiole is an important character of this species.
- Petiole hardly twice as long as wide, smoother, its 3 medial keels better defined; apical sternite not extending so far beyond apical tergite; distal fused tergite longer, two-thirds as long as basal segment of hind tarsus; basal flagellar segments less elongate, the apical segment not globose and less obviously wider than the preapical segment; vestiture of flagellum slightly longer (fig. 257); gaster less globose in appearance. (Apical segments of gaster projecting less far beyond the tubular opening and altogether less attenuated; smaller than *lysis*, ca. 2.5 mm.) *gaus* sp. n.
Germany: Heidelberg, 6-12.vii.1932, 2 ♀, one the type (G. E. J. Nixon).
Sweden: Skåne, Ring sjö, 19.vi.1938, 1 ♀ (D. M. S. Perkins and J. F. Perkins).
Extremely like lysis, the differences being all comparative. Both these species, especially lysis, resemble ilione in the shape of the movable apical segments of the gaster but ilione has the third gastral segment ring-shaped and free.
- 19 Apical fused tergite (third) distinctly longer than basal segment of hind tarsus (about one and a quarter times) and about half as long as the large (second) tergite; apex of large tergite deeply emarginate right across; scape short, thick, less than twice as long as flagellum 1 and as long as the distance between the eyes across the frons, though appearing shorter to the naked eye. (Sp. with the scape yellowish-brown; flagellum thick, brownish with the 3 apical segments faintly darker; all its segments short, the preapical one hardly longer than wide; gaster beyond petiole long, narrow, nearly two and a half times longer than wide; its tubular opening almost as wide as the basal width of the large tergite (fig. 272); length: ca. 4 mm.) *proclea* sp. n.
Sweden: Skåne, Hjør dist., v-vi.1938, 4 ♀; Fjellföta sjö, 7.viii.1938, 2 ♀, one the type; Yddinge sjö, 5.v.1938, 2 ♀ (D. M. S. Perkins and J. F. Perkins).
An isolated species, easily recognized by the thick antenna and the conformation of the fused tergites.
- Apical fused tergite always very distinctly shorter than basal segment of hind tarsus, not more than two-thirds as long; and much less than half as long as the large tergite; apex of the large tergite not obviously emarginate across apex; scape longer, fully twice as long as flagellum 1 and with a more or less distinct apical attenuation that is hardly a feature of *proclea*. 20
- 20 Flagellum very thin with the preapical segment fully twice as long as wide. (Gaster much constricted before apex, short and broad, the 2 fused tergites together twice as long as wide (fig. 269); apical tergites when exposed approaching the condition seen in *lysis* and *gaus* rather than *piceus* and its near allies; the distal fused tergite is longer than in either *lysis* or *gaus* and is more narrowed at apex; petiole rather short, about one and a half times longer than wide; thorax paler than head; flagellum unusually thin (fig. 290)) *princeps* sp. n.

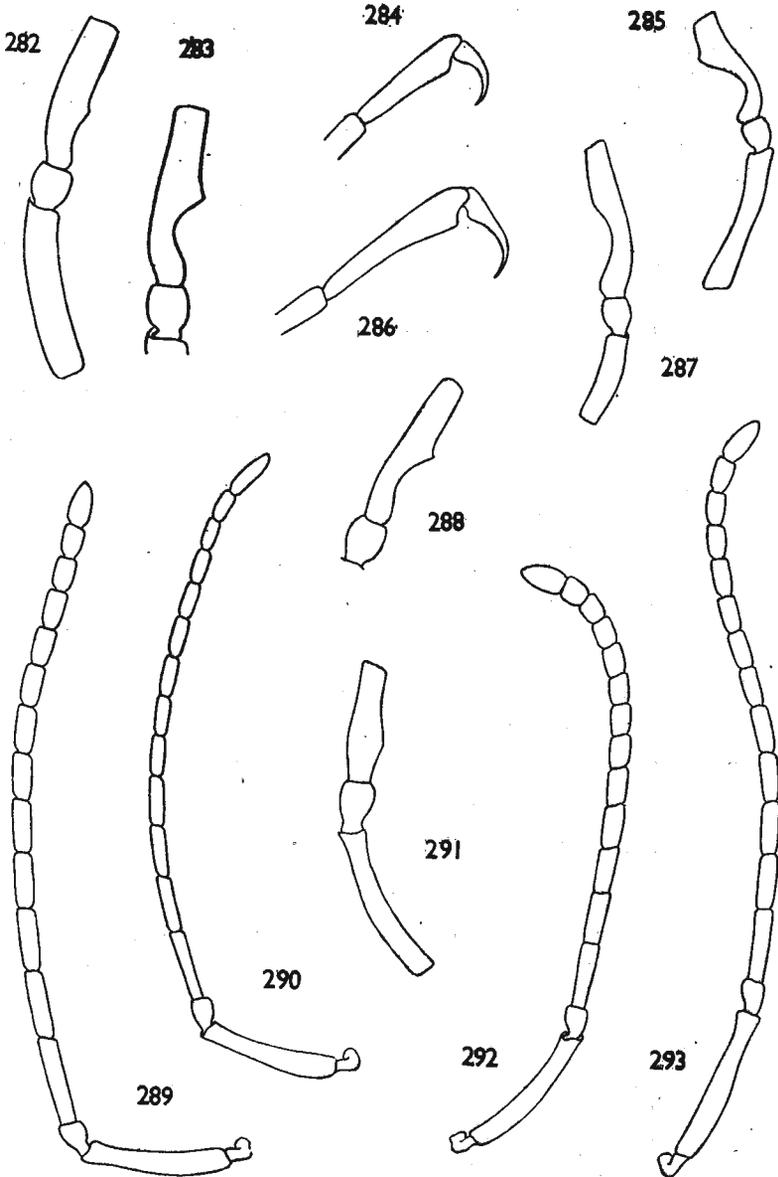
FIG. 287.—Basal antennal segments of *C. aletes* sp. n., ♂.

FIG. 288.—First flagellar segment of *C. fuliginosus* Curtis, ♂.

FIGS. 289-290.—Antenna of female of: 289, *C. ariantes* sp. n.; 290, *C. princeps* sp. n.

FIG. 291.—Basal antennal segments of *C. alce* sp. n., ♂.

FIGS. 292-293.—Antenna of female of: 292, *C. brevipetiolatus* Thomson; 293, *C. piceus* Thomson.



FIGS. 282-283.—First flagellar segment of male of: 282, *Cinetus licus* sp. n. 283, *C. cameroni* Kieffer.

FIG. 284.—Claw of *C. decipiens* Kieffer.

FIG. 285.—Basal antennal segments of *C. excavatus* Kieffer, ♂.

FIG. 286.—Claw of *C. ennius* sp. n.

Ireland: Wicklow, viii, 1 ♀; Sligo, Trawallua, 24-29.vii.1933, 1 ♀, the type (G. E. J. Nixon). The head is much more sharply narrowed behind the eyes than in either lysis or gaus. Small sp., ca. 2.8 mm. Distinct on combination of shape of gaster and thin flagellum.

- Flagellum less thin, the preapical segment at most about one and two-thirds times as long as wide.....21
- 21 Preapical segment of antenna not more than one and a third times longer than wide.....22
- Preapical segment of antenna one and a half to one and two-thirds times as long as wide (fig. 293). (Robust species, ca. 3.5 mm.; sides of pronotum brightly reddish; gaster beyond petiole broadly oval, and here hardly more than twice as long as wide, its distal fused segment very short in relation to the large tergite and very strongly narrowed to apex, the distal tubular opening unusually narrow compared with the greatest width of the gaster (fig. 266))....**picus* Thomson
(= *Cinetus strandi* Kieffer, syn. n.)
(= *Scorpioteleia *rufa* Kieffer, syn. n.)

Widely distributed in NW. Europe and evidently common. 31 ♀. Dates of capture range from May to September. Easily recognized on the shape of the gaster.

- 22 Flagellum almost imperceptibly thickening towards apex, the apical segment bristly, with long outstanding hairs in addition to the short, basic pubescence; general pubescence of flagellum longer and with more outstanding hairs; flagellar segments slightly shorter, the preapical one hardly one and a third times as long as wide (figs. 262 and 292).....**brevipetiolatus* Thomson
- Flagellum not thus thickened towards apex, the apical segment without long outstanding hairs (fig. 258); pubescence of flagellum shorter; preapical segment of flagellum fully one and a third times as long as wide

England: Surrey. Germany. Sweden: Skåne. The gaster is slightly broader in this species than in *lusitanica* and the scutellar hollow is slightly more transverse with its posterior margin somewhat pushed forwards at middle to give a subreniform effect.

lusitanica (Kieffer), comb. n.
(= *Scorpioteleia lusitanica* Kieffer)
England: Surrey, taken with *brevipetiolatus* at Oxshott in July. Germany.
Sweden: Skåne.

(Males).

- 1 Scape very short, distinctly shorter than first segment of flagellum (ca. 7 : 10 (fig. 287)). (Emargination of first segment of flagellum deep, covering more than half; petiole about two and a half times as long as wide; small sp., ca. 2.2 mm.)
alates sp. n.
England: Bucks., Brickhill, 21.vi.1937, 1 ♂ (R. B. Benson). Sweden: Skåne, Håör dist., 9.vi.1938, 1 ♂, the type; Röstänga, 30.vi.1938, 1 ♂; Yddänge sjö, 13.iv.1938, 1 ♂, (all D. M. S. Perkins and J. F. Perkins). This species has the base of the large tergite deeply sulcate, the lateral sulci being fully two-thirds as long as the middle one. May be the male of *elator* Nixon. See key to females.
- Scape always at least as long as first segment of flagellum.....2
- 2 Flagellum 1 without an emargination but with a short, straight edge in place of it, covering about two-fifths (fig. 291). (In profile the first flagellar segment is slightly widened at apex of its straight edged modification; scape much longer than flagellum 1; petiole nearly 4 times as long as its middle width; scutellar hollow rather large and concave behind).....*alce* sp. n.
Sweden: Skåne, 22.vi.1938, 1 ♂, the type (D. M. S. Perkins and J. F. Perkins).
- Flagellum 1 with at least a shallow emargination.....3
- 3 Flagellum 1 with a deep, sharply defined emargination that causes the segment to bulge conspicuously on the opposite side; when the segment is viewed so that the emargination is completely hidden, it appears swollen and distinctly widened in basal half (figs. 295 and 296). (Scutellar hollow distinctly transverse, its posterior margin straight; petiole hardly more than twice as long as its middle width).....**fuscipes* Kieffer
England: Surrey, Oxshott and Horsley, vi.vii, 2 ♂. Scotland: type loc. of ♂.
Germany. Sweden: Skåne.

- Flagellum 1 without such a deep emargination or, if it appears deep, then the segment, viewed with the emargination completely hidden, is not swollen nor widened on basal half. 4
- 4 Flagellum 1 with a very shallow, inconspicuous emargination that does not reach to middle (fig. 282). (Scape short, thick, hardly longer than flagellum 1, (10 : 9); flagellum short, rather thick, the preapical segment two and a half times longer than wide; flagellum dark brown throughout with scape nearly as dark, its pubescence dense, short, even; petiole short, about twice as long as its middle width). *Hicus* sp. n.
- Sweden: Skåne, Hôr dist., 5. vi. 1938, 1 ♂, the type; Yddinge sjö; Dalby; Genarp; v-vi (all D. M. S. Perkins and J. F. Perkins), 10 ♂. Possibly the male of proclea.
- Flagellum 1 with a longer, more conspicuous emargination, even if shallow. 5

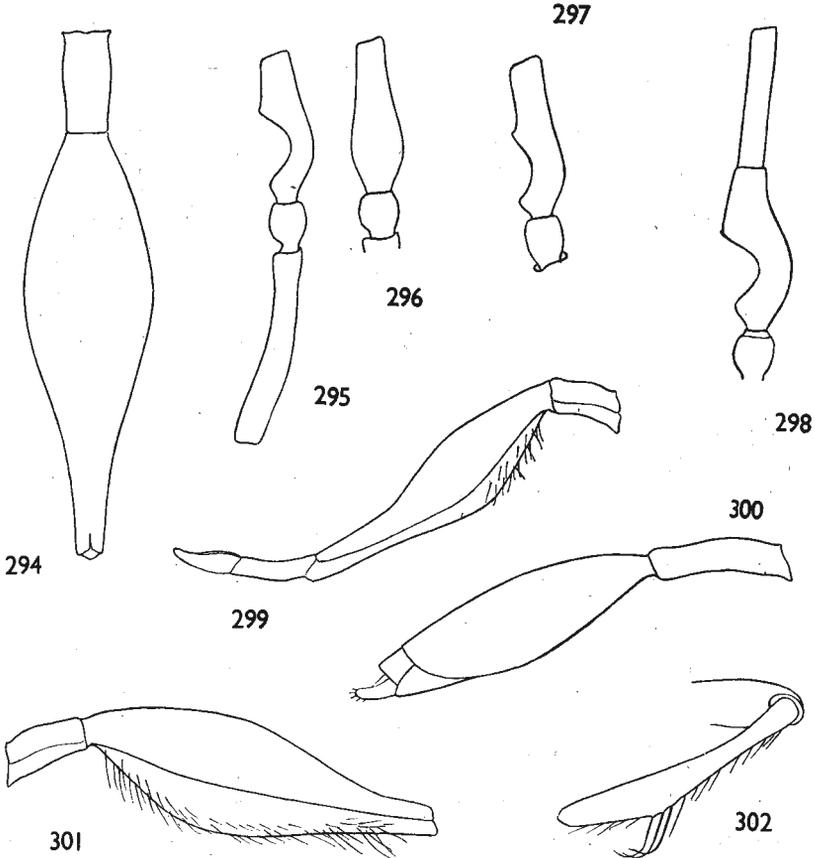


FIG. 294.—Gaster of *Miota compressa* Kieffer.

FIGS. 295-298.—First flagellar segment of: 295, *Cinetus fuscipes* Kieffer, ♂; 296, same, from above; 297, *Miota longipetiolata* (Thomson); 298, *M. longiventris* Kieffer.

FIGS. 299-301.—Gaster of female of: 299, *Miota cebes* sp. n.; 300, *M. longiventris* Kieffer; 301, *M. compressa* Kieffer.

FIG. 302.—Front tibia, to show spines, of *C. longiventris* Kieffer.

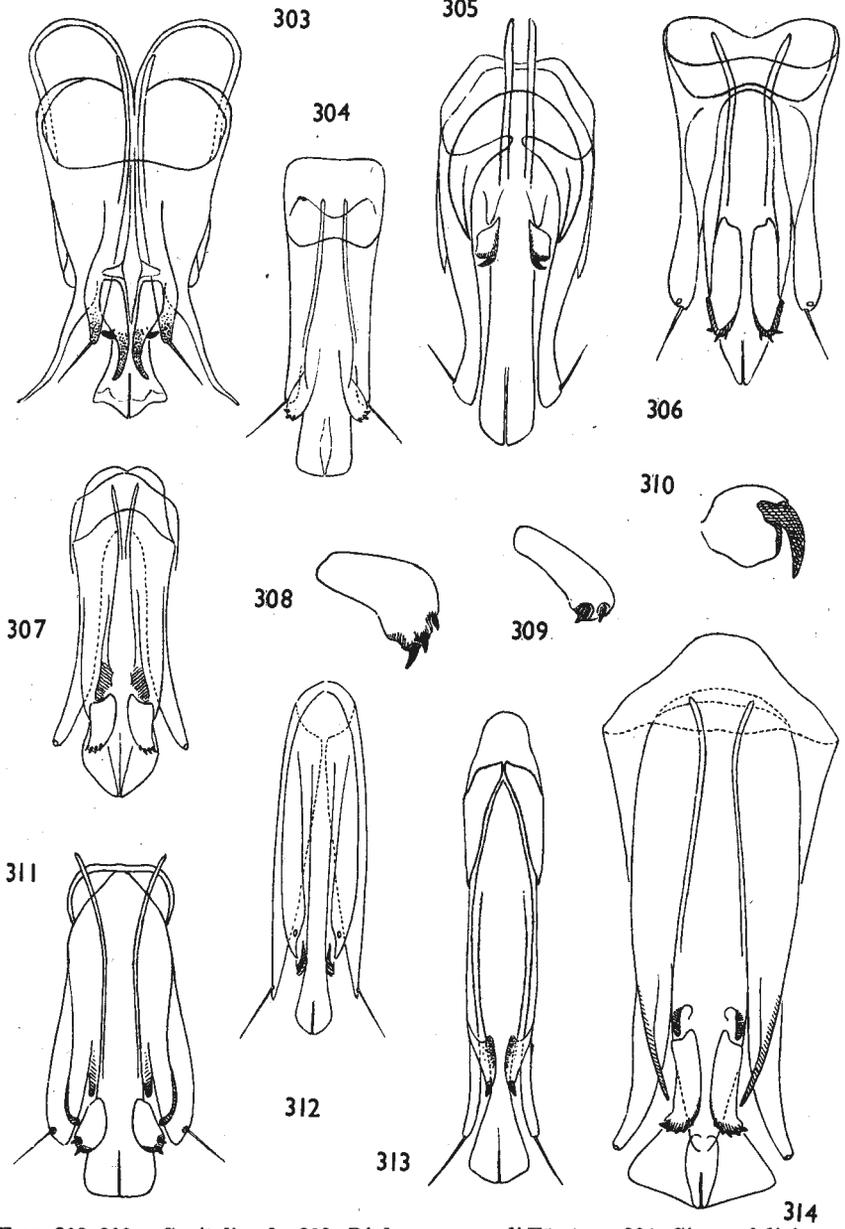
- 5 Emargination of flagellum 1 very deep, reaching slightly beyond middle; seen in profile, the segment is almost triangularly dilated at the apex of the emargination (fig. 285); (small sp., ca. 2.5 mm. with scape dark; petiole three and a half times as long as its middle width).....**excavatus** Kieffer
England: Kent, v, 2 ♂. Sweden: Skåne.
- Emargination of flagellum 1 less deep and lacking this subtriangular dilatation as seen in profile.....6
- 6 Petiole fully 4 times as long as its middle width.....7
- Petiole not more than about 3 times as long as its middle width.....10
- 7 Petiole distinctly a little narrowed at both ends and its ridges medially fading out, leaving the surface smooth and shining. (Flagellum slightly shorter than the shortest distance between the eyes across the frons; flagellum rather short, the preapical segment about two and a half times as long as wide; gaster very narrow in proportion to the width of the thorax).....**angustatus** Kieffer
- Petiole parallel-sided, distinctly ridged throughout. (Spp. with the emargination of flagellum 1 never reaching beyond middle; flagellum very long, with the preapical segment fully 4 times as long as wide. Group of *iridipennis*, part.....8
- 8 Scutellar fovea markedly transverse, hardly more than half as long as the convex part posterior to it, its posterior margin straight or slightly pushed forward (convex) at middle.....**iridipennis** Lepeletier
Head and thorax usually intensely black. Largest species of genus, ca. 4 mm.
- Scutellar fovea less markedly transverse or the whole body paler, more brownish with the petiole slightly shorter.....9
- 9 Scutellar fovea of distinct semicircular appearance, its posterior margin concave, especially when the insect is viewed slightly from behind; emargination of flagellum 1 slightly longer and shallower (fig. 288); genitalia (fig. 304)
fuliginosus Curtis
- Scutellar fovea transverse, its posterior margin hardly concave; emargination of flagellum 1 slightly shorter and deeper (fig. 283).....**cameroni** Kieffer
Scotland. 3 ♂. Sweden: Skåne, 20 ♂. More easily confused with iridipennis than with fuliginosus; differs from the former in having the scutellar fovea slightly longer in proportion to the length of the convex part posterior to it and in having the thorax usually brownish; the preapical segment of the antenna is slightly shorter than in iridipennis.
- 10 Petiole about 3 times as long as medially wide.....12
- Petiole not more than two and a half times longer than medially wide. (Scutellar hollow large, almost as long as the convexity posterior to it).....11
- 11 Petiole twice as long as its greatest width, proximal to middle (it is slightly widened in basal half); flagellum unusually short, the preapical segment about twice as long as wide. (Emargination of flagellum 1 very shallow).....**tristis** sp. n.
Sweden: Skåne, Löderup, 24. vii. 1938, 2 ♂, one the type (D. M. S. Perkins and J. F. Perkins). Possibly the male of brevipetiolatus Th.
- Petiole fully two and a half times longer than its middle width, the segment not widened in basal half; flagellum long, the preapical segment about 4 times as long as wide. (Emargination of flagellum 1 deeper and reaching slightly beyond middle; scape always bright yellowish; sides of pronotum and usually the post-scutellum except the medial, raised part, paler than the rest of the thorax, almost reddish-yellow).....**dentatus** Kieffer
England: Gloucester, Hereford, v, 2 ♂. Sweden: Skåne, 13 ♂. Perhaps the male of piceus Thomson or an allied species.
- 12 Emargination of flagellum 1 deeper; fringe along edge of fore wing coextensive with subcostalis composed of hairs of very irregular length, the longest of them unusually long.....**atriceps** (Kieffer)
- Emargination of flagellum 1 shallower; this fringe with hairs of more even length, the longest of them shorter than in *atriceps*.....**piciventris** Thomson
England: Gloucester, Hants. Ireland: Sligo. Sweden. 19 ♂.

Genus *Mieta* Förster.

KEY TO SPECIES.

(Females).

- 1 Petiole four to four and a half times as long as its greatest width (at about proximal third); large tergite distinctly laterally compressed at apex but never concealing



FIGS. 303-308.—Genitalia of : 303, *Diphora westwoodi* Förster ; 304, *Cinetus fuliginosus* Curtis ; 305, *Oxylabis thomsoni* Kieffer ; 306, *Achista insolita* sp. n. ; 307, *Pantolyta pallida* Kieffer.
 FIGS. 308-310.—Digitus of : 308, *Zygota excisipes* (Kieffer) ; 309, *Z. spinosipes* (Kieffer) ; 310, *Z. dentatipes* (Kieffer).
 FIGS. 311-314.—Genitalia of : 311, *Zygota praetor* sp. n. ; 312, *Z. fossulata* (Thomson) ; 313, *Acanosema nervosa* (Thomson) ; 314, *Acropiesta flaviventris* Thomson.

all the tergites beyond it ; the tergite next to the large one well developed and always plainly visible (fig. 300) ; dorsal areas of the propodeum distinctly a little longer than wide ; antenna very long, the preapical segment fully 3 times as long as wide. (Large sp., ca. 4 mm.)..... *longiventris* Kieffer

- Germany: Bavaria. Sweden: Skåne. Easily recognized by the long petiole.*
- Petiole twice as long as its greatest width ; large tergite not laterally compressed at apex but constricted apically to form a neck-like tube within which all the other segments are concealed in normal attitude of insect ; dorsal areas of propodeum not longer than wide ; antenna less long, the preapical segment at most two and a third times as long as wide ; face much less convex. (The concealed segments are widely different from those of *longiventris* in that they form a long tube, distally swollen, the whole structure resembling the tail of a scorpion)..... 2
 - 2 Preapical segment of the antenna about two and a third times as long as wide ; ventral surface of gaster with hairs along its entire surface from base to apex of large sternite (figs. 294 and 301) ; large tergite with a single mid-basal furrow.

**compressa* Kieffer

England: Surrey. Sweden: Skåne. Length: ca. 4 mm.

- Preapical segment of antenna about one and a half times as long as wide ; ventral surface of gaster bare except for a few hairs on about basal half (fig. 299) ; large tergite with a small patch of fine striation between the basal lateral impressions ; face slightly less convex than in *compressa*. (Size : 3.2 mm., to apex of large tergite)..... *cebes* sp. n.

Sweden: Skåne, Höör dist., 11. vi. 1938, 1 ♀, the type (D. M. S. Perkins and J. F. Perkins).

(Males).

- 1 Flagellum 1 very strongly bowed opposite to the very deep emargination and at its widest (apex of emargination) fully twice as wide as the following segment (fig. 298). (Petiole fully 4 times as long as its middle width ; front tibia (fig. 302))
- Flagellum 1 hardly bowed opposite to the emargination and at its widest distinctly less than twice as wide as the following segment..... 2
- 2 Petiole fully 4 times as long as its middle width ; dorsal areas of propodeum longitudinally less narrow, the inner, lateral keels less convergent

longipetiolata Thomson

Sweden; Skåne, 2 ♂. Exactly like longiventris in general build but, apart from antennal differences (fig. 297), the ocelli do not form quite such a low triangle.

- Petiole 3 times as long as its middle width and very slightly swollen medially ; dorsal areas of propodeum narrower and with the inner, lateral keels more convergent. (Head a little more transverse than in *longipetiolata* ; pronotal shoulders more prominently dentiform ; thorax slightly wider across the mesoscutum, with the mesoscutum itself more densely and evenly hairy)

compressa Kieffer

England: Herts., vi, 1 ♂.

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