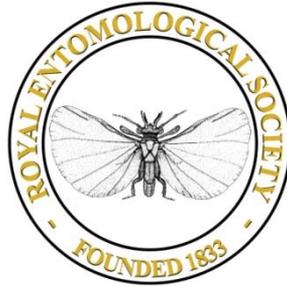


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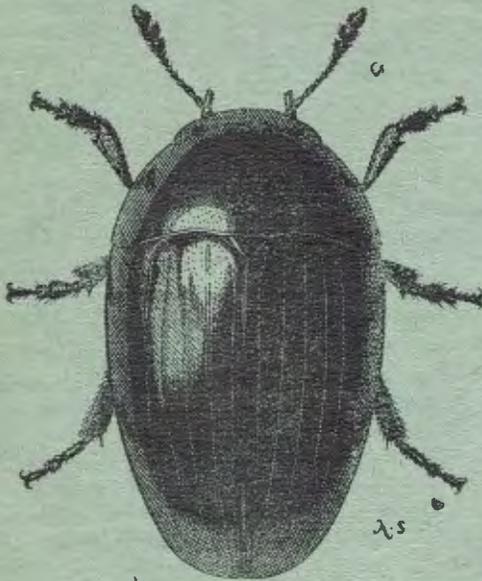
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HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS



COLEOPTERA

PHALACRIDAE

By

R. T. THOMPSON

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Orthoptera. | " 13. Mecoptera. |
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COLEOPTERA

(PHALACRIDAE)

By R. T. THOMPSON

INTRODUCTION

THE family Phalacridae comprises a considerable number of genera and species and is represented in almost all parts of the world. They are small (rarely exceeding 5 mm.), compact, rounded, strongly convex and very shiny. The upper surface is apparently glabrous, though in fact many of the punctures contain a very small, appressed seta (Flach, 1888). The lower surface and appendages bear numerous setae of various sizes. Adjacent to the suture are one or two well-marked striae (sutural striae); other striae, when present, are less well marked (except in *Tolyphus*) and do not extend to the apex of the elytra. Rows of punctures, of varying intensity, occur between the striae. The head and pronotum are finely and diffusely punctured. Microsculpture of various kinds is often present. All our species have large wings. Other characters are as follows: front coxae globular, hind coxae transverse and almost contiguous; tarsi 5-segmented, segments 2 and 3 emarginate, 4 very small; claws toothed at the base; antennae 11-segmented—segments 1 and 2 are large, and 9–11 form a narrow flattened club; mandibles bi- or tridentate, with a finely ridged molar surface near the base. The articulating region of the first antennal segment is displaced from the base to near the middle of the segment, which lies in a cavity below the margin of the head, in front of the eye.

Previous work on this family includes an excellent account by Flach (1888) of the Palaearctic species and another by Guillebeau (1892). Reitter (1911) gives a good key to the German species. The best keys in English are those of Newbery, for British species of *Olibrus* (1899) and *Phalacrus* (1907). These are also included in Fowler and Donisthorpe (1913). The account by Palm (1947) of the Swedish species of *Phalacrus* includes figures of the tegmina.

IMMATURE STAGES

The eggs are fusiform with rounded ends, those of *Phalacrus coruscus* (Panzer) measuring 0.7×0.2 mm. The chorion is smooth, whitish and translucent, with the yellowish contents showing through it (Friederichs, 1908).

The larvae are of a modified campodeiform type. The legs are well developed but without distinct tarsi and claws; the frontal suture reaches the posterior margin of the head, which has a group of five ocelli on either

side ; the antennae are 3-segmented ; in the maxilla the cardo is not distinct, the galea and lacinia are fused, and the palp is 3-segmented ; the labial palpi are 2-segmented. Well-marked tergites are present on the prothorax and ninth abdominal segment, the latter bearing urogomphi. For details of larval structure see d'Aguilar (1944).

BIOLOGY

The genus *Phalacrus* is associated with the smuts of grasses and sedges, though the adults are also found in various flowers. The life history of *P. coruscus* (Panzer) has been described by Friederichs (1908). Oviposition begins towards the end of June in smutted inflorescences of cultivated grasses (wheat, barley, oats). The eggs hatch after three to five days. The larvae feed on the smut spores for three to four weeks, then fall to the ground, where they excavate earthen cells which they line with a little silk. About six days later the larval skin is shed, and after a further 12-13 days, the mature adult emerges. According to Friederichs there may only be a single generation in the year. The adults hibernate under bark until the following June. According to Kontkanen (1936) the larvae of *P. substriatus* Gyllenhal pupate in cocoons in the smutted *Carex* inflorescences.

Both adults and larvae of *Olibrus* are associated with the capitula of various Compositae. The adults sit on the disc of the capitulum and eat the pollen, while the larvae occur either among the unripe achenes or in the receptacle and stem. There is some doubt as to what the larvae actually feed on. The life histories of only three of our species have been studied, viz. *aeneus* (Urban, 1926), *millefolii* (Urban, 1931) and *affinis* (Laboulbène, 1868). The two former species pupate in cells in the ground but *affinis* is stated to pupate in the capitulum among the scales and florets.

The immature stages of *Stilbus* are undescribed. Chu (1949) states that *S. apicalis* Melsheimer is predaceous upon the pea aphids.

ECONOMIC IMPORTANCE

Friederichs (1908) showed that smut spores which had been eaten by larvae of *Phalacrus coruscus* (Panzer) were non-viable, and concluded that the species is therefore beneficial. D'Aguilar (1944) agrees but, as Quanjer (1913) points out, their effect is probably insignificant.

COLLECTION AND PRESERVATION

The adults are best taken by sweeping vegetation in summer, though some, e.g. *O. aeneus* (Fabricius), can be readily observed on the capitula of the host plant. Walsh (1954) states that *Phalacrus substriatus* Gyllenhal can be found in the flowers of *Narthecium ossifragum* (L.) Huds. in late July and early August. *Stilbus oblongus* (Erichson) has been found in the stems of *Typha latifolia* L. (Fowler, 1888). *Stilbus testaceus* (Panzer) is usually associated with dry grass or hay.

A full account of methods of killing, setting, etc., is given by Pearce (1957) in this series. With Phalacridae, however, the method of pinning using micro-pins and polyporus stages can be used. This method is easier than gumming, especially when no microscope is available, and enables the underside to be examined without inconvenience.

NOTES ON IDENTIFICATION

The separation of the species in the Phalacridae is rendered difficult by their close similarity of structure coupled with considerable intra-specific variation, especially in size and colour. Once again it is the genitalia, here fully exploited for the first time, which provide the best characters. The most important external character is the microsculpture of the upper surface.

(1) *Genitalia*

Dissection is best carried out under water in a small white porcelain palette, which is both shallow and stable and provides the best background for discerning small detached fragments. Dry specimens should be relaxed by immersion in hot water for about ten minutes. Least damage will ultimately result if the specimen is then laid on its back, and the abdomen split off with a pointed scalpel or needle. The abdominal contents, including genitalia, can then be withdrawn with watchmaker's forceps, though it may be necessary to tear through the pleura along one side. Fresh specimens are less fragile and removal of the abdomen is difficult and unnecessary. The elytra should be opened, the specimen held steady with forceps on one side of the abdomen and the genitalia removed through an incision on the other side.

In the male, the median lobe of the aedeagus is covered dorsally by the somewhat boat-shaped tegmen which also encircles it near the base. It is desirable to separate these two structures as the median lobe is of little use in identification. This can be done by holding down the apex of the tegmen with a needle, seizing the base (anterior end) of the median lobe with watchmaker's forceps and pulling it carefully through the basal ring of the tegmen.

The ovipositor is a flat, pointed structure, the apex of which provides good characters (except in *Stilbus*). It is often extruded at death, rendering dissection unnecessary.

For purposes of identification, tegmina can be gummed to the card with the specimen, but for study they should be mounted in balsam (having been passed through absolute alcohol¹ and xylol). Ovipositors, especially of *Olibrus*, should always be mounted in balsam, as they require to be examined by transmitted light and a magnification of up to 400 diameters.

They can be mounted between $\frac{3}{8}$ -inch diameter round coverglasses, one of which is first glued over a $\frac{3}{16}$ -inch diameter hole punched in a Bristol board stage. Such stages can be mounted on the same pin as that bearing the specimen.

(2) *Microsculpture*

This consists of a pattern of very fine grooves on the otherwise smooth cuticle. The pattern usually takes the form of a net-like meshwork (reticulate microsculpture, fig. 39), but may also consist of sinuous lines (fig. 41) running either transversely or longitudinally to the main axis of the body (sinuous microsculpture). In the longitudinal sinuous type, which occurs at the apex of the elytra in those species which are otherwise devoid of microsculpture, the surface of the cuticle appears to be "rippled" rather than scored with

¹ Iso-propyl alcohol is a satisfactory substitute for ethyl; it is much cheaper and its sale is unrestricted.

discrete lines as in the other types. In some species the intensity of the microsculpture is uniform throughout but in others it exhibits an axial gradient in intensity, being weak or absent on the head and pronotum and strong on the elytra, especially towards the apex.

The term "smooth" is used in the keys to denote the absence of microsculpture, but not necessarily of punctures.

A magnification of at least 100 diameters must be used when examining microsculpture and diffuse light (e.g. strong window-light) is best.

(3) Fore-tibial Spurs

In *Phalacrus* these are stout, black and more or less blunt, and can be readily distinguished from the setae of the pubescence. In *Olibrus* and *Stilbus*, however, they are less distinct (though also less important). Some care must be taken in setting the fore tibiae and, if a balsam mount of the genitalia is made, it is advisable to include a fore tibia (and in *Phalacrus* an antenna also).

(4) Size and Colour

Both these characters vary greatly in some species. The size ranges given in the keys are unlikely to be exceeded, but the descriptions of coloration apply only to typical examples and exceptions will be found. In *Phalacrus coruscus* (Panzer) a frequency curve of length would have two peaks, one around 1.8 mm. and another around 2.7 mm. The smaller form has been described as a distinct species, *P. humberti* Rye. In *Olibrus* and *Stilbus* the anterior pole is always darker, the posterior lighter, often markedly so. Several varieties have been described and named but these are, with one notable exception, omitted.

(5) Sexual Dimorphism

In most cases it is difficult to distinguish the sexes in Phalacridae. However, in *Olibrus aeneus* (Fabricius) and *O. millefolii* (Paykull), segment 2 of the fore tarsus is considerably enlarged in the male; and in *Phalacrus coruscus* (Panzer) the last segment of the antenna is, in most cases, longer and narrower in the male than in the female. In this species also, and in *P. caricis* Sturm, the front margin of the clypeus is smoothly emarginate ("sinuous") in the male but straight in the female (viewed from in front).

(6) Food Plants

Several species are more or less specific to certain plants. Plant names marked with an asterisk are taken from continental authors. The only associations hitherto unpublished (as far as I am aware) are those of *Olibrus aeneus* (Fabricius) with *Tanacetum vulgare* L., observed by E. Lewis at Stanford-le-Hope, Essex, in September, 1954, and *O. flavicornis* (Sturm) with *Leontodon autumnalis* L. (two continental specimens in the Mason (Rye) collection). It should be noted that the presence of adults on a particular plant does not necessarily indicate that the larvae ever inhabit it.

(7) Distribution

Our imperfect knowledge of the distribution of the Phalacridae is due to the lack of interest in the group which arises from the difficulty of identifying specimens correctly. It is hoped that this latter obstacle has now been

overcome, and that the family will be more popular. For each species, a list of the counties from which it has been reliably recorded is given. Counties with doubtful records only, *i.e.* where I have not seen the specimens concerned, are marked with an asterisk.

There is some evidence that Phalacridae can, and do, fly, as would be expected in view of their specialized habits. It is even possible that cross-Channel migration occurs; this might account for the predominantly south-easterly distribution of most species (but so also would the greater intensity of collecting in that region). *Phalacrus substriatus* Gyllenhal is exceptional in that it is as common in Scotland as in the south of England, and has been recorded from northern Finland (Kontkanen, 1936).

NOMENCLATURE

Two changes have been made: (1) *Phalacrus caricis* Sturm, 1807, replaces *Phalacrus nigrinus* (Marsham, 1802). The latter name was proposed by J. Balfour-Browne (1938), who found a Marsham specimen of *P. caricis* Sturm in the Stephensian collection, over the name *Cercyon nigrinum*. The Marsham label bears the number 54, which is the serial number of *Dermestes nigrinus* in Marsham (1802). However, Marsham's description does not fit the specimen and Stephens states (1829: 146) that it refers to the other specimens in the series. These he named *Limnebius nigrinus* (erratum *nigricans*) though they do not appear to be in that series now.

(2) *Phalacrus fimetarius* (Fabricius, 1775) replaces *Phalacrus brisouti* Rye, 1872. Fabricius's *Sphaeridium fimetarium* has hitherto been regarded as a *nomen dubium* because of the inappropriateness of the name (Latin: *fimetum*, a dung-hill) supported by the description in *Entomologia Systematica*, 1792 (1: 82): "Habitat in Europae stercore", although the original specimen (in the Banks collection, in the British Museum (Nat. Hist.)) was known to be a Phalacrid (Motschulsky, 1858). However, the corresponding line of the description in Fabricius's *Systema Entomologiae* (1775: 68) reads: "Habitat in Anglia. *Mus. Dom. Banks*". The implied association with dung was probably a mere guess by Fabricius, as other species of his genus *Sphaeridium* are coprophilous. It is unlikely that Banks would have sent precise data with the specimen, and in any case it could have occurred in dung accidentally (*e.g.* via stable straw or hay). I have also seen Rye's type of *P. brisouti*. This leaves *Phalacrus coruscus* (Panzer), with which the name *fimetarius* has previously been associated, with three *nomina dubia*, the earliest being that of Herbst, 1792 (*Tetratoma atra*) who gives a very convincing figure, but an incorrect description. The first satisfactory description is that of Paykull (1800). However he synonymizes it with *Anisotoma corrusca* Panzer, 1797, using his name (with emended spelling). Panzer's description and figure are both inaccurate, but, according to the rules of nomenclature, he is the author of the species. Attempts to locate original material have been unsuccessful.

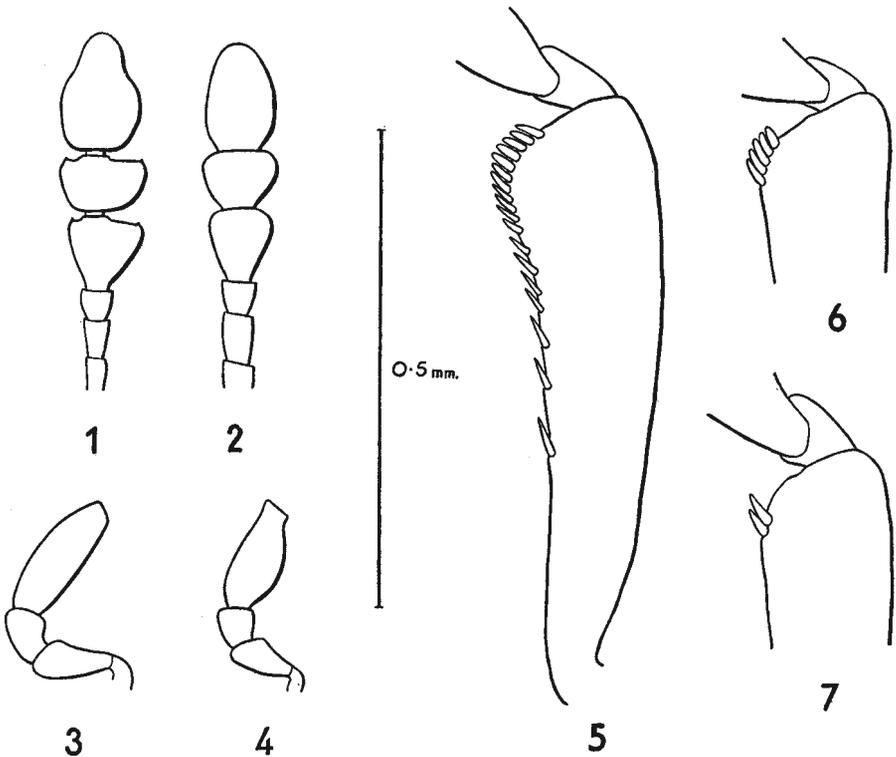
The species *Phalacrus succicus*, described by Palm (1947), is almost certainly, from his accurate description and figure of the tegmen, synonymous with *P. championi* Guillebeau. This is apparently the first record of this species outside England.

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FIGS. 1-7.—Club of antenna of: 1, *Olibrus affinis* (Sturm); 2, *Stilbus oblongus* (Erichson). Maxillary palp of: 3, *Olibrus affinis* (Sturm); 4, *Stilbus oblongus* (Erichson). Left fore tibia of: 5, *Phalacrus fimetarius* (Fabricius); 6, *P. championi* Guillebeau; 7, *P. coruscus* (Panzer).

KEY TO GENERA

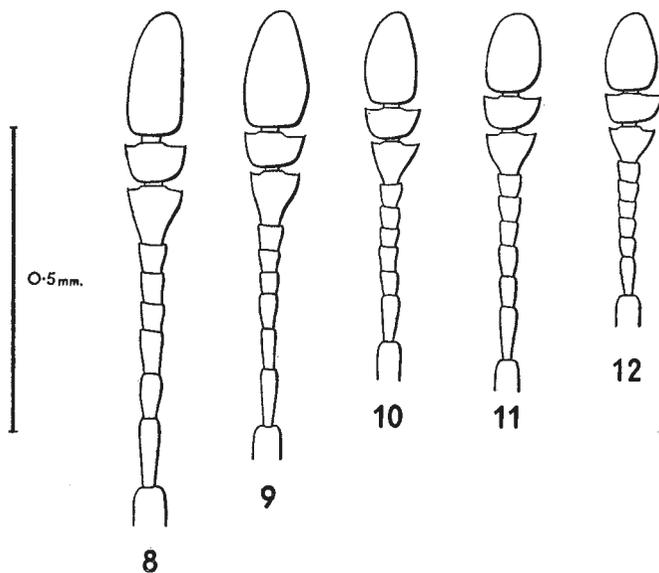
- 1 Two sutural striae; last segment of antenna characteristic (fig. 1) **Olibrus** Erichson (p. 10)
- One sutural stria 2
- 2 Unicolorous black, antennae and legs also black (tarsi often reddish) or dark brown; last segment of maxillary palp cylindrical (fig. 3); metasternum produced beyond middle coxae (fig. 46); scutellum larger; club of antenna loose (figs. 8-12) **Phalacrus** Paykull (p. 7)
- Brown, at least at apex of elytra; if unicolorous black, antennae and legs brown or yellow; last segment of maxillary palp flattened and expanded on the inner side (fig. 4); metasternum not produced beyond middle coxae (fig. 47), scutellum smaller; club of antenna more compact (fig. 2)..... **Stilbus** Seidlitz (p. 14)

Genus **Phalacrus** Paykull

Characters as in key. Claws clear red or yellow. Last segment of antenna variable, apex more flattened than rest. Tegmen with apex pointed and split (like a pen-nib); basal ring bilobed. Transverse suture present near apex. Apex of ovipositor with numerous setae on dorsal surface. The larvae inhabit smutted grasses and sedges; the adults are also found in various flowers.

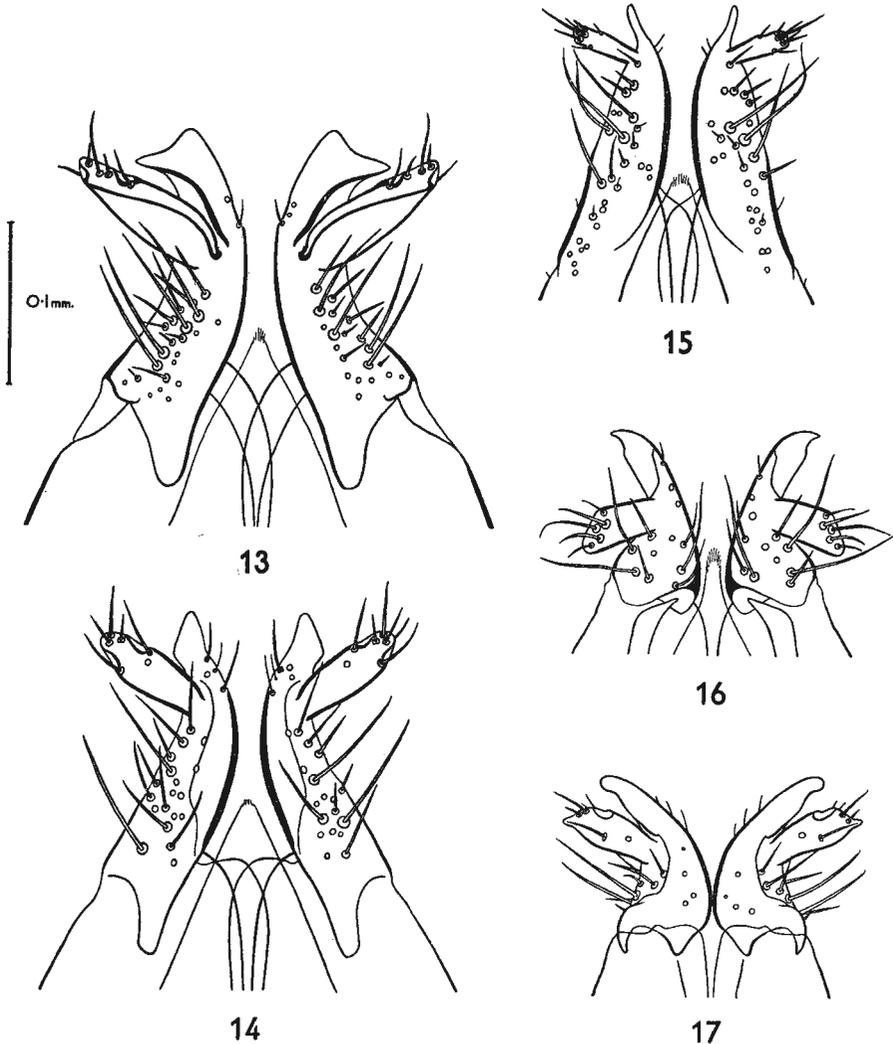
KEY TO SPECIES

- 1 Apex of fore tibia with more than 2 spurs at outer angle, forming a comb.....2
 - Apex of fore tibia with 2 spurs only at outer angle (fig. 7).....3
 2 Fore tibia with 4-5 similar spurs (fig. 6); pronotum smooth, not bordered at the base; scutellum smooth; segments 4-5 of antenna less than twice as long as broad (fig. 10). More strongly convex. Tegmen, fig. 19; ovipositor, fig. 17. Length 2.0-2.5 mm.....**championi** Guillebeau
Hants., Sussex, Surrey, Kent, ?Cams.
 - Fore tibia with 13-26 spurs in a graduated series, with about 6 of the largest at the angle itself (fig. 5); pronotum finely bordered at the base, microsculpture sometimes evident, but much weaker than that on elytra; scutellum with microsculpture; segments 4-5 of antenna about twice as long as broad (fig. 9). Less convex. Tegmen, fig. 22; ovipositor, fig. 13. Length 2.0-3.5 mm. *On smutted plants of Brachypodium pinnatum (L.) Beauv...* **fimetarius** (Fabricius) (*brisouti* Rye, **syn. n.**)
**Devon, Hants. and I. of Wight, Sussex, Surrey, Kent, Berks., Bucks., Middx., Herts., Cams., Essex, Suffolk, Northants.*
 3 Last segment of antenna very elongate (fig. 8); entire upper surface with reticulate microsculpture. Tegmen, fig. 18; ovipositor, fig. 14. Length 1.5-3.0 mm. *On smutted cereal crops*.....**coruscus** (Panzer)
*England: from most counties south of a line from the Bristol Channel to the Wash, *Scilly Is. and I. of Wight, also Hereford, Worcs., *Durham. Wales: *Glamorgan. Scotland: Dumfries. Ireland: *Londonderry.*
 - Last segment of antenna much less elongate.....4
 4 Reticulate microsculpture plainly evident throughout upper surface, hence noticeably less shiny than the other species; last segment of antenna smoothly rounded at apex (fig. 11); body flattened, oblong. (Elytra bright red—*v. delabyi* Guillebeau.) Tegmen, fig. 20; ovipositor, fig. 15. Length 1.6-2.5 mm. *On smutted Carex spp.*.....**caricis** Sturm
*England: *Devon, *Dorset, Wilts., Hants., Surrey, Berks., Oxford, Cams., Suffolk, *Norfolk, Hereford, *Leics., *Lincs., *Notts., *Lancs. Ireland: *Armagh, Louth.*

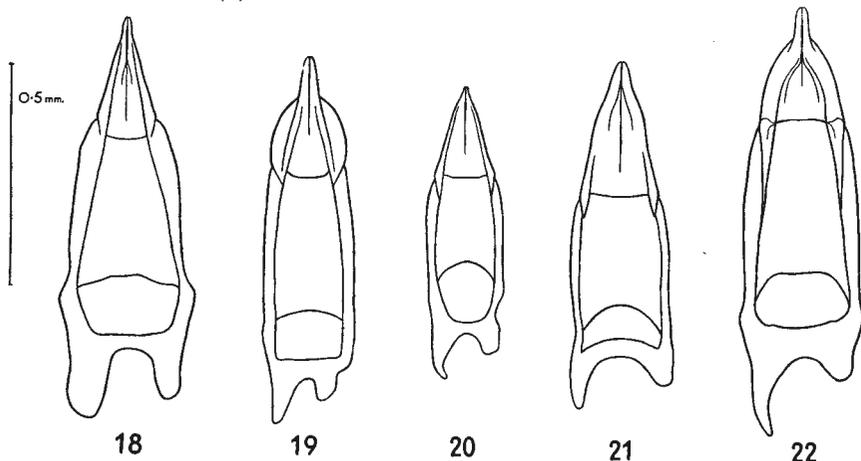


FIGS. 8-12.—Left antenna (segment 1 omitted) of; 8, *Phalacrus coruscus* (Panzer); 9, *P. fimetarius* (Fabricius); 10, *P. championi* Guillebeau; 11, *P. caricis* Sturm; 12, *P. substriatus* Gyllenhal.

- Reticulate microsculpture confined to elytra, sometimes only evident at apex of latter; last segment of antenna tapering in distal half (fig. 12); body more convex, more ovate. Tegmen, fig. 21; ovipositor, fig. 16. Length 2.0-2.5 mm. On smutted **Carex* spp.; adults also in flowers of *Narthecium ossifragum* (L.) Huds. **substriatus** Gyllenhal
 England: Hants. and *I. of Wight, Surrey, Kent, *Oxford, Suffolk, *Norfolk, Yorks. Scotland: Dumfries, Berwick, Perth, Inverness, Banff, Aberdeen. Ireland: Kerry, Galway.



FIGS. 13-17.—Apex of ovipositor of: 13, *P. fimetarius* (Fabricius); 14, *P. coruscus* (Panzer); 15, *P. caricis* Sturm; 16, *P. substriatus* Gyllenhal; 17, *P. championi* Guillebeau.



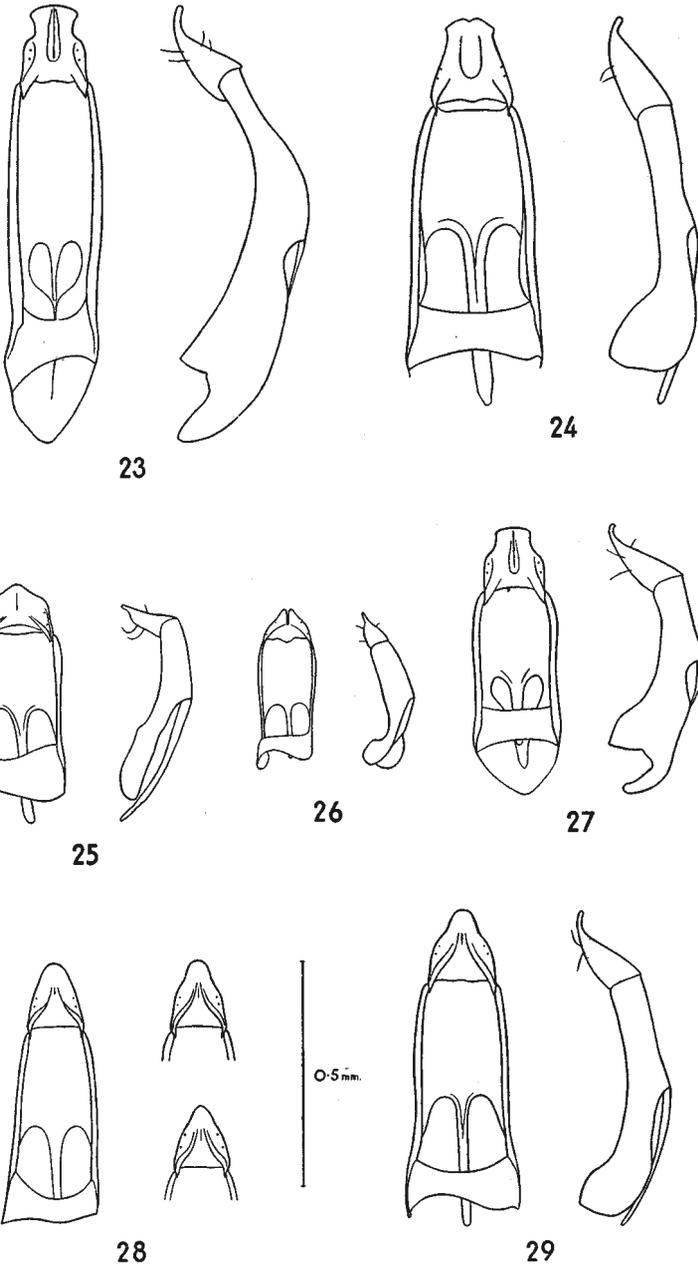
FIGS. 18-22.—Ventral view of tegmen of: 18, *Phalacrus coruscus* (Panzer); 19, *P. championi* Guillebeau; 20, *P. caricis* Sturm; 21, *P. substriatus* Gyllenhal; 22, *P. fimetarius* (Fabricius).

Genus *Olibrus* Erichson

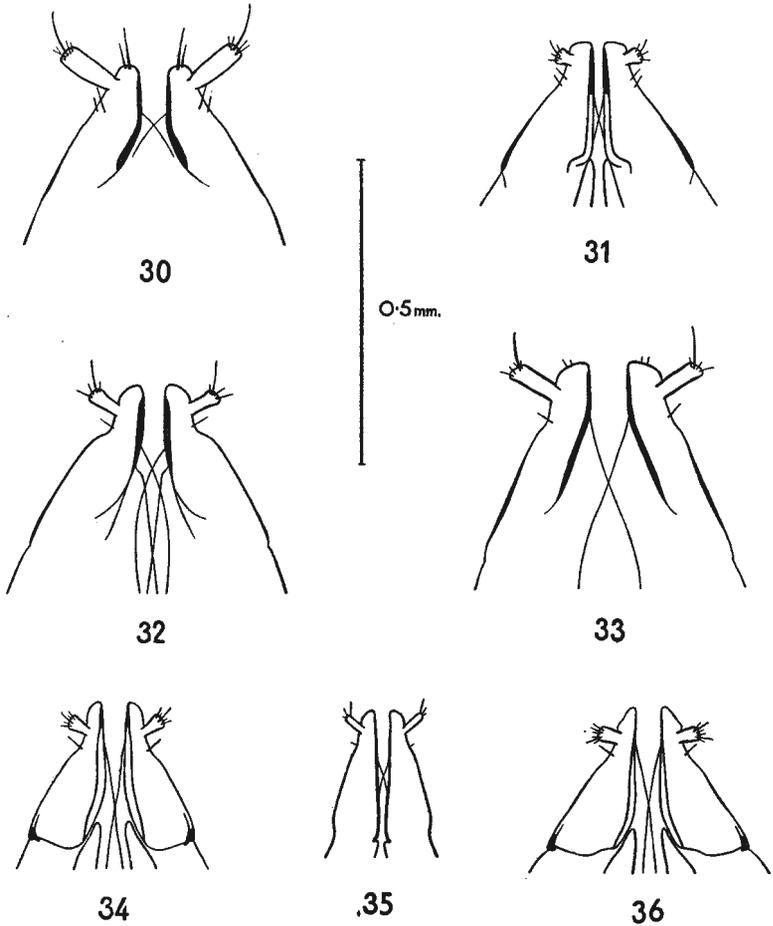
The metasternum is produced beyond the middle coxae and the scutellum is relatively large, as in *Phalacrus*; also the last segment of the maxillary palp, though flattened, is not expanded on its inner side (fig. 3). There are, however, two sutural striae and the last segment of the antenna is compressed laterally as well as dorsoventrally at the apex (fig. 1). The apex of the tegmen is truncate or bluntly pointed and entire (except in *pygmaeus*), and bears two pairs of large setae ventrally. The dorsal wall is produced anteriorly as a median process of variable size. The apex articulates with the main part at a transverse suture. The ovipositor has a few small setae at the apex. The adults are found on the capitula of various Compositae, in which live the larvae. The number of fore tibial spurs is given, but they are usually difficult to see.

KEY TO SPECIES

- 1 Sutural striae less converging apically, the outer stria ending some distance from apex of elytra; segment 2 of fore tarsus strongly expanded in male (fig. 45). Unicolorous black, elytra microreticulate; legs and antennae dark brown, base of antenna lighter, often yellowish; claws black; fore tibia with 2 spurs..... 2
- Sutural striae strongly converging, and usually uniting at, or before, apex of elytra; if unicolorous black, elytra smooth..... 3
- 2 Reticulate microsculpture present on head, pronotum, and elytra (sometimes less evident on head and pronotum); elytra rounded behind; no metallic reflection. Tegmen, fig. 27; ovipositor, fig. 33. Length 1.5-1.8 mm. *Rare*; on *Achillea millefolium* L. **millefolii** (Paykull)
*Devon, *Hants., Sussex, Surrey, Kent, Oxford, Essex, Suffolk, Norfolk. *Leics.*
- Reticulate microsculpture on elytra only: elytra more elongate, and tapering behind; usually with greenish reflection. Tegmen, fig. 23; ovipositor, fig. 30. Length 2.0-2.5 mm. *Common*; on *Matricaria* spp., *Tanacetum vulgare* L. and **Artemisia* spp. **aeneus** (Fabricius)
*England: from most counties in the south and east, Scilly Is. and I. of Wight, also Worcs., Warwick, Notts., Lancs., *Cumberland, *Durham, *Northumberland, *I. of Man. Wales: *Glamorgan. Scotland: Dumfries, Berwick, Perth. Ireland: Waterford, Wexford, Dublin, *Down.*



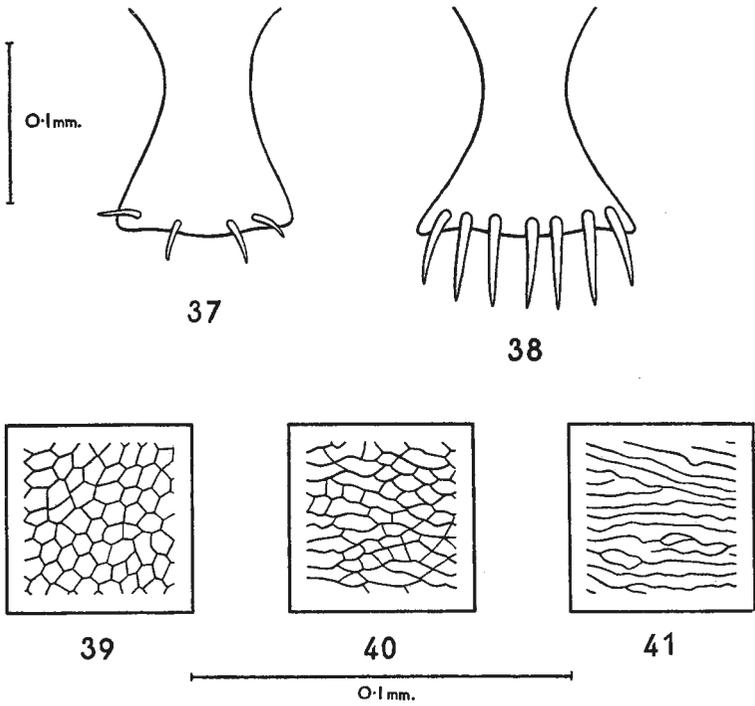
FIGS. 23-29.—Ventral and right lateral views of tegmen of: 23, *Olibrus aeneus* (Fabricius); 24, *O. liquidus* Erichson; 25, *O. corticalis* (Panzer); 26, *O. pygmaeus* (Sturm); 27, *O. millefolii* (Paykull); 28, *O. affinis* (Sturm); 29, *O. flavicornis* (Sturm).



FIGS. 30-36.—Apex of ovipositor of: 30, *Olibrus aeneus* (Fabricius); 31, *O. liquidus* Erichson; 32, *O. corticalis* (Panzer); 33, *O. millefolii* (Paykull); 34, *O. affinis* (Sturm); 35, *O. pygmaeus* (Sturm); 36, *O. flavicornis* (Sturm).

- 3 Reticulate microsculpture present, at least on elytra..... 4
- Reticulate microsculpture absent, but ill-defined sinuous microsculpture present at apex of elytra, especially along the suture..... 5
- 4 Reticulate microsculpture present on head, pronotum, and elytra (sometimes less evident on head and pronotum); head and pronotum dark brown, elytra brownish-yellow, darker along suture and at shoulders; antennae and legs deep yellow; fore tibia with 2 spurs. Tegmen, fig. 25; ovipositor, fig. 32. Length 2.5-2.9 mm. *On Senecio spp. and *Erigeron canadensis L..... corticalis* (Panzer)
*England: Dorset, Hants. and I. of Wight, Sussex, Surrey, Kent, Berks., Oxford, ?Hunts., Suffolk, *Norfolk, Worcs., *Notts., *Northumberland. Wales: *Glamorgan. Ireland: *Dublin.*
- Reticulate microsculpture on elytra only, often less evident at shoulders; dark red, head and pronotum nearly black, elytra becoming lighter towards apex; antennae clear yellow, legs slightly browner; fore tibia with 3-4 spurs. Tegmen, fig. 24; ovipositor, fig. 31. Length 2.0-2.6 mm..... *liquidus* Erichson
*England: from most southern counties, I. of Wight, also Oxford, Suffolk, Hereford, *Lincs. Ireland: Cork, Kilkenny, Wexford, Dublin.*

- 5 Claws black; Length 1.2-1.4 mm.; black, sometimes reddish towards apex of elytra; antennae and legs blackish yellow; fore tibia with 2 spurs. Tegmen, fig. 26; ovipositor, fig. 35. *On* *Filago germanica* L., **F. gallica* L., **Leontodon spp.* and **Crepis spp.* **pygmaeus** (Sturm)
Devon, Dorset, Hants. and I. of Wight, Sussex, Surrey, Kent, Oxford, Cambs., Suffolk, Norfolk.
- 6 Claws red or yellow; Length at least 1.6 mm., fore tibia with 3 spurs..... 6
- 6 Metasternum strongly punctured throughout; Length 2.5-3.0 mm.; unicolorous black above, dark red-brown below; antennae and legs reddish or yellowish-brown. Tegmen, fig. 29; ovipositor, fig. 36. *Rare*; *On* **Leontodon autumnalis* L. **flavicornis** (Sturm)
I. of Wight, Surrey, Kent, Bucks., Suffolk.
- Metasternum less strongly and more diffusely punctured, especially at the sides, the posterior half (or more) of which may be more or less unpunctured. Length 1.7-2.5 mm.; dark brown above, lighter towards apex of elytra (rarely unicolorous black); yellowish-brown below; legs and antennae clear yellow or reddish-yellow. Tegmen, fig. 28; ovipositor, fig. 34. *Mainly coastal species*; *on* **Tragopogon pratensis* L., **Hypochaeris glabra* L. and **H. radicata* L..... **affinis** (Sturm)
*England: from most southern counties, *Scilly Is., I. of Wight, Lundy, also *Bucks., Norfolk. Wales: Pembroke. Ireland: Kerry, Waterford.*



FIGS. 37-41.—Prosteral process of: 37, *Stilbus oblongus* (Erichson); 38, *S. testaceus* (Panzer). Microsculpture of: 39, *S. oblongus* (Erichson); 40, *S. atomarius* (Linnaeus); 41, *S. testaceus* (Panzer).

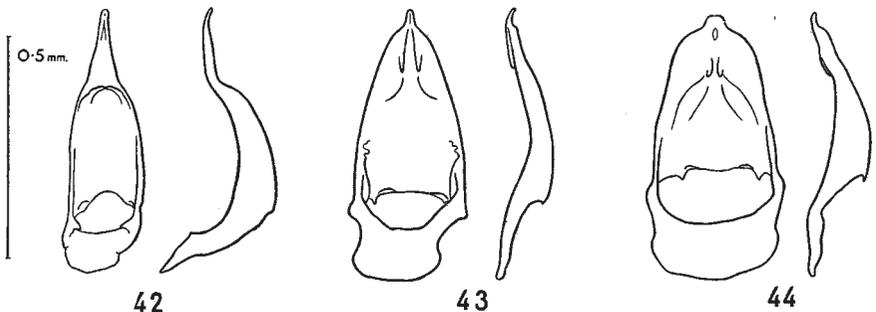
Genus *Stilbus* Seidlitz

Characters as in key. The segments of the antennal club open widely into one another instead of being connected by a narrow neck as in the other genera. There are two fore tibial spurs. The tegmen is entire at the apex, simple at the base and without a transverse suture. The median lobe is sometimes markedly asymmetrical. An extrusible ovipositor is wanting, and the spermatheca does not appear to differ between the species. The microsculpture is fairly uniform throughout the upper surface, but is best examined in the centre of an elytron. Length in each case about 2 mm. The immature stages are so far undescribed.

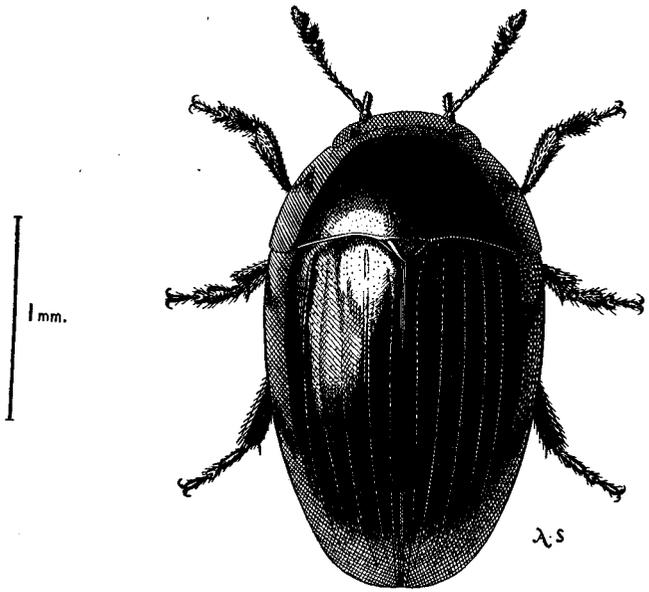
KEY TO SPECIES

- 1 Microsculpture reticulate, the meshes isodiametric, and rarely fused (fig. 39); prosternal process with 4-5 very small setae (difficult to see) (fig. 37); hind angles of pronotum blunt, obtuse (viewed from the side). Colour variable, usually black or dark red-brown, becoming abruptly lighter near the apex of the elytra, but sometimes pale red-brown throughout. Underside, antennae and legs red-brown. Tegmen fig. 42. *Associated with Typha latifolia L.* **oblongus** (Erichson)
*England: *Devon, Dorset, Hants. and *I. of Wight, Sussex, Kent, Berks., *Oxford, Cambs., Essex, Suffolk, Norfolk. Wales: Glamorgan.*
- Microsculpture composed, at least in part, of continuous transverse lines; prosternal process with 4-8 large setae (fig. 38), metasternum black, or nearly 2
- 2 Microsculpture composed entirely of sinuous transverse lines, uniting obliquely at intervals, meshes almost absent (fig. 41); hind angles of pronotum sharp, right-angled. Typically red-brown above, head and pronotum dark, apex of elytra yellow; prosternum red-brown, legs similar, or only slightly lighter in colour. Tegmen, fig. 44. *Common; in dry grass and hay.* **testaceus** (Panzer)
*England: from most counties south of a line from the Bristol Channel to the Wash, Scilly Is., *I. of Wight, also Hereford, Notts., *Cheshire, *Yorks. Wales: Pembroke, *Glamorgan. Scotland: Kirkcudbright.*
- Microsculpture intermediate between that of the preceding species, *i.e.* reticulate, but the meshes often fused, and continuous transverse lines evident (fig. 40.) Black above, apex of elytra sometimes lighter; prosternum black; legs including coxae, lighter, often markedly so, thus contrasting sharply with the pro- and metasterna. Tegmen, fig. 43. *Rare* **atomarius** (Linnaeus)
Sussex, Kent, Cambridge, Suffolk, Norfolk.

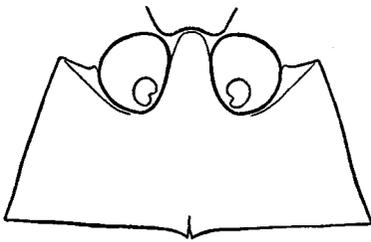
This species is intermediate between the other two in all characters except colour, and is very variable, sometimes resembling *oblongus*, sometimes *testaceus*. Further it is only found where both the others also occur. The possibility suggests itself, therefore, that *atomarius* may be a hybrid, though breeding experiments and other studies would be necessary to establish this.



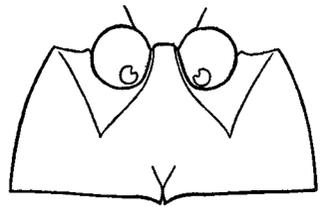
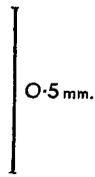
FIGS. 42-44.—Ventral and right lateral views of tegmen of: 42, *Stilbus oblongus* (Erichson); 43, *S. atomarius* (Linnaeus); 44, *S. testaceus* (Panzer).



45



46



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FIGS. 45-47.—45, *Olibrus aeneus* (Fabricius). Metasternum of: 46, *Olibrus corticalis* (Panzer); 47, *Stilbus testaceus* (Panzer).

DOUBTFUL AND REPUTED SPECIES

Phalacrus brunnipes Brisout. Various species, but most commonly *P. championi* Guillebeau (*brunnipes* Rye), have been confused with this Mediterranean species. I have examined three specimens determined as *brunnipes* Brisout by Peyerimhoff. They resemble *championi* in having dark brown legs and antennae, and the pronotum is unbordered at the base. The microsculpture is also confined to the elytra, but is weaker than in *championi*. *P. brunnipes* is easily distinguished from *championi* by its fore tibial spurs, which number two, not four, and by the maxillary palp, which is more elongate than in any British species, the dimensions of the last segment being in the ratio of 4.25 : 1 (*coruscus*—3.34 : 1, *championi*—2.80 : 1). Although Rye (1872) stated that Brisout had identified as *brunnipes* a specimen in the G. R. Waterhouse collection, this specimen cannot be traced, and the two specimens labelled "*brunnipes*" at present in that collection are *championi*.

Olibrus bicolor (Fabricius). There are three specimens of this species in the Stephensian collection in the British Museum (Nat. Hist.). Stephens (1829) describes the species correctly, and adds "Not common : found near London in flowers". It does not seem to have been found anywhere subsequently. The specimens labelled "*bicolor*" in the Sharp collection are *O. flavicornis* Sturm. There are several records of *bicolor* from England, and S. Ireland, some of which are known to refer to specimens of *O. liquidus* Er. The species occurs widely on the Continent ; it is usually larger than *flavicornis* and has an ill-defined red spot near the apex of each elytron, which is also microreticulate.

O. particeps Mulsant. This species is easily confused with *O. affinis* Sturm. It is black, or near-black above, and the metasternum is smooth or at most very diffusely and faintly punctured. Specimens of *O. affinis* do occur which also have these characters. Fortunately, the genitalia differ markedly in both sexes. In *particeps* the tegmen is shallowly emarginate at the apex instead of rounded, while the appendages of the ovipositor are more elongate, the ratio of their dimensions being 2.3 : 1 (*affinis*—1.5 : 1).

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