

**6. Perilampidae, Eupelmidae, Encyrtidae (Hym.
Chalcidoidea) from the Hansted Reservation.
With description of new species.**

By O. Bakkendorf.

In the following list the genera and species are enumerated in alphabetical order. The period given after the name of the species and synonyms comprises the author's collections from the Danish Hansted Reservation in Thy during $8-16/7$ 1955, $23/7-1/8$ 1956, $23/6-1/7$ 1957, $10-19/7$ 1961 and $25-30/7$ 1962, followed by data from the collection of the Zoological Museum of Copenhagen. For the names of collectors the following abbreviations are used: R. W. S. = Konservator R. W. Schlick, J. P. Kr. = Lærer J. P. Kryger, Fog = Lærer Asger Fog, B. P. = Dr. Børge Petersen, O. B. = the author. The third period concerns the wider distribution of the species followed by a note on the hosts and taxonomical remarks.

The material was collected by a catcher, from a later date by help of a sucking tube, after use the catcher was carefully emptied (none of the material was discarded) in order to obtain an idea of the relative numbers of individuals in the different species. However, the collecting was not placed evenly in the reservation which would have given a far too small amount of material. Most of the animals were collected at the rich locality Isbjerg near Ørgaard, but after a day spent at this locality some collecting took place in more distant parts of the reservation or in the Tved Plantation nearby, and a few days were spent at the coastal dunes 6 kms away.

Reservation localities consisting of white and grey dunes yielded the most numerous results, followed by the heath and a few specimens only from the lower areas. A list of 47 species found in the reservation is given here, those in brackets also found in the Tved Plantation, the latter species probably associated with small groups of firs, *Pinus montana*, spread in the eastern reservation area.

Perilampidae.	(<i>Litomastix truncatellus</i> Dalm.)
<i>Perilampus laevifrons</i> Dalm.	<i>Mayridia</i> sp.
Eupelmidae.	(<i>Mercetia lusitanica</i> Merc.)
<i>Eupelmus atropurpureus</i> Dalm.	<i>Metaphychus hanstediensis</i> n. sp.
<i>Macroneura vascularis</i> Retzius	" <i>zebratus</i> Merc.
Encyrtidae.	<i>Microterys minutus</i> n. sp.
<i>Aglyptus rufus</i> Dalm.	" <i>provisorius</i> n. sp.
<i>Anabrolepis zetterstedti</i> Westw.	" <i>sceptriger</i> Först.
<i>Anagyris schoenherri</i> Westw.	(" <i>tesselatus</i> Dalm.)
<i>Aphidencyrtus aphidivorus</i> Mayr	(" <i>truncatipennis</i> Ferr.)
<i>Blastothrix sericea</i> Dalm.	<i>Moraviella inexpectata</i> Hffr.
<i>Cerapterocerus mirabilis</i> Westw.	(<i>Ooencyrtus obscurus</i> Merc.)
(<i>Cerchysius subplanus</i> Dalm.)	" <i>pinicola</i> Mats.?
<i>Charitopus fulviventris</i> Förster	" <i>telenomicida</i> Vasil.
<i>Concentrolinea heterocornis</i> n. sp.	" <i>vagus</i> Merc.?
<i>Copidosoma igneum</i> n. sp.	" sp.
" <i>montanum</i> Merc.	<i>Paraphaenodiscus incertus</i> Merc.
<i>Dinocarsis hemiptera</i> Dalm.	(<i>Protyndarichus metallicus</i> Merc.)
<i>Discodes aeneus</i> Dalm.	<i>Pseudencyrtus misellus</i> Dalm.
<i>Ectroma reinhardi</i> Mayr	<i>Psyllaephagus merceti</i> Ferr.
<i>Encyrtus albitarsis</i> Zett.	<i>Rhopus semiapterus</i> Merc.
" <i>infidus</i> Rossi	<i>Syrphophagus fuscipes</i> Dalm.
<i>Ericydnus longicornis</i> Dalm.	<i>Trichomasthus cyaneus</i> Dalm.
<i>Homalotylus flaminus</i> Dalm.	<i>Zeteticontus laeviscutum</i> Thoms.
<i>Litomastix suspectus</i> n. sp.	Encyrtidae sp.

In addition to the 7 species mentioned in brackets above, the following are found only in the pine forest, Tved Plantation,

Aphycoides clavellatus Dalm.

Leptomastix histrio Mayr

Litomastix tvediensis n. sp.

One species mentioned above from the reservation is also found in the mixed forest, Vilsø Plantation, namely *Cerapterocerus mirabilis* Westw.

One species is from a small low-lying locality at Nors Sø, *Choreia inepta* Dalm.

One species would appear to originate from gardens, *Ageniaspis fuscicollis* Dalm.

One species from a bog in N. Sealand is described for taxonomical reasons, *Microterys apicipennis* n. sp.

Some other species are mentioned, *Litomastix chalconotus* Thoms., *Microterys brachypterus* Merc., *M. calonotus* Merc., *M. hemipterus* Nik. and *M. micropterus* Merc., also for taxonomical reasons.

List of species.

Perilampidae.

1. *Perilampus laevifrons* Dalman, 1822: 400.

Förster 1859: 119, 121, 122 (*nigriventris*, *cuprinus*, *inequalis*); Thomson, 1875: 22, 23 (*laev.*, *emarginatus*); Mayr 1905: 569; Howard, 1911: 208 (*cupr.*); Hellén 1924: 13; Ruschka 1924: 90 (*cupr.*); Principi 1947: 161; Steffan 1952: 73; Nikolskaya 1952: 196; Erdős 1955: 39; Bouček 1956: 85; Kerrich 1958: 78; Ferrière and Kerrich 1958: 20.

Thy: Nors, ult. July, 1953, 1 ♂, 1 ♀ (Fog). - Nors, 12. 7. 55, 1 ♂, 1 ♀. - Ørgaard Isbjerg, 24. 7. 56, 1 ♀. - Norssø Klit, 25. 7. 56, 1 ♀. - Isbjerg, 27. 7. 56, 1 ♀. - Inside a coast dune 2 km N. of Klitmøller, 28. 7. 56, 4 ♂♂, 9 ♀♀. - Norssø Klit, 25. 6. 57, 1 ♀. - Isbjerg, 27. 6. 57, 1 ♂, 1 ♀. - do. 29. 6. 57, 2 ♂♂, 2 ♀♀. - do. 1. 7. 57, 2 ♂♂, 2 ♀♀. - Inside a coast dune, 2 km N. of Klitmøller, 26. 7. 62, 1 ♂. - Isbjerg, 27. 7. 62, 2 ♂♂, 2 ♀♀. - do. 30. 7. 62, 1 ♀.

From coll. Zool. Mus. 2 ♀♀, each with a green label and "Mus.", the first labeled "laevifrons Dalm.", and 2 ♀♀, each with a light green label.

Europe, Italy, Transcaucasia - from Southern Eng-

land to Cheshire and Yorkshire - from Finland north to Siberia, Mongolia.

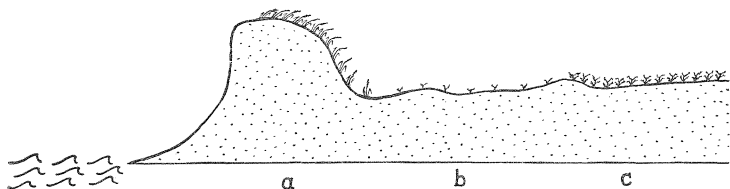
Hosts: NEUR. In Italy known as primary parasite of *Chrysopa formosa* Brauer. The numerous eggs of captive *laevifrons* are laid on long, narrow and coarse leaves. A mobile larva "planidium" emerges, which, standing on its last segment seeks to make contact with and attach itself to a host larva. The host larva then reaches the prepupal stage and has spun its cocoon before its parasite begins to develop, the planidium swells and moults into a normal ectoparasitical larva which covered by the cocoon devours the host larva (Principi l. c.).

In the Hansted Reservation some specimens of a Neuropteran, *Chrysopa abbreviata* were taken (N. P. Kristensen) at the same dune localities as *laevifrons*, which is possibly the actual host of the species.

The species was for a time mentioned as a parasite of lepidopterous larvae, but it may have been confused with *Perilampus tristis* Mayr (Steffan l. c.).

Bouček (1956 l. c.) separates 3 species, *laevifrons* Dalm., *lacunosus* Nik. and *masculinus* Bck. However, Kerrich (1958 l. c.) finds they may be sibling species, and should not be considered as distinct species in Northern and Western Europe.

The preferred locality of the species was at the top of (ab. 10 m) and on the sheltered side of the outermost



Textfig. 1. Cut of the coast-dune ab. 2 km N. of Klitmøller, schematical, a, drift-sand overgrown with *Elymus arenarius*, the preferred biotope of *Perilampus laevifrons* Dalm., b, sand with spread vegetation, c, the heath.

dunes facing the North Sea, where the drift-sand was overgrown with *Elymus arenarius* (text fig. 1, a). Some specimens were taken at inland dunes, e. g. at Isbjerg, 6 km from the beach, at the last 2-3 m to the top. There were 12 pairs in all, and it was considered that they are able to fly and orientate themselves in the strong wind from the sea. It is possible that they may have been mating pairs, but the author is inclined to think that the male follows the female for certain periods of time. No more than two specimens were taken at one time in the catcher. The animals are very robust and first of all they try to free themselves from the straw and dirt at the bottom of the catcher, therefore difficult to get hold of.

The species has 3 strong teeth in the right mandible, the lower one the largest, and somewhat isolated, the left mandible with 2 even stronger teeth. Ovipositor about half as long as gaster, not distinctly visible. Phal-lus small, apically declining, parameres finger-like, ad-pressed, with 2 bristles at apex, a third median lobe present, digiti broadly rounded at apex, with 3 small spines, aedeagus apically rounded, with about 16 sensil-lae. The sexes are difficult to discern, in the male the gaster is pyramid-shaped, in the female it is relatively larger and more spherical.

Eupelmidae.

2. *Eupelmus atropurpureus* Dalman 1820: 381.

Fonscolombe 1832: 298 (*Cleonymus hemipterus*); Nees 1834: 421 (*C. hem.*); Thomson 1875: 106 (*atrocoeruleus*); Nikolskaya 1952: 499 Ferrière 1954: 4.

Thy: Nors, 8. 7. 55, 1 ♀, 11. 7. 55, 1 ♀, 12. 7. 55, 2 ♀♀.
- do. 8.-16. 7. 55, galls of *Aulacidea hieracii* L. on *Hiera-cium umbellatum*, bred 27. 7. 55, 1 ♀, 9. 8. 55, 2 ♀♀, to-gether with *Eurytoma cynipsea* Boh. - Isbjerg, 27. 7. 56, 1 ♀. - Klitmøller, 28. 7. 56, 1 ♀. - Isbjerg, 1. 8. 56, 1 ♀. -

Ørgaard, 24. 6. 57, 1 ♀. - Isbjerg, 1. 7. 57, 2 ♀♀. - Syvklit, 8. 6. 60, 1 ♀ (B. P.). - W. of Ørgaard, 8. 6. 60, 1 ♀ (B. P.). - Isbjerg, 15. 7. 61, 1 ♀. - Coast dune, 26. 7. 62, 1 ♂.

From coll. Zool. Mus., 1 ♀ with a green label and "Atropurpureus" "Mus", - 4 ♀♀, each pinned with a green label, one full winged, - 1 ♀ with a white label and "Drewsen" as collector.

W. Europe, Caucasia, Ctr. Asia, N. Africa, N. America.

The species is a primary or secondary parasite of seed and straw inhabiting HYM. (*Bruchophagus*, *Eurytoma*, *Tetramesa* (*Harmolita*), *Cephus*), LEP. (*Coleophora*), DIPT. (*Chlorops*, *Lasiosina*, *Mayetiola*, *Meromyza*, *Phytophaga*) and COL. (*Phytonomus*, *Orchestes*).

The single male seems to agree with the description by Thomson l. c.

3. *Macroneura vesicularis* Retzius 1783 (*Ichneumon*).

Dalman 1820: 379 (*Eupelmus degeeri*); Nees 1834: 76 (*Eup. geeri*); Thomson 1875: 107 (*Eup. deg.*); Costa 1883: 101 (*Eup. albittarsis*); Lindeman 1887: 190 (*Euryscapus saltator*); McConnel 1918: 170 (*Eupelminus salt.*); Masi 1919: 308 (*Eupelmella*); Nikolskaya 1952: 493 (*Eupelmella*); Ferrière 1954: 5 (*Eupelmella*); Peck 1963: 494.

Thy: Nors, 15. 7. 55, 1 ♀. - Isbjerg, 25. 7. 56, 1 ♀. - Ørgaard, 17. 2. 57, bred 1 ♀ from galls of *Diplolepis* (*Rhodites*) *spinosissima* Gir. on *Rosa pimpinellifolia*, 25. 7. 56, bred together with *Eurytoma rosae* Nees. - Ørgaard, 23. 6. 57, 1 ♀, do. 24. 6. 57, 2 ♀♀.

About 100 specimens in coll. R. W. Schlick are mostly from Sealand, but also Jutland, Lolland and Lange-land are represented, some of them are bred from Hieracium galls. Also a similar material in coll. E. B. Hoffmeyer is mostly from Sealand, with Møen and Jutland represented. Most of this material is bred from the following hosts, *Phanacis centaureae* Först., *Diastrophus mayri* Reinh., *Tetramesa* (*Harmolita*) *hieronymi* Hed. on *Festuca rubra*, *Xestophanes potentillae* Ratz. and from stipites of *Calamagrostis lanceolata* and *Phragmites communis*.

W. Europe, Crimea, Caucasia, Ctr. Asia, N. Africa, N. America.

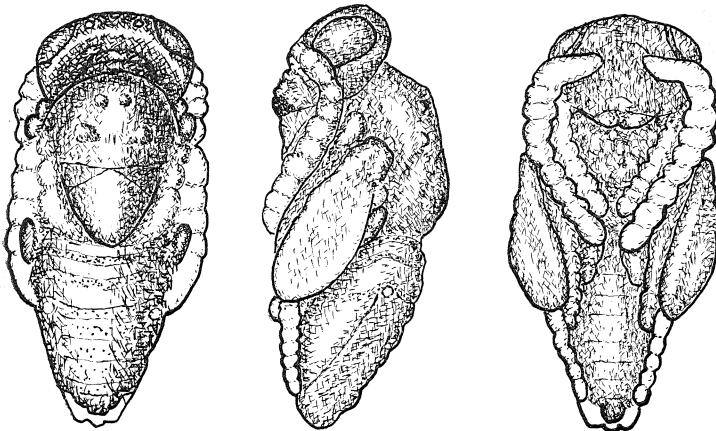
Hosts: The species is a primary or partly secondary parasite in galls, fly-puparies and seed and straw inhabitants of different orders, COL., HYM., DIPT., e. g. COL., *Bruchus*, *Hylesinus*, *Pityogenes*, HYM., *Bruchophagus*, *Eurytoma*, *Tetramesa* (syn. *Harmolita*), *Cephus*, *Di-prion*, DIPT., *Chlorops*, *Lasioptera*, *Mayetiola*, *Meromyza*, etc. The eggs, when placed in the galls of the Trypetid *Urophora (Euribia) jaceana* (Hering) are overspun by the female during egg-laying with a web of silky material, as in *Eupelmus urozonus* Dalm. (Askew, 1961: 198).

Schlick's collections seem to indicate two generations, appearing in June-July and in Aug.-Sept.

Encyrtidae.

4. ***Ageniaspis fuscicollis*** Dalman 1820: 359 (*Encyrtus*).
Mercet 1921: 336; Ferrière 1949: 373; Nikolskaya 1952: 392.

Thy: Nors, ult. July, 1953, 1 ♀ (Fog). - Thisted, bred 45 ♂♂, 86 ♀♀, $^{11-21}/_8$ 1956 from *Hyponomeuta*-cocoon, 29. 7. 56 - and 2259 ♂♂, 2371 ♀♀ bred $^{11-30}/_8$ 56 from



Text fig. 2. *Ageniaspis fuscicollis* Dalm., pupa.

cocoons on *Crataegus* in the same garden 2. 8. 56, together with *Eutelus mediterraneus* and *Habrocytus* sp. - Ørgaard, bred 48 ♂♂, 160 ♀♀^{14-24/8} 56 from *Hyponomeuta*-cocoons 30. 7. 56, together with two Braconids.

Lolland: Maribo, Aug. 1877, ex *Hyponomeuta padella*, 14 ♂♂, 44 ♀♀ (R. W. S.).

No locality, coll. Zool. Mus. 20. 8. 1869, 38 spec. "Drews.", ex *Hyp. padella* and 36 spec. "Drews." ex *Hyp. cognatella*.

Europe, Ctr. Asia.

Hosts: LEP., *Hyponomeuta* spp., *Prays oleellus* F. The species has a polyembryological development in the egg-larval stages of the host.

The specimens were of a very constant size, probably owing to the manner of development, and the pupae had a curious curled appearance, as figured (text fig. 2).

5. **Aglyptus rufus** Dalman 1820: 383 (*Eupelmus*).

Walker 1837: 451 (*Encyrtus lindus*); Förster 1856: 36 (*A. lind.*); Mercet 1921: 155 (*Ectroma*); Nikolskaya 1952: 356 (*Ectr.*); Graham 1958: 152; (*Ectroma* auctorum nec Westwood 1833).

Thy: Nors, 8. 7. 55, 1 ♀, 10. 7. 55, 1 ♀, 13. 7. 55, 2 ♀♀, 1 ♂. - Isbjerg, 24. 7. 56, 1 ♀, 25. 7. 56, 2 ♀♀, 1. 8. 56, 1 ♀. - Ørgaard, 23. 6. 57, 1 ♀. - Isbjerg, 27. 6. 57, 2 ♀♀, 29. 6. 57, 1 ♀, 1. 7. 57, 4 ♀♀, 12. 7. 61, 2 ♀♀, 19. 7. 61, 1 ♀, 27. 7. 62, 2 ♀♀, 30. 7. 62, 1 ♀.

W. Europe, England: Pignel Pond, Brockenhurst, New Forest, 21. 7. 1929, 2 ♀♀ (J. P. Kr. leg. O. B. prep.).

Host unknown, Coccids proposed.

6. **Anabrolepis zetterstedti** Westwood 1837: 441 (*Encyrt.*).

Ratzburg 1852: 189, ♀ (*E. dendripennis*), 192, ♂ (*E. longicornis*); Mayr 1875: 752 (*Habrolepis*); Girault 1915: 218, 1917: 95 (*Aphidencyrtus aspidioti*); Timberlake 1920: 432; Mercet 1921: 678 (*Habr.*); Balachowsky 1930: 115 (*Habr.*).

Tab. 9: 14—16.

Thy: Klitmøller, 6. 8. 50, 1 ♀. - Nors, ultimo July, 1953, 1 ♂ (Fog). - Nors, 8. 7. 55, 1 ♀. - Hulvejen, 11. 7. 55, 1 ♀, perished on leaf of *Pinguicula vulgaris* L. - Isbjerg,

25. 7. 56, 1 ♂. - Ørgaard-Isbjerg, dunes, 10. 6. 1960, 1 ♀ (B. P.). - Hulvejen, 11. 7. 61, 1 ♂. - Hybjerg, 18. 7. 61, 1 ♂.

Langeland: Flaaddet, 4. 8. 1883, 1 ♀, Aasø, 28. 8. 85, 1 ♀, 13. 8. 1885, 1 ♀, 11. 8. 1885?, 1 ♀, all from coll. R. W. Schlick. - Jutland: Silkeborg, 1 ♀, no date, Zool. Mus. - N. Sealand: Lyngby Mose. 3. 8. 1938, 1 ♀ (J. P. Kr.). - S. Jutland: Kidskelund Mose, 4. 8. 1926, 1 ♂ (O. B.), do. 7. 8. 1926, 1 ♂ (O. B.) (Kr. prep.). - Bornholm: Hammeren, 15. 8. 1921, 1 ♀ (O. B.). - Bornh. 18. 8. 1927, 1 ♂, 1 ♀ (O. B.) (Kr. prep.).

W. Europe (Netherlands, De Hoge Veluwe, pine forest, 23. 8. 1951, 1 ♂ (O. B.)), N. Africa, Caucasia, N. America, Columbia.

Hosts: COC., *Lepidosaphes* and *Aspidiotus* spp.

The mandibles have 2 dents and a broad truncation which is slightly subdivided into 2-3 smaller dents, two dental folds are present. Maxillary palpi 4-, labial 3-jointed. Antennae rather stiff and difficult to prepare, not having scape and club in the same plan. Phallus rather slender, digitus with 2 spines, the apical one pointed, the second one less so, the parameres closely adpressed to the digiti, aedeagus somewhat rounded at the apex which bears 6 sensillae at the border.

7. **Anagyrus schoenherri** Westwood 1837: 441 (*Encyrtus*).

Mayr 1875: 700 (*Blastothrix*); Mercet 1921: 243; Ishii 1928: 86 (*flavus*); Gahan 1949: 360; Domenichini 1953: 70; Ferrière 1955 a: 120; Murakami 1960: 199.

Thy: Nors, 12. 7. 55, 5 ♂♂. - Coast dune, 30. 6. 57, 1 ♂.

N. Sealand: Lillerød, Sorte Mose, 15. 6. 1932, 1 ♀. - Store Dyrehave, 6. 6. 37, 1 ♀, do. 19. 6. 37, 1 ♀. - Ryget, 28. 6. 40, 1 ♀. - Lyngby Mose, 10. 7. 40, 1 ♀, do. 9. 8. 40, 1 ♀, all from coll. J. P. Kryger.

Europe, Crimea, Iran, on beaches.

Hosts: COC., *Phenacoccus aceris* Sign., *Ph. pergandei* Cockrl., *Eulecanium coryli* L., *Pulvinaria betuli* L.

Murakami (1960) has observed seasonal dimorphism

in the female of this species; a dark generation emerges in spring from the overwintering mature larvae, followed by a second generation with light imagines; no differences were found in the males.

8. **Aphidencyrtus aphidivorus** Mayr 1875: 712, 713, 724 (*Encyrtus*).

Ashmead 1900: 399 (*aphidiphagus*, *megourae*, *schizoneuræ* Ashm., *websteri* How.); Silvestri 1907 b: 54 (*Enc.*); Masi 1908: 96 (*Enc.*); Mercet 1921: 345, 354 (*Microterys submetallicus*); Gahan 1930: 6 (syn. *inquisitor* Grlt. etc.); Nikolskaya 1952: 393 (hosts); Ferrière 1953 a: 33, 1961: 48.

Tab. 4: 2—5.

Thy: Isbjerg, 1. 8. 56, 1 ♀.

Europe, Transcaucasia, Ctr. Asia, Hindustan, N. America.

Hosts: the species is, according to Silvestri l. c., a secondary endoparasite in dead Aphids (HET.), containing a primary (BRAC., *Aphidius brassicae* Marsh.) or secondary (CYN., *Allotria vittrix* Westw. var. *infusata* Kieff.) parasitic hymenopterous larva. HET., *Aphis avenae* Kalt., *pomi* Deg., *Bracycolus noxius* Mord., *Brevicoryne brassicae* L., *Pterochloroides persicae* Chal., *Siphonaspis padi* L., *Sitobion avenae* F., *Toxoptera graminum* Rond., etc.

Female: length, 0.8 mm. Head and thorax black, metallic; abdomen dark brown, vertex, cheeks, face, prothorax, mesoscutum and femora with a bluish tint; axillae and scutellum bronzyish, pleures reticulate; ocelli yellowish, eyes, mandibles and legs blackish; knees, apex of tibiae and tarsal joints pale, the apical joint darker; wings hyaline, venation fuscous, tegulae brownish, vertex punctate-reticulate, cheeks longitudinally striate, thorax large-meshed reticulate.

Body short and thick, thorax with brownish hairs, head large, broader than thorax, occiput hollow, vertex acutely margined, slightly longer than broad and broader than an eye, ocelli rather large, in an equilateral triangle, hind ones their own breadth from eye orbits and

from the margin of occiput, mandibles with two teeth and a truncation, toruli long-oval, antennae inserted midway between the mouth and the lower margins of eyes, scape slender, slightly dilated at the middle, very distant from the anterior ocellus. Pedicel subtriangular, as long as three first funicle joints, inner joints of funicle slightly transverse, the joints enlarged towards apex, fifth joint longer than broad, sixth quadrate, club 3-jointed, broader than funicle, as long as four preceding joints, the apex with a greyish truncation. Length ratio of antennal joints, 68, 25, 7, 8, 10, 11, 15, 15, 53, the breadths, 11, 14, 9, 9, 11, 12, 14, 15, 21, scrobes with a slight projection between the antennae. Marginal vein of fore wing thickened, about three times longer than broad, gaster nearly as long as thorax, pygostyles near the middle, ovipositor slightly exerted, thick, its base one third from the base of gaster.

In the present specimen the antennae seem to agree with the descriptions given by Mayr and Masi. However, Ferrière (1953 a, fig. 83) describes the species with a more slender antenna.

9. **Aphycoides clavellatus** Dalman 1820: 355 (*Encyrtus*).

Walker 1837: 40 (*Enc. Corybas*, *Enc. Liriope*), 1838: 418 (*Enc. Ilithyia*), 424 (*Enc. Mysus*), 1848: 135, 220 (*Enc. Alycoeus*); Mayr 1875: 723 (*Enc.*); Thomson 1875: 165 (*Microterys*); Ashmead 1900: 396 (*Pseudencyrtus*); Mercet 1923: 175 (*Aph. sp.*); Ferrière 1953 a: 21 (*Pseud.*), 33 (*merceti*), 1953 b: 4 (*merc.*); Graham 1958: 157.

Tab. 2: 1—6.

Thy: Tved Plantation, 31. 7. 56, 3 ♀♀. - Hybjerg, 18. 7. 61, 1 ♀.

N. Sealand: Bagsværd Smørmose, 8. 8. 1959, 1 ♀ (O. B.).

Sweden, England.

Host: COC., *Physokermes abietis* Geoffr.

Female: length 1.4 mm. Body dark blue-brown with metallic lustre, eyes blackish, scape and pedicel dark brown, flagellum and palpi light brown, mandibles light

brown with apex dark red brown, legs dark brown with knees, apex of tibiae and the tarsi light brown, end joints dark brown.

Head transverse, vertex broader than an eye, margined behind, ocelli in an equilateral triangle, vertex and frons with large punctures, mandibles 3-dentate, the third (upper) tooth broadly rounded, but not truncate, maxillary palpi 4-, labial 3-jointed, cheeks as long as eye length, scrobes deep with a prominence between the toruli. Antennae short, inserted near the mouth, scape short, hardly dilated, pedicel triangular, double as long as broad and longer than two next joints together, first funicle joint longer than broad, following joints subquadrate, gradually becoming a little larger, sixth funicle joint slightly broader than long, club 3-jointed, somewhat broader than funicle, longer than 4 preceding joints together and with a small oblique greyish truncation at apex. Length ratio of antennal joints, 70, 22, 9, 9, 9, 10, 11, 12, 17, 14, 16, the breadths, 14, 10, 8, 9, 10, 11, 12, 13, 17, 17, 14. Pronotum narrow, mesoscutum reticulate with very feebly marked larger punctures, axillae not reaching the meson, scutellum convex, roundish, reticulate. Wings nearly hyaline, marginal vein about double as long as broad, postmarginal indistinctly finished, somewhat shorter than stigmal vein which is slender and more than double as long as marginal vein. Length ratio of m. p. s., 13, 18?, 28. Oblique line anteriorly narrow and bordered with stronger cilia, a naked space at base divided by a longitudinal streak, costal cell broad, haired. Hind femora flat and dilated, hind tibiae a little flattened. Gaster longer than thorax, ovate, broad in front, pygostyles near the apex of gaster, situated just above the spiracles of the preceding segment, ovipositor hardly half as long as gaster; however distinctly exerted as long as middle metatarsus.

(*Aphycus zebratus* Mercet, see *Metaphycus*).

10. **Blastothrix sericea** Dalman 1820: 357, ♀, 363, ♂ (*Encyrtus*).

Mayr 1875: 697; Thomson 1875: 156 (*Microterys*); Girault 1918: 299 (*britannica*); Imms 1918: 294; Silvestri 1919: 169; Ruschka 1922: 3; Voukassovitch 1931: 688; Nikolskaya 1952: 375.

Thy: Nors, 8. 7. 55, 2 ♂♂. - Isbjerg, 29. 6. 57, 1 ♂. - do. 1. 7. 57, 1 ♀.

Sealand: garden of Hauschildt (in Copenhagen) 21. 10. 1872, 1 ♀, lab. "Microterys sericeus Dalm.". - do. same date, 1 ♀. - do. 28. 10. 1872, 1 ♀. - Strandvejen, 8. 11. 1872, 2 ♀♀. - The church yard, 25. 9. 1875, 1 ♀. - Hauschildt's garden, 24. 10. 1878, 2 ♀♀. - L. or S., 25. 10. 1879, 4 ♀♀. - Charlottenlund, 15. 10. 1882, 1 ♀. - do. 3. 10. 1886, 1 ♀, all from coll. R. W. Schlick. - no date, 1 ♀, lab. "Blastothrix", "E. aff. sericeus Dalm. in abiete", "Mus." and with a small whitish square, coll. Zool. Mus. - Hillerød, Præstevangen, 4. 6. 1906, from Coccus on Alnus, bred 1 ♂, 1 ♀ 24. 6. 06 (J. P. Kr.). - Tisvilde, 7. 10. 1923, 1 ♀ (J. P. Kr.). - no date ex COC., 1 ♂, 1 ♀ (O. B.).

W. Europe, Ctr. Asia, N. America.

Hosts: COC., *Aulacaspis rosae* Bché., *Eulecanium corni* Bché., *coryli* L., *persicae* F., *turanicum* Arch., *rugulosum* Arch., *Pulvinaria betulae* L., *Kermes roboris* Fourcr.

11. **Cerapterocerus mirabilis** Westwood 1833: 495.

Walker 1838: 114 (*Encyrtus*); Ratzeburg 1848: 153 (*Telegraphus maculipennis*); Mayr 1875: 748; Thomson 1875: 151 (*multiradiata*), 152 (*pilicornis*, var.?).; Costa 1882: 38 (*latevittatus*, var.?),

Thy: Nors, Isbjerg, 14. 7. 55, 1 ♀, 2 ♂♂. - Vilsø Plantation, 29. 6. 57, 1 ♂.

N. Sealand: Holte, Geelskov, 18. 7. 1886, 1 ♀, do. 8. 8. 1886, 1 ♀, do. 10. 7. 1887, 1 ♀, do. 26. 5. 1889, 1 ♀ (R. W. S.). - (the isle) Saltholm, 9. 7. 1933, 1 ♀ (J. P. Kr.). - Falster: Bøtø, Diget, bred 10. 12. 1946, 1 ♀, 9. 2. 47, 1 ♂, 12. 2. 47, 1 ♂, 21. 2. 47, 1 ♂, ex *Eriopeltis festucae* Fonse., Aug, 1946 (J. P. Kr.).

Europe, Ctr. Asia, Japonia.

Hosts: COC., *Eriopeltis festucae* Fonsc., *Lecanium corni* Bché., *coryli* L., *prunastri* Fonsc., *Mediococcus circumscriptus* Kir., bred as secondary endoparasite through *Discodes aeneus* Dalm. from *Lecanium prunastri* Fonsc. (Silvestri 1919) and *Lecanium coryli* L. (Kalandra 1933).

The species is bred together with *Discodes aeneus* Dalm., *Baeocharis pascuorum* Mayr, *Encyrtus festucae* Mayr, *Trichomasthus cyaneus* Dalm., *T. cyanifrons* Dalm., *Blastothrix sericea* Dalm., the secondary ectoparasites *Pachyneuron coccorum* L., *Marietta picta* André and the primary endoparasites *Coccophagus scutellaris* Dalm., *C. howardi* Masi, *Microterys lunatus* Dalm. and *Metaphycus punctipes* (Dalm.) Mayr.

12. **Cerchysius subplanus** Dalman 1820: 362, ♂ (*Encyrtus*), 368 (*Enc. urocerus*).

Westwood 1832: 127 (*stigmatalis*); Förster 1841: 43, fig. 18 (*Enc. caudatus*); Mayr 1875: 703, 716 (*Enc.*); Thomson 1875: 141; Mercet 1921: 507; Hellén 1949: 44; Nikolskaya 1952: 426; Ferrière 1953 a: 25, Bouček 1961: 16.

Thy: Nors, ultimo July, 1953, 4 ♀♀ (Fog). - do. 9. 7. 55, 1 ♂. - Isbjerg, 24. 7. 56, 1 ♀. - Klitmøller, 28. 7. 56, 1 ♀. - Coast dune, 30. 6. 57, 1 ♀. - Tved Plantation, 10. 6. 60, 1 ♂ (B. P.); Syvklit, 17. 7. 61, 3 ♀♀. - Coast dune, 26. 7. 62, 1 ♀. - Hykjær, 29. 7. 62, 1 ♂.

Langeland: Aasø, 11. 8. 1885, 1 ♀. - do. 20. 8. 1885 (R. W. S.). - N. Sealand: Ryget, 26. 8. 1923, 2 ♀♀ (J. P. Kr.). - Ganløse Ore, Sortemosevej, 16. 6. 1961, 1 ♂. - Bornholm: Melsted, 14. 8. 1927, 2 ♀♀ (O. B.). - 1 ♀, labeled "Urocerus Dalm. Subplanus Dalm." - 1 ♀, green label, 1 ♀, no label (coll. Zool. Mus.).

Europe, Ctr. Asia.

Biology unknown, some exotic species are parasites of coleopterous and dipterous larvae.

13. **Charitopus fulviventris** Förster 1856: 31, 1860: 112.

Mercet 1921: 545 (*Diversicornia pinicola*); Ruschka 1921: 245 (*Tetracnemus diversicornis*); Kryger 1950: 112 (*Pareupelmus div.*); Ferrière 1955 a: 133.

Thy: Nors, ultimo July, 1953, 1 ♀ (Fog). - Syvklit, 8. 6. 1960, 1 ♂ (B. P.). - Klitmøller, 12. 6. 1960, 1 ♀ (B. P.).

N. Sealand: Børstingerød Mose, 13. 8. 1933, 2 ♂♂, 3 ♀♀, on slides (J. P. Kr.). - Holte, Geel Skov, 26. 7. 1885, 1 ♂ (R. W. S.). - Tisvilde, 29. 6. 86, 1 ♀ (R. W. S.).

W. Europe, W. Siberia, Ctr. Asia.

Biology unknown, taken by Mercet under *Pinus silvestris* and other plants.

14. *Choreia inepta* Dalman 1820: 267.

Mayr 1875: 761; Mercet 1921: 612; Ferrière 1953 a: 7, 1955 b: 360.

Thy: Nors Sø, 14. 7. 55, 29 ♀♀, 44 ♂♂. - do. 1. 7. 57, 1 ♀, 2 ♂♂, all subapterous.

W. Sealand: Refsnæs, 12. 8. 1895, 1 ♀, lab. "*Choreia inepta* Dalm." - Langeland: at the shore at Botofte, 13. 8. 1896, 1 ♀, both from the coll. R. W. Schlick. - N. Sealand: Bognæs Vesterskov, at the shore, 1 ♀ (J. P. Kr.). - Store Dyrehave, 19. 5. 1935, 1 ♂ (J. P. Kr.). - Salpetermosen, 12. 9. 1940, 1 ♀ (J. P. Kr.). - Sejerø: 26. 5. 1963, 2 ♂♂ (O. B.).

From Sweden to Spain, England (Hallenwood, 7. 7. 1924, ♂♀, J. P. Kr.).

Host: COC., *Lecanopsis formicarum* Newst., a subterranean species living on roots.

The specimens of *inepta* were taken by sweeping over a few sq. meters in short grass at the Nors Sø shore nearest to Isbjerg. The locality may be seen in fig. 10, Ent. Medd. 30, 1960: 11, to the left, between the road and the shore of Nors Sø.

***Concentrolinea* n. gen.**

It has been tried, but without success, to bring this brachypterous form into any already described genus. It seems related to *Protyndarichus* Mercet, but differs by the elongate somewhat convex scutellum with concentric lines, the shape of the micropterous wings, the long and slender phallus and yellow palpi. The fore wings are very oblique, truncate, the hind margin longest; the

hind wings have a marginal vein rounding the wing apex. The aedeagus is long and slender, rounded at apex, digiti with one spine. Type, described below:—

15. **Concentrolinea heterocornis** n. sp.

Tab. 4: 2—5.

Thy: Nors, 16. 7. 55, 1 brachypterous ♂. (Holotype).

N. Zealand: Geel Skov, 17. 7. 1898, 1 brachypterous ♂ (R. W. S.).

Male: length 1.2 mm. Head blue, metallic, eyes and ocelli black, palpi and mandibles yellow, apex of teeth blackish, scape and pedicel dark brown externally, funicle light brownish, area towards apex and club dark brown. Thorax black-brown, with tegulae brown, gaster dark brown, both with bluish lustre, legs light yellow.

Head transverse, roundish when seen in frontal view, slightly broader than high, finely punctured with 2-3 rows of small punctures along the eyes, scrobes rather deep, vertex rounded behind, occiput concave, cheeks shorter than eye length, mandibles 3-dentate, antennae inserted at level with the lower margin of eyes, toruli ovate, closer to each other than to the eyes. Antennae shorter than body, scape short, moderately dilated at the middle, pedicel 1.5 times as long as broad, first funicle joint 4 times as long as broad, following joints increasing in breadth, and decreasing alternately with longer and shorter joints in length, last funicle joint 1.7 times as long as broad, club slightly broader than funicle, not quite double as long as last funicle joint, funicle short-haired, the hairs half as long as the breadth of joints. Maxillary palpi 4-, labial 3-jointed. Length ratio of antennal joints, 56, 18, 40, 32, 34, 31, 32, 25, 47, breadths, 17, 11, 10, 11, 12, 13, 14, 15, 16. Pronotum triangular, moderately long, mesoscutum reticulate, scaly, rather smooth, the hairs pale, scutellum rather long, longer than broad, 60, 50, with parallel sides anteriorly, and the apex half triangular, reticulation forming longitudinally

encircling striae, axillae meeting at meson. Fore wings obliquely truncate, reaching the first tergite of gaster, subcosta dilated at apex, and with two bristles at base of dilation, the disc elongated oblique posteriorly in a blunt point with a feeble hair, a few hairs at the disc and in the costal cell, hind wings very small, with a marginal vein reaching around the wing apex, a few hairs near the wing base and a single cilium anteriorly. Spur of metatibiae as long as the metatarsus, 11, 11, rest of tarsus, 16. Gaster with pygostyles slightly before the middle. Phallus long and slender, parameres delicate, finger-like, adpressed to digiti, the latter rod-like with a distinct spine at apex, aedeagus slender, rounded at apex with 6 very small sensillae at the border.

Female unknown.

16. **Copidosoma igneum** n. sp.

Tab. 10: 12—15.

Thy: Nors, ultimo July 1953, 1 ♀ (Fog). - Isbjerg, 9. 7. 55, 1 ♀. - Nors, 9. 7. 55, 1 ♀, 10. 7. 55, 1 ♀, 12. 7. 55, 4 ♀♀, 16. 7. 55, 1 ♀. - Tved Plantation, 26. 6. 57, 1 ♀. - Bagklitten, 30. 6. 57, 2 ♀♀; slide no. 1, holotype.

Female: 1.6 mm. Body metallic, head blue-green, cheeks with brilliant ruddy lustre, eyes and ocelli red-brown, scape and base of pedicel dark brown, the latter light at apex, funicle and club brown, apex and an oblong ring greyish, pronotum, mesoscutum and axillae blue-green, scutellum dark red-brown with igneous or coppery lustre, tegulae white, wings hyaline, pleures and legs dark brown with a bluish tint, knees and base of hind and middle tibiae broadly whitish, base of middle tarsi whitish, fore tibiae light brown with darker streak, fore and hind tarsi, and apex joints of middle tarsi dark, gaster dark brown with bluish lustre.

Head in frontal view roundish, superficially punctate, cheeks shorter than eye length, vertex broader than eye length, acutely margined behind, toruli oblong, near the

mouth, scape slender, tapering, pedicel triangular, double as long as broad, and longer than first funicle joint which is rather small and 1.5 times as long as broad, second funicle joint the longest, nearly double as long as broad, following joints gradually thicker and slightly shorter, sixth funicle joint slightly longer than broad. Club broader than funicle, longer than 3 preceding joints and feebly arched. Length ratio of antennal joints, 100, 26, 16, 20, 19, 19, 18, 17, 62, the breadths, 13, 14, 11, 12, 13, 14, 15, 16, 20. Mandibles 3-dentate with a subapical bristle internally above, middle tooth the longest. Maxillary palpi 4-, labial 3-jointed. Pronotum narrow, mesoscutum rather finely punctate-chagrinata, axillae meeting at meson, scutellum triangular, the apex slightly tap-like, its sculpture feebly elongate posteriorly. Spur of middle tibiae shorter than metatarsus. Marginal vein thick and nearly punctiform, postmarginal vein half as long as stigmal vein or shorter, 11, 22, stigmal vein slightly cuneiform with 4-5 placoid sensillae in a lump, uncus hardly visible. Gaster longer (51, 40) and broader (35, 30) than thorax, pygostyles about one third distance from apex. Ovipositor not prominent, however, it is arched especially at apex and together with the valves directed upwards, total length shorter than gaster, 40, 51.

Male unknown.

The characteristic ovipositor and the ruddy lustre of cheeks and often of scutellum may distinguish *igneum* from other *Copidosoma* species. The length of funicle joints seems rather divergent in different specimens.

17. ***Copidosoma montanum*** Mercet 1921: 491, 1923 a: 54.

Erdős, 1957: 66.

Tab. 10: 1-8.

Thy: Isbjerg, 17. 7. 61, 1 ♀.

Spain, Hungary.

Host unknown, species of the genus are endopara-

sites in the egg-larval stages of Microlepidoptera, development polyembryonic.

The specimen is small, about 1.2 mm. Mandibles 3-dentate, maxillary palpi 4-, labial 3-jointed. The club of antennae 3-jointed, the furrows oblique, reaching three fourths the way round, inner side with light stripes. Ovipositor exerted as much as length of hind metatarsus, issuing from near the base of gaster. Otherwise as in the original description.

18. **Dinocarsis hemiptera** Dalman 1820: 166, 371 (*Encyrtus*).

Förster 1856: 37; Dahlbom 1857: 292 (*Euscapus*); Mayr 1875: 686, 760; Thomson 1875: 127 (*Eusc.*); Mercet 1921: 148; Nikolskaya 1952: 354; Ferrière 1953 a: 8.

Thy: Nors, ultimo July, 1953, 2 ♀♀ (Fog). - Nors, 8. 7. 55, 2 ♀♀. - Isbjerg, 9. 7. 55, 8 ♀♀. - Nors, 10. 7. 55, 1 ♀, 13. 7. 55, 5 ♀♀, 15. 7. 55, 2 ♀♀. - Isbjerg, 23. 7. 56, 2 ♀♀. - Tved Plantation, 24. 7. 56, 1 ♀. - Isbjerg, 24. 7. 56, 6 ♀♀, 25. 7. 56, 13 ♀♀, 1 ♂, 26. 7. 56, 4 ♀♀, 27. 7. 56, 1 ♀, 1. 8. 56, 3 ♀♀. - Ørgaard, 23. 6. 57, 7 ♀♀, 24. 6. 57, 2 ♀♀. - Isbjerg, 27. 6. 57, 6 ♀♀, 1. 7. 57, 109 ♀♀, 10. 7. 61, 1 ♀, 12. 7. 61, 8 ♀♀, 15. 7. 61, 10 ♀♀, 17. 7. 61, 7 ♀♀. - Tved Plantation, 19. 7. 61, 1 ♀, 1 ♂. - Isbjerg, 19. 7. 61, 2 ♀♀, 25. 7. 62, 4 ♀♀. - Hulvejen, 25. 7. 62, 1 ♀. - Isbjerg, 27. 7. 62, 24 ♀♀, 30. 7. 62, 14 ♀♀, all brachypterous.

Jutland: Skagen, Grenen, 5 ♀♀. - Grenaa, Albøge, 27. 7. 1933, 1 ♀ (J. P. Kr.). - Frederikshavn, 5 ♀♀. - Langeland: Flaaddet, 9. 8. 1885, 1 ♀ (R. W. S.). - Sealand: Amager Fælled, 9. 7. 1906, 1 ♀ (J. P. Kr.). - Refsnæs, 19. 8. 1895, 1 ♀ (R. W. S.) and in coll. Zool. Mus. further 13 pins with 62 specimens, with inclusion of 2 full-winged females.

Europe, W. Siberia. (England, Pignel Pond, Brockenhurst, New Forest, 21. 7. 1929, 1 ♀, full-winged, J. P. Kr. leg., O. B. pr.).

Host unknown; mentioned by Girault (1914:177) without any reference as insect egg parasite.

The species is the most common of the Encyrtids in the reservation, characteristic of the transition between the grey and the white dune.

19. *Discodes aeneus* Dalman 1820: 159 (*Encyrtus*).

Nees 1834: 218 (*Enc. melanopterus*); Ratzeburg 1848: 148 (*Enc. coccophagus*); Förster 1856: 34, 144 (*Phaenodiscus mel.*); Mayr 1875: 759 (*Ph.*); Thomson 1875: 137 (*Ph.*); Girault 1916: 102 (*Ph. partifuscipennis*); Silvestri 1919: 92 (*Ph.*); Mercet 1921: 618 (*Ph.*); Nikol'skaya 1952: 449 (*Ph.*); Ferrière 1953 a: 21.

Thy: Isbjerg, 30. 7. 62, 1 ♀.

Jutland: Læsø? 1 ♀ (H. J. H.). - Sealand: Ørholm Fælled, 22. 8. 1886, 1 ♀, "Phaen. aeneus" (R. W. S.), no date, green label, "Mus.", 1 ♀ (Zool. Mus.). - Bornholm: Svaneke, 12. 8. 1927, 1 ♀ (O. B.).

Europe, Ctr. Asia, W. Siberia, N. America.

Hosts: COC., *Eulecanium coryli* L., *persicae* F., *prunastri* Fonsc., *Kermococcus roboris* Fonsc., *Mediococcus circumscriptus* Kirk., *Pseudococcus citri* Risso, *Pulvinaria betulae* L., *Saissetia hemisphaerica* Targ.

20. *Ectroma reinhardi* Mayr 1875: 764 (*Ericydnus*).

Mercet 1921: 173 (*Pezobius*); Ruschka 1922: 12 (*Eric.*); Hellén 1949: 44 (*Pezob.*); Nikol'skaya 1952: 358 (*Pezob.*); Ferrière 1953 a: 9, 39, fig. 12 (*Metallon*); Graham 1958: 151; Ferrière 1961: 40.

Thy: Nors, 9. 7. 55, 1 ♀, 12. 7. 55, 1 ♀, 15. 7. 55, 1 ♂.

Jutland: Grenaa, Albøge, 31. 7. 1953, 1 ♀ (J. P. Kr.). - Sealand: Holmegaards Mose, 23. 7. 1936, 1 ♀ (J. P. Kr.). - and from coll. Zool. Mus. 2 ♀♀ labeled "Echthroplexis Reinhardi Mayr" and "Mus.", one with a white, the other with a light green label.

W. Europe, Finland-Spain.

Host unknown.

(*Encyrtus* Dalman et auct. nec Latr. see *Microterys* Thoms.).

Encyrtus Latr. Key to the following two species.
1(6) Males, postmarginal vein about 1.5 times as long as stigmal vein.

- 2(5) Hind tarsi unicoloured, fore wings fumated, first funicle joint a little longer than broad, sixth joint subquadrate, ciliation half as long as breadth of joints, mandibles broad, truncate, phallus broad, distance between parameres approx. same as length of hind metatarsus.
- 3(4) Scutellum black *Encyrtus infidus obscurus* Dalman
- 4(3) Scutellum with yellow cross band . . . *Encyrtus infidus* Rossi
- 5(2) Hind tarsi white at the middle, proximal half of hind metatarsus oblique delimited black, fore wings hyaline, funicle joints twice as long as broad, subverticillate, cilia longer than breadth of joints, mandibles slender, phallus of normal breadth, distance between parameres about half as long as hind metatarsus *Encyrtus albitarsis* Zetterstedt
- 6(1) Females, postmarginal and stigmal veins equal.
- 7(8) Hind tarsi unicoloured, antennae broadest at club, shorter than thorax+head, 16:19, scutellum with yellow cross band or spot *Encyrtus infidus* Rossi
- 8(7) Hind tarsi white at the middle, proximal half of hind metatarsus oblique delimited black, antennae longer than thorax+head, 19:17, last 3-4 joints of funicle broader than club, scutellum black *Encyrtus albitarsis* Zetterstedt

21. ***Encyrtus albitarsis*** Zetterstedt 1840: 432, ♀.

Mayr 1875: 741 (*Comys*); Thomson 1875: 121 (*niveitarsis*, new syn.); Mercet 1921: 564 (*Comys*); Hellén 1949: 42 (*Eucomys niv.*); Nikolskaya 1952: 435 (*Euc.*).

Tab. 1: 1, 3-4, 6-7, 11-12, 14.

Thy: Nors, 8. 7. 55, 1 ♂, do. 12. 7. 55, 1 ♂. - Isbjerg, 24. 7. 56, 1 ♀. - N. of Isbjerg, 29. 7. 62, 1 ♂, caught on *Vaccinium uliginosum* and *Salix repens*.

N. Sealand: Tisvilde Overdrev, 15. 9. 1888, 1 ♂ (R. W. S.). - do. 14. 8. 1892, 1 ♀ (R. W. S.). - Tibirke Mose, 20. 5. 1920, ex *Lecanium* sp. on *Salix repens*, bred ♂♀, 6/1920 (J. P. Kr.). - Gribskov, Maglemose, 21. 6. 1938, 1 ♂ labeled "swederi" (J. P. Kr.). - Lolland, Hanemose, 4. 7. 1947, 1 ♂ (J. P. Kr.). - Dania, 1 ♀ labeled "obscura" (J. P. Kr.). - Dania, 2 ♂♂ (J. P. Kr.).

Finland, Sweden, Germany, Switzerland, Hungary, W. Siberia.

Host: COC., *Lecanium* sp. on *Salix repens*.

Male (new): length 2.1 mm. Body black, antennae

brown, scape below and fore legs, apex of hind and middle femora, apex of middle tibiae and the middle tarsi yellow, hind tarsi at the middle white, end joint of middle tarsi and two last joints of fore and hind tarsi brown, proximal half of hind metatarsus oblique delimited black, wings hyaline, tegulae black, eyes and ocelli dark red-brown, body pubescence whitish.

Head transverse, rounded in front, with rather large punctures, occiput concave, vertex acutely margined, almost twice as broad as an eye, and twice as broad as long. Ocelli in a flat arch, hind ones double their breadth from the eyes, cheeks longer than eye length, eyes small. Mandibles truncate, somewhat scale-shaped, with a striate space and slenderer than in *infidus*. Maxillary palpi 4-, labial palpi 3-jointed. Antennae inserted at the middle of face above the lower level of eye margins, scape slender, not reaching the anterior ocellus, pedicel small, triangular, funicle joints a little flattened, twice as long as broad, club as broad as funicle, shorter than two preceding joints, funicle hairs curled, subverticillate, almost as long as the joints. Length ratio of antennal joints, 125, 25, 45, 41, 43, 43, 42, 43, 75, the breadths, 20, 20, 20, 20, 18, 19, 20, 20, 22, length of cilia, 35—40. Axillae meeting at meson, scutellum triangular with a tuft of black setae at apex which is deep, vertically declined. Hind femora and tibiae flat and somewhat dilated, tibiae with tight and coarse, dark pubescence. Length ratio of marginal, postmarginal and stigmal veins, 7, 17, 11, marginal vein almost 4 times as long as broad, wing disc within the oblique unhaired line coarser and hairs more dispersed, most of the costal cell and a posterior-proximal spot with hairs, and a triangle under subcosta densely haired. Gaster oval, shorter than thorax, anterior border broad and concave, pygostyles approx. at the middle. Phallus rather slender, distance between parameres, which sometimes may be visible in dried spec-

imens, about half as wide as in similar specimens of *infidus*, digiti rectangular, rounded, with 3 spines, middle one sometimes indistinct.

Female: 2.3 mm. Body black, eyes and ocelli red, scape yellow, pedicel brown, funicle and club black with the apex of club lighter, fore legs yellow, middle legs brown with the apical half of tibiae and the tarsi yellow; in hind legs coxae yellow, femora brown with a clear distal stripe, tibiae and base of metatarsi oblique delimited black, middle of tarsi white, two end joints and the single end joint of four anterior tarsi brown. Distal part of fore wing from base of marginal vein dark, fumated, body pubescence whitish.

Head large, transverse, vertex broader than an eye, margined behind, the margin slightly rounded towards mouth, vertex and frons with deep punctures, ocelli in a flat arch, frons with an impending sinuate cross carina to the eyes. Antennae inserted between the eyes and the mouth, scape slender, cylindrical, pedicel twice as long as broad, funicle and club flat and dilated, first funicle joint 1.5 times broader at apex than at base, and also much longer than broad, following joints gradually broader and shorter, joints 4 and 5 broadest, sixth funicle joint twice as broad as long, club 3-jointed, as long as two preceding joints together and a little narrower, apex with styloconic setae. Length ratio of antennal joints, 145?, 40, 45, 40, 35, 33, 32, 28, 27, 18, 15, breadths, 20, 19, 30, 43, 50, 53, 54, 54, 52, 51, 45. Mesoscutum very finely reticulate, matt shining, scutellum reticulate-chagrinate, rounded-triangular, with a tuft of black setae at apex, axillae meeting at meson. Hind femora, and especially the tibiae, flat and somewhat dilated. Marginal vein 2-3 times as long as broad, stigmal and postmarginal veins long, of equal length, with a light cross stripe at their end, discal ciliation coarse, almost disappearing in a clear cross band within the shading, at a more

proximal point a triangular space with coarse ciliation, and also the costal cell and a basal-caudal streak with hairs, oblique bare line distally present, and narrow. Ratio of marginal, postmarginal and stigmal veins, 5, 15, 15. Gaster ovate, much shorter than thorax, pygostyles before the middle, ovipositor very short and delicate, concealed in last segment.

In most of the present material the scutellum is black, as originally described, but in coll. R. W. Schlick a female specimen was present, dated $14/8$ 1892, it showed a brown-yellow cross band on scutellum, distinct at the sides but hardly visible at the middle. In addition, the colour did not come from the surface apparently, but from the interior of the body, which in old specimens may be manifested as a brownish mass. From specimens in balsam it appeared that the cuticula in said cross band is thinner. In the description of *niveitarsis* Thomson, the main difference is the presence of this band; the species is therefore considered a synonym of *albitarsis* Zetterstedt.

As remarked above, a pair of this species has been bred by J. P. Kryger, the male hitherto unknown; it is included in the preceding key to this and the next species.

22. Encyrtus infidus Rossi 1790: 80 (*Chrysis*), 1792: 91 (*Ichneumon*).

Swederus 1795: 218 (*Pteromalus scutellatus*); Lamarck 1817: 157 (*Cynipsillum*); Dalman 1820: 26(150), 62—64, 370 (*scutellaris*), 164(40) ♂ (*obscurus*); Fonscolombe 1832: 305 (*longicornis*); Förster 1856: 34 (*Eucomys scutellaris*), 144 (*Comys*); Mayr 1875: 677, 741 (*Comys scutellata*); Thomson 1875: 120 (*scutellaris*); Schmiedeknecht 1909 (tab. 6, fig. 6 of "swederi" = *infidus*); Ruschka 1912: 239; Silvestri 1919: 151—163 (development, synonymy); Mercet 1921: 559 (*Enc. scutellata*); Clausen 1932: 670—686 (developm.); Ferrière 1949: 379; Nikolskaya 1952: 436 (*Enc. scutellata*); Erdős et Novicky 1955: 174, 189 (table of genera).

Tab. 1: 2, 5, 8—10, 13, 15.

Thy: Nors, ultimo July, 1953, 1 ♀ (Fog), Nors, 14. 7. 55, 1 ♀, 15. 7. 55, 3 ♀♀. - Isbjerg, 25. 7. 56, 1 ♀, 26. 7. 56,

1 ♂, 27. 7. 56, 1 ♀, 29. 7. 56, 2 ♀♀, 1. 8. 56, 3 ♀♀. - Syvklit, 18. 7. 61, 2 ♀♀. - Hybjerg, same date, 1 ♀, caught on *Vaccinium uliginosum*.

Jutland: Vejle Nørreskov, 24. 7. 1874, 1 ♀. - Vejle, no date, 2 ♀♀. - Himmelbjerg, 26. 7. 1890, 1 ♀. - Langeland: Aasø, 12. 6. 1881, 1 ♀. - Aasø (Hestehaven) yellowish label, no date, 3 ♀♀. - Sealand: Brede, 2. 6. 1872, 1 ♀. - Jægerspris Nordskov, 15. 8. 1871, 1 ♀. - Tisvilde Hegn, 10. 6. 1887, 1 ♀, do. 1. 8. 1889, 1 ♀. - Lolland: Maribo, 6. 6. 1870, 1 ♀, 10. 6. 1877, 1 ♀, 18. 7. 1877, 3 ♀♀ + 4 ♀♀, 19. 7. 1877, 1 ♂, 1 ♀, 20. 7. 1877, 1 ♀, 23. 7. 1877, 2 ♂♂, 4 ♀♀, */7. 1877, 8 ♀♀, 8. 7. 1878, 2 ♀♀, all from Maribo. - Maribo Nørresø, 3. 6. 1875, 1 ♀. - Ryde, 24. 7. 1877, 3 ♀♀. All coll. R. W. S. - The following labels with defective data are from coll. Zool. Mus., viz. lab. "Rink. Mus. Scutellata Swed.", 1 ♀, - yellowish label, 2 ♀♀, - "Mus.", 2 ♀♀ + 1 ♀, - light green label, 2 ♀♀, - green label, 1 ♀, - greenish label "Mus.", 1 ♂, vere small specimen, - Thureby?, 6. 8., 2 ♀♀ (Løvendal), - 16. 7. 1940, from Hvidtjørn (*Crataegus*), 1 ♀ (le Dous), - no label, 1 ♀, - Læsø, no date, 1 ♀ (H. J. Hansen). - Sealand: Tisvilde Hegn, 7. 8. 1888, 1 ♀ (le Dous). - Munkeskov, 16. 7. 1931, 1 ♀ (E. B. Hffmr.). - Lyngby Mose, 30. 8. 1938, 1 ♀ (J. P. Kr.). - Gribskov Maglemose, 2. 7. 1961, 2 ♂♂ (O. B.). - Bornholm: Rø Plantation, côte 112, 9. 8. 1927, 1 ♀ (O. B.).

Finland, 26 localities (Hellén 1949: 42), Europe from Sweden to Spain, Morocco, Southern USSR, Caucasia, Siberia, Korea, Canada, USA.

Hosts: COC., *Lecanium* spp., especially *Lecanium coryli* L., and in Korea *Lec. kunoensis* Kuw., also bred from *Kermes vermilio* Planch. and *Pulvinaria vitis* L.

Female: 2.8 mm. Black with dark red eyes and ocelli, scutellum with white-yellow cross spot, scape light brown, towards apex dark brown as pedicel, following joints black-brown, apex of club light, all the coxae black, with fore legs yellow, hind legs black-brown, middle

femora and basal half of tibiae dark brown, apical half and tarsi yellow, end joint of four anterior tarsi light brownish. Distal half of fore wing from the base of marginal vein fumated, a light cross streak at the end of venation, and also a light length streak behind the middle (cubitus). Body pubescence dark.

Head transverse, vertex and frons with deep punctures, occiput concave, vertex almost twice as broad as an eye, margined behind, broadly rounded towards mouth, ocelli in a flat arch, frons not distinctly separated from lower face. Mandibles truncate, scale-shaped with a striate space. Maxillary palpi 4-, labial palpi 3-jointed. Antennae inserted between the level of lower border of eyes and the mouth, scape slender, cylindrical, pedicel and first funicle joint equal, 1.5 times as long as broad, following joints gradually shorter and broader, sixth joint 1.5 times broader than long, club broader than funicle, longer than two preceding joints together. Length ratio of antennal joints, 140?, 32, 31, 30, 31, 28, 27, 26, 26, 22, 16, club joints oblique, in opposite side of the same club, 30, 16, 19; the breadth of joints, 20, 20, 22, 27, 31, 34, 37, 39, 45, 46, 45. Pronotum not narrow, mesoscutum reticulate, axillae meeting at meson, scutellum triangular, rounded, axillae and fore part of scutellum reticulate-chagrinata, rest of scutellum slightly striate, apex with a tuft of black setae. Wing disc haired as in *albitarsis*, but the two basal hair-groups connected. Ratio of marginal, postmarginal and stigmal veins, 5, 20, 21. Hind legs with femora and tibiae flat and somewhat dilated. Gaster oval, nearly as long as thorax, pygostyles behind the middle, ovipositor short and delicate, concealed in last segment.

Male: 3.1 mm. Body black with dark red eyes and ocelli, cross band on scutellum white-yellow. Scape light brown, flagellum dark brown, yellow below and at apex of club. Fore legs yellow with coxae and femora brown,

middle legs yellow with coxae dark brown, hind legs with coxae and tibiae black brown, femora dark brown, tarsi yellow, last tarsal joints brownish. Wings less fuscated than in female, and without light cross streak at end of venation.

Head with antennae inserted below the level of lower eye borders, scape rather short, distal half a little thickened, pedicel 1.5 times as long as broad, first funicle joint almost twice as long as broad and 1.4 times as long as pedicel, following joints shorter and broader, sixth joint quadrate, club 3-jointed, ovate, as long as 2 preceding joints together, funicle pubescent, the hairs half as long as breadth of joints. Length ratio of antennal joints, 128, 28, 38, 35, 37, 35, 35, 33, 73, the breadths, 20, 19, 21, 25, 30, 29, 32, 32, 32, length of cilia, 14. Mesonotum reticulate with black pubescence, scutellum behind the band with strong and dense black setae. Wings less coarsely ciliated than in female, and postmarginal vein longer. Ratio of veins m. p. s., 7, 19, 16. Gaster elongate ovate, as long as thorax and head together, pygostyles behind the middle. Phallus unusually broad, parameres long with a hair at apex, digiti rhomboideous with two small spines at apex. Otherwise as in female.

Collecting data of *infidus* comprise about 50 specimens from the last half of July and 6 specimens taken early in June, probably indicating a previous generation.

Encyrtus infidus obscurus (Dalman) 1820: 164, 370.

Thy: Ørgaard-Isbjerg, sandhills, 10. 6. 1960, 1♂ (B. P.).

Langeland: Aasø, 12. 6. 1881, 2 ♂♂ (R. W. S.). - Lolland: Maribo Nørresø, 9. 6. 1877, "Comys obscurus Dalm.", 1 ♂ (R. W. S.).

Two of the males which have black scutellum had a somewhat exerted phallus, and showed great affinity with the nominate form, having a wide distance between the long parameres, and with two small spines at apex of digitus.

23. *Eriocydnus longicornis* Dalman 1820: 165 (*Encyrtus*).

Nees 1834: 227 (*Enc. strigosus*); Mercet 1921: 160; Ruschka 1922: 12; Ferrière 1949: 370, 1953 a: 20, 1955: 350 (host); Nikol'skaya 1952: 356 (host).

Thy: Nors, 8. 7. 55, 1 macropterous and 2 brachypterous ♂♂. - do. 9. 7. 55, 1 brach. ♀, 2 macr. ♂♂. - Ørgaard, 23. 6. 57, 1 ♂. - Isbjerg, 27. 6. 57, 1 ♂. - do. 1. 7. 57, 2 ♂♂. - Tved Plantation, 9. 6. 60, 1 brach. ♀ (B. P.). - Isbjerg, 17. 7. 61, 1 ♀. - do. 27. 7. 62, 3 brach. ♀♀. - do. 30. 7. 62, 2 ♀♀.

Sealand: Ørholm Fælled, 1. 11. 1876, 1 ♀, lab. "Eriocydnus longicornis Dalm., strigosus Nees". - Charlottenlund, 12. 9. 1877, 1 ♀. - do. 18. 9. 1877, 1 ♀. - do. 14. 9. 1878, 1 ♀. - do. 1. 10. 1879, 1 ♀. - Dyrehaven, 9. 8. 1881. 1 ♂. - Geelskov, 21. 8. 1881, 1 ♂, with 2 squares "N. S. ♂". - Dyrehaven, 16. 7. 1882, 2 ♂♂. - do. 28. 7. 1882, 1 ♂, with 2 squares "Kb. ♂". - do. 17. 9. 1882, 1 brach. ♀. - Charlottenlund, 24. 9. 1882, 1 ♀. - do. (locality from the book of excursions), 1. 10. 1882, 3 slides, each with a ♀ (prep. J. P. Kr.). - do. 8. 10. 1882, 1 ♀. - Dyrehaven, 2. 9. 1883, 1 ♀. - do. 9. 9. 1883, 2 ♀♀. - Ruderhegn, 29. 6. 1884, 1 ♂, with 2 squares "NS, ♂". - do. same date, 1 ♀. - do. same date, 1 brach. ♀. - do. 14. 9. 1884, 1 brach. ♂. - Charlottenlund, 28. 9. 1884, 1 ♀. - Ruderhegn, 7. 6. 1885, 1 ♀, with 2 squares "NS, ♀". - Ordrup Mose, 25. 6. 1885, 1 ♀. - Geelskov, 19. 7. 1885, 1 ♂, with 2 squares "NS, ♂". - do. 26. 7. 1885, 1 ♀. - do. do. 1 ♀. - do. do. 1 ♂. - Tisvilde, 30. 6. 1886, 1 brach. ♀. - do. 2. 7. 1886, 1 brach. ♂. - Dyrehaven, 19. 8. 1888, 1 brach. ♀. - Geelskov, 18. 7. (18. 8.) 1890, 1 ♂. - Langeland: Flaaddet, 19. 8. 1885, 1 ♀. - do. 22. 8. 1885, 1 ♂, with 2 squares "La, ♂". - Lolland: Refshalemose, 15. 7. 1878, 1 brach. ♂. All from coll. R. W. Schlick. - no date, 1 ♀ lab. "longicornis Nees", a square and "Mus" (coll. Zool. Mus.).

Sealand: Amager Fælled, 9. 7. 1906, 1 brach. ♀ (a slide: J. P. Kr., following slides: O. B.). - Hillerød, Nyvang,

13. 9. 1925, 1 ♂. - Frerslev Hegn, 10. 9. 1927, 1 ♀. - Fortunens Indelukke, 20. 9. 1927, 1 ♀. - Holte Malmose, 6. 9. 1959, 1 ♀. - Ganløse Ore, Sortemosevej, 16. 6. 1961, 1 ♂. - Møen: Langbjerg, 19. 8. 1935, 1 ♀.

W. Europe, W. Siberia, Ctr. Asia, Caucasia.

Hosts: COC., *Pseudococcus mendosus* Kirk., *Ripersia mesnili* Balach.

From Schlick's collecting data it may be seen that the species has a season from June to October (Nov.), not distinctly divided into two periods.

The ovipositor of the female is bent and directed obliquely upwards, it is covered by the carinate and likewise curved hypopygium.

24. **Eriacydnus ventralis** Dalman 1820: 166 (*Encyrtus*).

Walker 1837: 363 (*paludatus*); Mayr 1875: 765; Ferrière 1949: 371, 1953 a: 20, 1955 b: 351; Nikolskaya 1952: 357; Hellén 1949: 43.

Thy: Nors, July 1953, 1 ♀ (Fog). - Nors, 14. 7. 55, 1 ♀. - Hulvejen, 11. 7. 61, 1 ♂.

N. Sealand: Ruderhegn, V. 1881, 1 ♂, 1 ♀ (R. W. S.). - Langeland: 10. 8. 1885, 1 ♀ (R. W. S.).

W. Europe from Finland to Spain.

Hosts: COC., *Pulvinaria betulae* L., *Phenacoccus hystrix* Baer.

The ovipositor arched almost as in *longicornis* Dalm.

25. **Homalotylus flaminus** Dalman 1820: 340 (*Encyrtus*).

Masi 1907: 288, 1921: 235; Timberlake 1919: 141; Mercet 1921: 519, 712; Ferrière 1949: 378; Nikolskaya 1952: 427; Jansson 1959: 84; Bouček 1961: 16.

Thy: Isbjerg, 26. 7. 56, 1 ♀. - Inside the coast dune, 26. 7. 62, 1 ♂.

1 specimen with a green square, "Mus." and "Homalotylus flaminus Dalm.", coll. Zool. Mus.

Almost cosmopolitan: Europe, W. Siberia, Ctr. Asia, China, Java, N. and S. Africa, Australia, Hawaii.

Hosts: COL., endophag in the larvae of Coccinellidae, *Ecochomus quadripustulatus* Walk., *Chilocorus bipu-*

stulatus L., *Hyperaspis guttulata* Fairm., *Scymnus nigrinus* Kug., *Coccinella repanda* Thunb., *Verania frenata* Erich., *Orcus australasia* Boisd., *chalybeus* Boisd., *nummularis* Boisd., *laferti* Muls., *janthinus* Muls., and from species of *Adalia*, *Dironycha*, *Cheilomenes*, *Coleomegilla*, *Anatis*, *Exochomus*, *Olla*, *Nemia*, *Nephus*, *Galeruca*, *Hippodamia*.

Hoffer (1959: 30) gives *Echthroplexis* Först. as a synonym of *Homalotylus* Mayr. However, he wishes the latter to be declared a nomen conservandum.

26. **Leptomastix histrio** Mayr 1875: 730.

Thomson 1875: 129 (*Stenoterys orbitalis*); Mercet 1921: 121, 1925: 321; Kryger 1950: 107; Ferrière 1955 a: 128, 1957: 1.

Thy: Tved Plantation, 10. 7. 61, 1 ♀.

N. Sealand: Lyngby Mose, 10. 7. 1940, 2 ♂♂ (J. P. Kr.).

W. Europe, England (Bristol, Hallen Wood, 15. 7. 1929, 1 ♀, 18. 7. 1929, 1 ♂, J. P. Kr.), the Canaries, Siberia.

Hosts: COC., endophag on *Phenacoccus aceris* Sign., *Aspidiotus hederæ* Vall. on *Pinus sylvestris* and *Pseudococcus calluneti* Ldgr. on the subterranean parts of *Calluna vulgaris* and *Vaccinium myrtillus*.

A black species, *L. brevipennis* Ferr. (1957) is bred from *Spilococcus nanae* L.

The ovipositor of *histrio* is a little shorter than half of gaster, arched, the tip directed slightly upwards, just visible at apex. The specimen agrees with the description by Ferrière, however, the antennae are darker, nearly black, and the wings slightly fuscous, as described by Mayr, but colour of head and thorax as in the first-mentioned description. The un-haired oblique line is broad, interrupted behind the middle, not bordered with larger cilia, however, the cilia all larger within the line.

27. **Litomastix suspectus** n. sp.

Tab. 10: 16—18. Tab. 11: 1—2.

Thy: Nors, 30. 7. 56, 1 ♂. - N. of Isbjerg, 29. 7. 62, 1 ♂, on *Vaccinium uliginosum*, slide with holotype.

Host unknown, some species of the genus develop

polyembryonically in the egg-larval stages of Lepidoptera.

The 2 male specimens which are very damaged and hidden by precipitated calomel diverge from *claviger* Merc. by the funicle joints being narrower, and triangular rather than rectangular, club shorter (in *claviger* longer) than 2 preceding joints. A short description is given below.

Male: 1.4 mm. Body dark blue, metallic, scutellum and axillae with bronzish lustre, scape and pedicel dark brown, metallic, palpi and mandibles brown, legs dark brown with fore tibiae light brown, and knees, apex of tibiae and base of tarsi light yellowish, 2-3 apical joints of tarsi dark, tegulae blackish brown, wings hyaline.

Head and thorax chagrinata, pubescence dark, head with vertex somewhat topped, vertex broader than long and broader than an eye, margined behind, ocelli large, in a flat arch, eyes small, cheeks longer than eyes, mandibles long, 3-dentate with an internal-dorsal seta near the apex, middle tooth longest. Labrum free. Maxillary palpi 4, labial 3-jointed. Toruli oblong, about as close to each other as to the mouth, but double the distance to the eyes. Antennae shorter than body, 13, 16, scape and pedicel reticulate, scape slender, not reaching the anterior ocellus, pedicel triangular, a little longer than broad, funicle serrated, the joints connected below, apically dilated above, especially funicles 2-5 which are nearly triangular, and obliquely truncated at apex, joints 1 and 6 of almost normal shape, club slenderer than funicle, about 1.5 times as long as preceding joint, funicle with short forward directed cilia, the cilia arched above, straight beneath. Length ratio of antennal joints, 85, 21, 43, 35, 32, 32, 34, 34, 57, the breadths, 15, 15, 15, 18, 19, 19, 16, 14, 13, length of cilia, 10-14. Axillae nearly smooth, hardly reaching the meson, scutellum triangular, laterally rounded, somewhat flattened, two placoid sen-

sillae widely separated, spur of middle tibiae as long as metatarsus. Wing pubescence short, tight, feeble and hardly visible posteriorly, the un-haired oblique line marked anteriorly, disappearing in an open space posteriorly, marginal vein punctiform, stigmal vein rather short, postmarginal very short, triangular; pubescence hardly visible in hind wings, fringe present in both wings, a little longer at posterior border of hind wings. Ratio of postmarginal and stigmal veins, 12, 25, venation diffuse, apex of stigmal vein with 4 placoid sensillae in a quadrate and one at the junction of the subcosta. Gaster pointed, triangular, longer and narrower than thorax, pygostyles approx. at middle, parameres adpressed laterally, digiti partly hidden but seem to have 2-3 short spines, aedeagus with 4 distinct sensillae a large distance from apex.

Female unknown.

28. **Litomastix truncatellus** Dalman (nec Mercet) 1820:168.

Mercet 1921: 447 (*aestivalis*); Kemner 1925: 57 (*aest.*); Ferrière 1949: 376 (*aest.*); Graham 1958: 170; Suncio 1961: 98 (*aest.*).

Tab. 11: 12-13.

Thy: Nors, ultimo July, 1953, 4 ♀♀, 2 ♂♂ (Fog). - Nors, 14. 7. 55, 3 ♀♀, 1 ♂. - Ørgaard, 23. 7. 56, 1 ♀, 1 ♂. - Isbjerg, 24. 7. 56, 1 ♀. - Tved Plantation, 25. 7. 56, 1 ♂, 8 ♀♀. - Ørgaard, 25. 7. 56, 1 ♀, 1 ♂. - Isbjerg, 26. 7. 56, 1 ♀, 2 ♂♂. - Bagsø, 26. 7. 56, 1 ♂, 2 ♀♀. - Ørgaard, 30. 7. 56, 1 ♀. - Hybjerg, 30. 7. 56, 1 ♂. - Tved Plantation, 31. 7. 56, 1 ♂, 4 ♀♀. - Isbjerg, 29. 6. 57, 1 ♀, 30. 6. 57, 1 ♀. - Hulvejen, 11. 7. 61, 1 ♀. - Isbjerg, 15. 7. 61, 1 ♂. - Tved Plantation, 19. 7. 61, 1 ♀. - Hulvejen, 25. 7. 62, 2 ♂♂, 1 ♀, 27. 7. 62, 1 ♀. - Bagsø, 28. 7. 62, 1 ♂.

N. Sealand: Dyrehaven, 20. 8. 1928, 1 ♀ (O. B).

W. Europe, Sweden, Austria, Roumania, Switzerland, England, Spain, Ctr. Asia.

Hosts: LEP., *Hadena monoglypha*, *H. sublustris*, *H. polyodon*, *Hepialis humuli*.

The species develops polyembryonically in the egg-larval stages of Lepidoptera, up to 3500 specimens bred from a single *Hadena*-larva (Kemner l. c).

The phallus of ♂ with 8+9 bristles at the sides, the parameres band-like, inwardly curved, meeting at the middle and the tip folded back, digiti with 2 spines at right and 3 at left apex, another specimen (with thicker antennae) had 3+4 spines; aedeagus with finely pointed apex.

The female club slightly longer than 4 preceding joints combined, 25, 23, as in the lecto-type designated by Graham l. c.

29. **Litomastix tvediensis** n. sp.

Tab. 11: 3—6, 14—15.

Thy: Tved Plantation, 31. 7. 56, 1 ♂. (Holotype).

The specimen is in bad condition owing to precipitation of calomel, but as the phallus is rather characteristic, and in order to complete the local fauna list I am giving a short description and some drawings of details, the sketch of antenna made before the damage. A drawing of phallus of the related *chalconotus* Th. (Tab. 11: 16) is given for comparison, the material of the latter, 2 ♀♀ and 1 ♂, N. Sealand, Sandkroen, 26. 9. 1931 and 1 ♀, same date, 1930 (J. P. Kr.). In *chalconotus* the parameres are shorter, the digiti much broader, connected with a central rod, and the aedeagus also much broader than in the present specimen.

Male: 1.4 mm. Head and mesoscutum blue-green, metallic, densely punctated, scutellum dark brown with hardly any shine, superficially sculptured, axillae and pleures violet-blue, antennae dark brown, eyes and ocelli red-brown, tegulae dark brown, gaster brown, legs dark brown, coxae with bluish lustre, knees, apex of middle tibia and middle tarsi yellowish, last joint of tarsi darker.

Head with occiput hollow, vertex much broader than an eye, acutely margined behind, cheeks about as long

as eyes, ocelli in a flat triangle, hind ones their own breadth from the eye margin, toruli oblong, near the mouth, antennae shorter than body, 60, 94, scape slender, slightly broadened at the middle, pedicel twice as long as broad, longer than first funicle joint, 3rd and 4th funicle joints a little broadened apically, subserrate, club longer than 2 preceding joints. Length ratio of antennal joints, 88, 27, 19, 19, 17, 19, 19, 17, 45, their breadths, 11, 12, 9, 11, 13, 12, 11, 10, 11. Mandibles 3-dentate with an inner subapical bristle at third tooth. Maxillary palpi 4-, labial 3-jointed. Marginal vein punctiform or absent, postmarginal half as long as stigmal which is moderately long, ratio of m. p. s., 0, 14, 25. Gaster ovate, as long as thorax, 43, 43, pygostyles at apical third. Phallus partly external, with broad cornet-shaped parameres, apically rounded and flat, furnished with 7 + 7 bristles, digiti rod-like, with 2-3 very small spines at apex, aedeagus flat and pointed at apex, sensillae hidden by a layer of calomel.

Female unknown.

30. *Mayridia* sp.

Tab. 9: 7-10.

Thy: Nors, 8. 7. 55, 1 ♂.

The specimen is very similar to the male of *Mayridia americana* Timberl. (1926: 28) bred from *Trionymus utahensis* Cockerell on *Elymus* from USA, Utah and Dakota, however, the funicle joints are a little shorter. From Europe 4 species are known (Mercet 1921: 426), one of these *M. bifasciatella* Merc. is bred from *Trionymus perisii* Sign. on Gramineae from sandy localities (Ferrière 1955: 358), but this species and *M. pulchra* Merc. have shorter joints in the funicle. In the species *formulosa* and *procera* Merc. the males are not known, and the specimen possibly belongs to one of these.

Male: 1.2 mm. Body blue-green, metallic, tinged with copper, antennae yellow, gradually brownish to-

wards apex, scape and pedicel dorsally fuscous, tegulae and legs fuscous with the knees and tarsi yellowish. Wings hyaline.

Head and mesoscutum reticulate-punctate, scutellum reticulate-striate, frons broader than an eye, vertex rounded behind, occiput hollow, cheeks shorter than eye length. Mandibles 3-dentate. Maxillary palpi 4-, labial 3-jointed. Toruli roundish, situated above the middle of face, well above the lower border of eyes, scape short, pedicel 1.5 times as long as broad, first funicle joint 4.5 times as long as broad, following joints shorter by degrees and broader, sixth joint 1.5 times as long as broad and one third as long as first funicle joint, club a little broader than preceding joint and not even twice as long; funicle with somewhat raised unequal cilia, the apex of inner joints with single long cilia. Length ratio of flagellar joints (scape and pedicel lost), 45, 30, 25, 25, 23, 22, 40, the breadths, 10, 12, 12, 15, 15, 15, 18. Marginal vein rather long and broad, postmarginal and stigmal veins shorter, nearly equal, the length ratio, 32, 13, 16. Gaster oval, shorter than thorax, pygostyles approx. at middle, digiti with each one spine.

Mercetia n. gen.

Type. - *Copidosoma lusitanica* Mercet 1921: 711, ♂ (Autobasic).

Examination of the mandibles showed that they are not 3-dentate as in *Copidosoma*, but with one tooth and a broad truncation, a character found in several genera of which *Metaprionomitus* Mercet and *Psyllaephagus* Ashmead may be closely related; however, in these genera the female has a 3-jointed club, in *Mercetia* it is unjointed. The male is different from other Encyrtid genera known to me by the large first funicle joint, and the following 5 joints being small and equal. In addition, the phallus is very characteristic in relation to the few species which have been examined. A male and female

were taken together in two cases; the female hitherto unknown. (NB, see the note below).

31. **Mercetia lusitanica** Mercet 1921: 711, ♂ (*Copidosoma*).
New status.

Tab. 10: 1—8.

Thy: Nors, ultimo July, 1953, 1 ♂, 1 ♀ (Fog). - Ørsgaard, 23. 7. 56, 1 ♂ (missing). - Isbjerg, 25. 7. 56, 1 ♀. - Tved Plantation, 19. 7. 61, 1 ♀.

N. Sealand: Holte, Geelskov, 19. 7. 1885, 1 ♂ (R. W. S.). do. 26. 7. 1885, 1 ♂ (R. W. S.). - Lillerød, 1. 9. 1929, 1 ♂ (O. B.). - Holmene, near Elsinore, 8. 8. 1936, 1 ♂ (J. P. Kr.). - Falster: Horreby Lyng, 11. 8. 1962, 1 ♂, 4 ♀♀ (O. B.).

Portugal.

Host unknown.

Male: first joint of the funicle very large, following 5 joints smaller and rather slender, club unjointed. The ratio of antennal joints, 45, 11, 25, 14, 16, 15, 18, 16, 35, breadths, 12, 12, 12, 10, 11, 11, 11, 11, 12. The part of face above the mouth with white, long and dense pubescence. The digiti rodlike, blackish and 2-dentate, parameres narrow, straight and evenly tapering to the apex, aedeagus slender, furnished with some sensillae at the sides of the pointed apex.

Female (new): body metallic, face blue, vertex dark blue, eyes and ocelli dark brownish, palpi light yellow, mesoscutum, axillae and mesopleures blue green with bronzy lustre, scutellum blue-green, dull shine, tegulae brown with light yellowish basal half, wings hyaline, scape and pedicel blackish with light apex, funicle and club yellowish, a little dirty, legs variegate, coxae and femora black-brown, knees, tibiae and tarsi yellowish with basal half of hind tibiae and a basal ring of middle tibiae blackish, last tarsal joints brownish. Gaster dark green, bronzy.

The body with white pubescence, especially dense on the lower face towards mouth, though not as dense

as in male. Vertex and frons reticulate-punctate, mesoscutum reticulate-chagrinate, axillae reticulate, rather smooth, scutellum chagrinate, longitudinally seriate. The head as broad as thorax, vertex broader than an eye, rounded behind, ocellar triangle slightly flattened, hind ocelli situated their own breadth from the orbits and from the margin of vertex, cheeks shorter than eye length (12, 16). Mandibles with one distinct tooth and a second tooth continuing into a broad truncation. Antennae inserted below the level of lower eye border, well separated at base, a vault between the bases, scape slender, broadest at the middle, densely haired, pedicel twice as long as broad and twice as long as first funicle joint, which in turn is one third longer than broad, following joints increasing in size, sixth funicle joint longer than broad and 1.5 times as broad and long as first funicle joint, club unjointed, as long as 3 preceding joints together, rounded at apex. Length ratio of antennal joints, 93, 29, 13, 15, 16, 16, 16, 18, 50, breadths, 15, 14, 10, 11, 13, 13, 13, 15, 19. Pronotum forming an arch of equal breadth, no parapsidal furrows, axillae meeting at the middle, scutellum triangular, although somewhat rounded at apex, well elevated above propodeum and pleurites. Marginal vein punctiform, stigmal of moderate length, postmarginal short. Gaster broader than thorax, ovate pointed towards apex, pygostyles at the middle (in male behind the middle), ovipositor about two thirds as long as gaster, just visible at apex.

Variation, the specimens from the eastern isles and the female from Tved Plantation, 19. 7. 61, being less sclerotized, with gaster and antennae shorter, scutellum substriate and the funicle joints of female almost quadrate; though closely related, they are probably not conspecific.

Note. After the finishing of this description I have noticed that Hoffer (1963: 568) describes 2 species of

Ooencyrtus Ashm., subgen. *Ooencyrtoides* Hffr. which may be congeneric. One of these, *O. albopilosus* Hffr. with the white pubescence of the lower part of the face may be a synonym of *M. lusitanica* Merc., nov. syn.

32. ***Metaphycus hanstediensis*** n. sp.

Tab. 7: 2—7.

Thy: Ørgaard, Hulvejen, 25. 7. 1962, 1 ♀. (Holotype).

Female: 1.1 mm. Body light brown with ocelli, mesonotum, a cross spot at side of metanotum, a similar spot on propodeum, bands on the foremost segments of gaster, and the apex half of gaster brown; foremost border of mesoscutum, a small spot at the sides of pronotum, a similar spot near the base of hind wings and the pygo-style plates black, eyes light bluish grey. Antennae mostly pale yellow, a stripe on the outside of scape, the base of pedicel and funicle joints 1-3 blackish, 4-6 light yellow, club black with the apex pale yellow. Tegulae light at base, brownish at apex. Fore wings light brownish, legs light yellow.

Head a little broader than thorax, vertex narrower than an eye, about twice as long as broad in dorsal view, acutely margined behind, occiput concave and a little angulated in the middle, ocelli in a moderately pointed triangle, face broader than long, eyes large, diverging below, cheeks shorter than eye length. Mandibles 3-dentate, both palpi 3-jointed. Antennae inserted between the eyes and the mouth, more distant from each other than from the eyes, scape hardly dilated, hollow at apex, not reaching the anterior ocellus, pedicel nearly as long as 3 first funicle joints, which are small, rounded; second and following joints slightly transverse, 4th and especially 5th and 6th larger, club large, longer than 4 preceding joints, apex transversely truncate. Length ratio of antennal joints, 75, 20, 7, 6, 6, 7, 11, 11, 40, the breadths, 13, 9, 7, 8, 9, 10, 12, 13, 19. Body matt, hardly any shine, mesonotum feebly reticulate-chagrinata with sparse, clear

pubescense, axillae meeting distinctly at meson, scutellum triangular, its sides a little angularly bent outwards, two placoid sensillae present. Wings hardly reaching the middle of gaster, fore wings triangular, obliquely truncate, shorter behind, marginal vein longer than broad, as long as stigmal vein, postmarginal absent, wing disc passing the venation at a longer distance than stigmal vein, the anterior apex somewhat rounded, truncation oblique, in straight posterior-proximal direction to the posterior border, subcosta with about 8 strong bristles, the unhairied oblique line limited proximally by 5 strong setae and distally by 8 short and strong setae, discal cilia outside the line short and dense, inside longer and more spread out. Hind wings slender, with a marginal vein bearing 3 hooks at apex, from which the disc is obliquely truncated in posterior-distal direction, the disc finely haired and bordered with some long cilia along the proximal half of the posterior wing border. Gaster broader and longer than thorax, ovipositor slightly exerted, its base at the middle of gaster, pygostyles a little behind the middle and somewhat nearer towards meson.

Male unknown.

Although the scape is hardly dilated, the species is included in the genus *Metaphycus* Mercet because of its short parapsidal cross furrows, the 3-jointed maxillary and labial palpi, the transversely truncate club and the differently coloured antennae.

33. ***Metaphycus zebratus*** Mercet 1917: 138 (*Aphycus*).

Mercet 1921: 222 (*Aph.*); Erdős 1957 a: 29.

Thy: Isbjerg, 1. 8. 56, 1 ♀, - do. 1. 7. 57, 1 ♀.

Hungary, Spain.

Host unknown. A related species *Met. parvus eriopelti* Merc. is bred from COC., *Eriopeltis festucae* and *lichtensteini* (Ferr. 1955: 360).

Microterys Thoms. (syn. *Encyrtus* Merc.).

The following key comprises seven female brachypterous species of *Microterys* Thomson and one of *Metaphycus* Mercet, namely: *Microterys apicipennis* n. sp., *brachypterus* Mercet 1920: 411 (*Encyrtus*), *calonotus* Mercet 1921: 706 (*Enc.*), *hemipterus* Nicolskaya 1952: 404 (*Enc.*), *micropterus* Mercet 1920: 707 (*Enc.*), *minutus* n. sp., *truncatipennis* Ferrière 1955: 127 and *Metaphycus hanstediensis* n. sp.

Key to brachypterous ♀♀ of *Microterys* Thoms. etc.

- 1(14) Parapsidal furrows absent, maxillary palpi 4-jointed, scape moderately dilated, funicle clavate, pygostyles near the middle of gaster (*Microterys*), club about as long as three preceding joints, fore wings not obliquely truncate, and not short posteriorly.
- 2(9) Body metallic.
- 3(4) Pedicel roughly equal to first funicle joint, vertex 3 times as long as broad, ocelli in a pointed triangle, funicle joints 4-6 white, scape and legs yellow, mesoscutum with white pubescence, scutellum punctate-chagrinate with greyish pubescence, wings hyaline, hardly reaching the base of gaster, hind wings? *calonotus* Mercet
- 4(3) Pedicel about twice as long as first funicle joint, vertex broader than an eye, at most 1.5 times as long as broad (*truncatipennis*), funicle joints 5-6 white, scape and legs brown, knees and tarsi yellow, two placoid sensillae on scutellum present.
- 5(6) Fore wings oblong, reaching the middle of gaster, apex rounded with a little point at the middle and with two slightly fumated cross bands, hind wings with normal vein and three hooks from which the disc is obliquely truncated posterior-distal, ending with some rather long cilia, mesonotum with dark pubescence, scutellum with metallic lustre, tegulae dark, last joint of maxillary palpi brown.....
..... *apicipennis* n. sp.
- 6(5) Fore wings shorter, hyaline or very slightly fumated, hind wings ovate, with a broad marginal vein completing the disc, mesonotum with light pubescence, scutellum matt metallic, tegulae light at base, maxillary palpi yellow.

- 7(8) Fore wings broad and truncate at apex, reaching the middle of first segment of gaster, hind wing hamulus consisting of a curved thorn, pubescence whitish. *truncatipennis* Ferr.
- 8(7) Fore wing ovate, reaching the base of gaster, hind wings with the marginal vein rounding the apex, with short cilia only, pubescence light *minutus* n. sp.
- 9(2) Body yellow or light brown, wings slightly fumated, hind wings with 3 hooks at apex of vein.
- 10(11) Funicle joints 1-3 brown, 4-5 white, 6th black, mesonotum with sparse, clear pubescence, ocelli in an equilateral triangle, fore wings rounded at apex, nearly reaching the apex of gaster, scutellum with feeble sculpture and the margin sharp, length of vertex and first funicle joint?
. *hemipterus* Nikolskaya
- 11(10) Funicle joints 4-6 white, all black, or white, brown, black, respectively, mesonotum with black pubescence, ocelli in a pointed triangle, fore wings truncate, stigmal and postmarginal veins absent.
- 12(13) Funicle joints equal in length, first joint 1.5 times as long as broad, 6th slightly transverse, vertex 2.5 times as long as broad, funicle joints 4-6 black (Germany), white, or white, brown, black, respectively (Spain), wings reaching to approx. the hind border of first segment of gaster, fore wings slightly fumated in the apical half, hind wings with a marginal vein and disc ending with 3 hooks, mesonotum almost smooth with strong black bristles, no placoid sensillae on scutellum, eyes strongly diverging below, pedicel a little longer than first funicle joint, last joint of maxillary palpi brown.
. *micropterus* Mercet
- 13(12) First joint of funicle longer than the following, which are of equal length, vertex twice as long as broad, ocelli in a slightly pointed triangle, funicle joints 4-6 white, fore wings slightly fumated, reaching the middle of gaster, hind wings with a short apically rounded disc outside the hooks, scutellum almost flat, finely reticulate-scaly. *brachypterus* Mercet
- 14(1) Mesoscutum with short parapsidal cross-furrows, both palpi 3-jointed (*Metaphycus*). Scape hardly dilated, pedicel as long as 3 first funicle joints, club rather large, as long as 4 preceding joints, mesonotum with sparse, clear pubescence, forewings triangular, obliquely truncate, shorter behind, hardly reaching the middle of gaster, body light brown, funicle joints 1-3 blackish, 4-6 light yellow
. *Metaphycus hanstediensis* n. sp.

Microterys apicipennis n. sp.

Tab. 5: 1—7. Tab. 6: 1.

N. Sealand: Lyngby Mose, 9. 6. 1962, 1 ♀ (O. B.).
(Holotype).

The species included to complete the key of some *Microterys* species.

Female: length 0.9 mm. Body black-brown with bluish-bronze lustre, scutellum metallic, mesonotum around scutellum and axillae light brown, eyes and ocelli black, mandibles light brown, palpi clear yellowish with end joint of maxillary palpi brown. Scape and pedicel dark brown, apex of pedicel and four first funicle joints brown, 5th and 6th white, club dark brown, apex pale. Fore wings a little shaded with a broad cross band within end of venation and a small one at apex. Tegulae dark. Legs dark brown with knees, apex half of fore and middle tibiae, apex of hind tibiae and the tarsi (except last joint), light brownish.

Head transverse, in facial view broader than high, roundish, vertex broader than an eye, margined behind, occiput concave, a few moderate punctures along the orbits, inner orbits diverging anteriorly, cheeks roundish, as long as the eye length, mandibles 3-dentate, third tooth not sharp. Maxillary palpi 4-jointed, end joint shorter than usual, labial palpi 3-jointed, two basal joints thick, together forming an inverted-ovate entity. Antennae inserted between the mouth border and the level of lower margins of eyes, scape and pedicel reticulate, hairy, scape short, not reaching the anterior ocellus, somewhat dilated at the apical half, pedicel twice as long as broad, nearly as long as two first funicle joints, first funicle joint 1.4 times as long as broad, the joints somewhat larger distally, sixth joint quadrate, club somewhat broader than funicle, as long as 3 last funicle joints together. Length ratio of antennal joints, 83, 20, 14, 14, 16, 17, 18, 18, 58,

breadths, 20, 13, 10, 10, 11, 14, 17, 18, 24. Pronotum short, narrow, mesonotum with dark brown pubescence, coarser on scutellum, axillae and hind border of scutum; meso-scutum and axillae reticulate, shining, scutellum chagrin-ate, longitudinally seriate, broad, triangular, as long as scutum, two placoid sensillae present. Wings brachypte-rous, reaching the middle of gaster, fore wings with rounded apex, however, with a point at the middle; marginal, postmarginal and stigmal veins distinct but short. Un-haired oblique line present. Hind wings with normal vein ending in 3 hooks, the disc passing the hooks, obliquely declined outwards, ending posteriorly with some long ci-lia, hind border with fringe of about 14 moderately long ci-lia, the row not reaching the apex tuft, disc evenly haired, un-haired at base. Gaster roundish, somewhat larger than thorax, pygostyles at the middle, ovipositor robust, slightly exerted from near the base of gaster.

Male unknown.

Microterys micropterus Merc.

Tab. 6: 9—10. Tab. 7: 1.

The species included like the foregoing to complete the key. It is redescribed by Ferrière 1955a: 125, and bred in Germany, the host being *Eriococcus devoniensis* on *Calluna vulgaris*. Danish material from N. Sealand: Lillerød, Sønderskov Lyngmose, 7. 7. 1935, 1 ♀ (J. P. Kr.). Gribskov Maglemose, 30. 6. 1946, 1 ♀ (O. B.). - Falster: Horreby Lyng, 11. 8. 1962, 1 ♀ (O. B.). The specimens have a black-brown flagellum and the wings reach the middle of gaster as in the form described by Ferrière. The last joint of the maxillary palpi proved to be dark.

34. Microterys minutus n. sp.

Tab. 5: 4. Tab. 6: 3, 7—8.

Thy: N. of Isbjerg, 30. 7. 62, 1 ♀, on *Vaccinium uli-ginosum*. (Holotype).

N. Sealand: Grib Skov, Maglemose, 2. 7. 1961, 1 ♀, mutilate (O. B.).

Female: 1.3 mm. Body metallic, head blue, eyes and ocelli dark red, palpi light yellow, scape and pedicel dark brown, light at apex, funicle joints 1-4 and base of 5th dark brown, 5-6 light yellow, club dark brown, apex pale. Mesoscutum and scutellum blue-green, tegulae brown, narrow, yellow at base. Wings hyaline. Legs dark brown with trochanters, knees and tarsi yellow, as also middle tibiae except for a basal brown annulus, hind tibiae slightly pale at the middle, end joint of tarsi darker. Gaster blue-green, slightly brownish. Ovipositor yellow.

Body finely punctuated, scutellum chagrinately-punctate, matt, head with vertex broader than an eye and slightly broader than long, ocelli small, in a barely flattened triangle, hind ones situated their own breadth from eyes. Mandibles with one tooth and a broad truncation. Maxillary palpi 4-, labial 3-jointed. Cheeks shorter than eye length. Toruli oval, below the lower level of eyes. Scape somewhat dilated distally to the middle, pedicel subconical, as long as two first funicle joints, which are longer than broad, following funicle joints gradually broader, sixth subquadrate, club 3-jointed, broader than funicle, about as long as 3 preceding joints together. Length ratio of antennal joints, 68, 21, 10, 11, 12, 13, 14, 14, 40, breadths, 18, 12, 8, 8, 10, 11, 13, 15, 21. Pronotum forming a narrow arch, mesonotum with greyish hairs, scutellum flat, triangular, narrowly rounded at apex, axillae meeting at meson. Fore wings brachypterous, oval, reaching the base of gaster, narrowly rounded apically, with a stout subcostal vein bearing about 8 strong bristles, costal cell broad with some small cilia, and also the slightly vaulted wing disc haired. Hind wings small, ovate, with a broad marginal vein, arched at apex where some fine setae are seen, the wing disc

also with fine setae. Gaster as broad and nearly as long as thorax, pygostyles behind the middle, ovipositor reaching from the middle of gaster, slightly exerted.

Male unknown.

35. *Microterys provisorius* n. sp.

Tab. 9: 1—6.

Thy: N. of Isbjerg, caught on *Vaccinium uliginosum*, 29. 7. 62, 1 ♂. (Holotype).

Male: length of body, 1.6 mm, metallic, head bluish green, brilliant, mesoscutum black with bronzy lustre, axillae, scutellum and propodeum blue and shining, gaster black-brown with bluish lustre, eyes and ocelli blackish brown, palpi dark brown, end joint of maxillary palpi blackish, mandibles brown. Scape and pedicel dark brown, the former light at apex, flagellum light yellow-brown, apex half of club a little darker. Wings hyaline, tegulae black. Legs dark brown, knees, middle tarsi and their spurs yellow; however, the tip of the spurs black-brown.

Head roundish when seen in frontal view, cheeks shorter than eye length, vertex and frons finely punctuated with some widely spread indistinct, larger punctures, vertex margined behind, about twice as broad as an eye, occiput concave. Mandibles 3-dentate, lower tooth pointed, second less pointed, third somewhat truncate. Maxillary palpi 4-, labial 3-jointed. Toruli short, oval, level with lower eye borders, antennae about as long as body, scape and pedicel reticulate, short haired, scape short, hardly dilated, pedicel quadrate, first funicle joint arched, tapering in breadth, 15-13, about 4 times as long as broad, following joints shortening towards apex and a little narrower at the middle of funicle, sixth joint a little more than twice as long as broad, funicle rather densely haired, the cilia as long as breadth of joints, moderately projected and partly arched, club slightly narrower and 1.7 times as long as preceding joint. Length

ratio of antennal joints, 75, 15, 55, 41, 41, 41, 39, 35, 58, breadths, 20, 17, 15, 12, 11, 15, 15, 16, 15. Pronotum forming a narrow arch, mesoscutum, axillae and scutellum reticulate-punctate, forming lengthened cells in scutellum, axillae meeting and truncated at meson, scutellum rather flat, roundish-triangular, hind border of propodeum concave. Fore wings broad, ratio 2, fringe short, the disc densely and evenly haired, the unhaired oblique line narrowed anteriorly, bordered distally with 4-5 short thick cilia, proximally with 7 long and more slender cilia, costal cell and base of wing haired, but with unhaired stripe along hind margin and indications of one or two unhaired spaces, subcosta straight, marginal vein about 3 times as long as broad, the three branches nearly equal, length ratio of m. p. s., 25, 27, 24. Hind wings broad, ratio 3. Hind tibiae slender and slightly flattened. Gaster a little broader and longer than thorax, length ratio, 42, 44, pygostyles at the middle, spiracles placed nearer to the pygostyles than to the apex of gaster, phallus occupying nearly half the length of gaster, parameres short, inwardly directed and with an apical cilium, digiti elongate, apically arched into a tooth and a smaller subapical one (a cilium within the latter), aedeagus with four oval sensillae at the border of the rounded apex.

Female unknown.

The species is provisorily arranged in the genus *Microterys* Th., however differing by the mandibles not being clearly 3-pointed. The arched first joint of funicle is mentioned by Mayr (p. 714) in some species of which *lunatus* Dalm. may be related, but has the tegulae and legs mostly yellow. It is probable that the characters of the antennae and phallus together with black apex of middle tibial spurs may distinguish the present male — which may possibly belong to any already described female species.

36. **Microterys sceptriger** Förster 1841: 44 (*Encyrtus*).

Förster 1856: 34, 38, 39 (*Sceptrophagus anomalus*); Mayr 1875: 704, 718 (*Enc.*); Mercet 1922 a: 296 (*Scep.*); Ferrière 1955 b: 361.

Thy: Nors, 11. 7. 55, 1 ♂, do., on light at the school, 15. 7. 55, 1 ♂. - Meadow W. of Nors Sø, 1 ♂.

N. Sealand: Dyrehaven, 18. 6. 1884, 1 ♂ (R. W. S.). - Allerød, Kattehole Mose, 9. 7. 1958, 1 ♂ (O. B.).

Germany.

Host: COC., *Lecanopsis formicarum* Newstead, on the roots of Gramineae.

The species, the male of which was described by Förster, was redescribed as a female by Mayr, but this has proved to be a male. As thought by Ferrière 1955, it is probably the male of *Microterys tessellatus* Dalm., this is supported to some degree by the present finds of males and females without association of related forms, but further breeding may be necessary for solving this very intricate question. The details were treated by Ferrière 1955.

37. **Microterys tessellatus** Dalman 1820: 342, ♀, (*Encyrtus*).

Nees 1834: 209 (*Enc.*); Walker 1837: 54 (*Enc.*); Mayr 1875: 708, 720 (*Enc.*); Thomson 1875: 160; Mercet 1921: 420 (*Enc.*); Carpenter 1938: 542; Hellén 1949: 47 (*Enc.*); Nikolskaya 1952: 408 (*Enc.*); Ferrière 1949: 372, 1955 b: 361, etc.

Thy: Nors, 14. 7. 55, 1 ♀, 16. 7. 55, 1 ♀. - Tved Plantation, 26. 6. 57, 1 ♀. - Isbjerg, 1. 7. 57, 1 ♀. - N. of Isbjerg, on *Vaccinium uliginosum*, 30. 7. 62, 1 ♀.

N. Sealand: Birkerød, Ravnsnæs, 11. 4. 1884, 1 ♀. - Dyrehaven, 6. 9. 1885, 1 ♀. - Charlottenlund, 3. 10. 1886, 1 ♀. - Holte, Geelskov, 11. 9. 1892, 1 ♀. - Ruderhegn, 8. 4. 1894, 1 ♀, all from coll. R. W. Schlick. - no date, 1 ♀, lab. "E. tessellatus in betula". - 1 ♀, green label (both coll. Zool. Mus.). - Boserup skov, 9. 5. 1948, 1 ♀ (O. B.).

W. Europe, Greenland.

Host: COC., *Lecanopsis formicarum* Newstead on the roots of Gramineae.

Male, see *M. sceptriger* Först.

38. **Microterys truncatipennis** Ferrière 1955: 127.

Tab. 5: 5. Tab. 6: 2—6.

Thy: Tved Plantation, 31. 7. 56, 1 ♀. - at Nors Sø, 25. 6. 57, 1 ♀. - Coast dune, 30. 6. 57, 1 ♀, all brachypterous.

Bornholm: Paradisdalen, 19. 8. 1921, 1 ♀ (O. B.). - N. Sealand: Tisvilde, Sandkroen, 26. 8. 1930, 1 ♀ (J. P. Kr.). - do. 31. 8. 1930, 1 ♀ (J. P. Kr.). - no date, 1 ♂ (J. P. Kr.). Germany.

Host: COC., *Eulecanium franconicum* on *Calluna vulgaris*.

The specimens agree with the description, except that the vertex seen from above may be somewhat broader than long.

39. **Moraviella inexpectata** Hoffer 1954: 172.

Erdös et Novicky 1955: 184 (*Euzkadiella*); Erdös 1957: 74 (*Euzk.*); Hoffer 1959: 31.

Tab. 2: 7—11.

Thy: Nors, 14. 7. 55, 1 ♀.

Czechoslovakia, Roumania.

Host unknown.

Important characters are the striate scutellum, the small first funicle joint, the three elongated parts of venation and the concealed dorsally directed ovipositor; a redescription is given below:—

Female: length of body, 1.6 mm. Head black-brown, bronzy, eyes dark brown, thorax dark blue, metallic, gaster green dorsally, brilliantly metallic with bronzy lustre, last tergite reddish, apex greenish, gaster dark blue ventrally, metallic, scape brown, flagellum dark brown, mandibles and palpi brown, legs yellow with femora and coxae dark brown, the latter with bluish lustre, proximal half of fore tibiae brownish.

Head transverse, punctuated, vertex broader than an eye, margined behind, ocelli in a flattened triangle, occiput hollow, head roundish in frontal view, broader than high, cheeks shorter than eye length. Antennae inserted

a little nearer to the mouth than to the eyes, scape slender, broadest proximally, apically with a thin membrane, pedicel triangular, twice as long as broad, equal to two first funicle joints together, the proximal one rather small, quadrate, the second joint 1.5 times as long as the first joint and 1.25 times as long as its own breadth, following joints gradually larger, club a little broader than funicle, 3-jointed, and nearly as long as 3 preceding joints. Length ratio of antennal joints, 108, 26, 10, 15, 20, 21, 22, 21, 21, 15, 27, their breadth, 17, 15, 12, 12, 13, 14, 17, 17, 21, 21, 20. Mandibles 2-dentate. Maxillary palpi 4-jointed, third joint pointed and last joint smaller than usual, labial palpi 3-jointed. Pronotum short, narrow, mesoscutum punctate, axillae meeting at meson, scutellum longitudinally striate, triangular-rounded. Fore wings with the 3 parts of venation long, ratio of m. p. s., 36, 42, 39, breadth of marginal vein, 6, marginal and post-marginal veins not reaching the wing border, separated by a distance equal to one third the breadth of veins, ciliation of wing disc rather dense, unhaired line broad and not bordered with stouter cilia. Hind wings with 4 frenal hooks instead of the normal three, fringe twice as long as in fore wings. Spurs of middle tibiae about half as long as metatarsus. Gaster shorter than thorax, 44, 47, and somewhat broader, 43, 37, pygostyles behind the middle, last tergite large, triangular, hypogynium long, adpressed and somewhat scale-shaped, covering the short, upwards-directed ovipositor.

40. **Ooencyrtus obscurus** Mercet 1921: 319 (*Schedius*).

Nikolskaya 1952: 386.

Tab. 8: 1-3.

Thy: Isbjerg, 26. 7. 56, 1 ♀. - Ørgaard, 24. 6. 57, 1 ♀. - Tved Plantation, 10. 6. 60, 1 ♀ (B. P.) - 2 winged, 1 brach. Spain.

Host: LEP., eggs of Lasiocampidae.

Female: 1.0 mm. Body black brown with bronzish

lustre, scutellum matt; base of gaster lighter, scape and pedicel brown, apex of pedicel and rest of antennae yellow. Legs yellow with coxae and femora, except apex, black-brown.

Body rather short and thick, head in frontal view slightly broader than long, narrowed towards mouth, vertex narrower than an eye, margined behind, occiput slightly concave, eyes large, longer than cheeks, toruli ovate, placed a little nearer to the mouth than to the eye border, scape slender, not reaching the anterior ocellus, pedicel conical, twice as long as broad, 1.5 times as long as first funicle joint which is nearly twice as long as broad, funicle joints increasing in size, 6th joint 1.5 times as long as broad, club 3-jointed, somewhat broader than funicle and as long as two and a half preceding joint. Length ratio of antennal joints, 60, 19, 11, 10, 13, 13, 14, 14, 37, breadths, 7, 8, 6, 6, 6, 7, 7, 9, 9, 13. Mandibles with a tooth at apex and a second tooth continuing in a broad truncation. Maxillary palpi 4-, labial 3-jointed. Pronotum narrow, mesoscutum reticulate, axillae apparently separated, covered at meson by a thin border of scutum, scutellum rounded but slightly pointed, longitudinally striate. Wings hyaline, venation slightly shaded, marginal vein punctiform, postmarginal longer than broad, stigmal longer, ratio of p. s., 6, 12, un haired oblique line narrow anteriorly, bordered distally by 4 stout setae, proximally by 3-4 longer setae, the disc densely covered with short hairs, ciliation longer and more widely spread inside the line. Tibiae slender. Gaster larger than thorax, roundish, broadest behind the middle, pygostyles situated somewhat dorsally behind the middle, ovipositor a little exerted, base at the middle of gaster.

41. **Ooencyrtus pinicola?** Matsumura 1925: 44 (*Encyrtus*).

Nikolskaya 1952: 385, ♀, ♂.

Tab. 8: 12-13.

Thy: Isbjerg, 24. 7. 56, 1 ♂.

Siberia, Sachalin.

Host: LEP., eggs of *Dendrolimus sibiricus* Tshetv.

Male: 0.8 mm. Head and thorax black brown, scape and pedicel brown, flagellum and legs yellow, hind femora and gaster brown.

Head in frontal view roundish, vertex nearly as broad as an eye, occiput slightly concave, cheeks about as long as eye length, antennae inserted below the level of lower eye borders, scape slender, pedicel longer than broad, shorter than the equal funicle joints which are twice as long as broad, club as long as 2 funicle joints together and a little broader, hairs moderately raised, shorter than the length of joints. Length ratio of antennal joints, 50? 13, 21, 21, 21, 21, 21, 21, 42, the breadths, 8, 9, 10, 10, 10, 10, 10, 10, 12. Pronotum arched and narrow, mesoscutum transversely reticulate, axillae reaching the meson, scutellum reticulate-chagrinate, the cells lengthened. Disc of fore wing oval, marginal vein as long as broad, equal to postmarginal, stigmal vein a little longer, venation slightly shaded, unhaired oblique line bordered by 3 stout setae distally and 3 longer proximally, fringe short, a little longer at posterior margin in hind wings. Gaster ovate, slightly larger than thorax, pygostyles behind the middle, aedeagus covered with precipitations; the specimen in bad condition.

42. *Ooencyrtus telenomicida* Vasiliev 1904: 117.

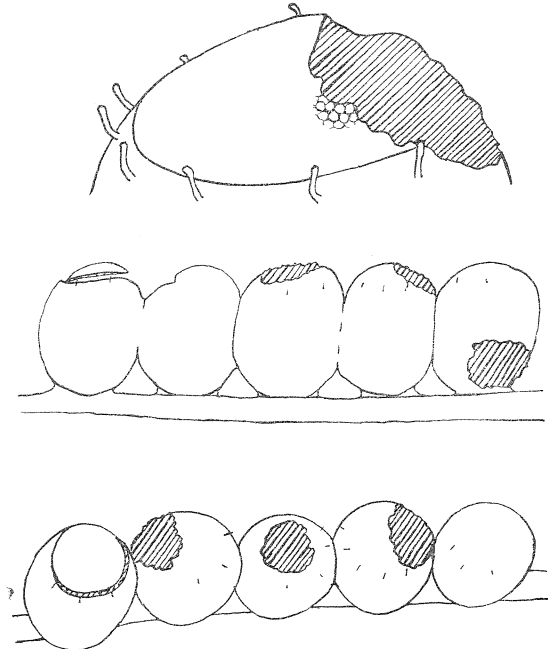
Mercet 1921: 315 (*Schedius flavofasciatus*); Nikolskaya 1952: 387; Ferrière et Voegelé 1961: 32.

Thy: Nors, 16. 7. 57, bred from 5 eggs of a Pentatomid, probably *Carpocoris pudicus* Poda (= *purpureipennis* Deg.) (Goidanich 1943), which was hitherto known in Denmark only from the eastern isles, but taken once in Jutland 1934 at Gallehus, by Møgeltønder (J.G. Worm-Hansen). The eggs collected 26. 6. 57, 1 full-winged ♀, 2 micropterous ♀♀, 1 micropterous ♂ and 1. 7. 57, 1 red and black designed nymph.

Southern SSSR, Syria, Iran, Spain, Morocco.

Hosts: HEM., eggs of Pentatomidae, especially those of *Aelia* and *Eurygaster*, if the eggs are already parasitized by another larva, this may be killed. In laboratory also parasitizing eggs of two Lepidoptera, *Taragama repanda* Huebner (Lasiocampidae) and *Amorpha populi austauti* Staudinger (Sphingidae).

The fore wings of the micropterous females were about $\frac{2}{3}$ the length of those in the full-winged female, and about half the length in the male (but normal in shape). The five host eggs were placed side by side in a row, black, smooth, the surface slightly reticulate and



Text fig. 3. Eggs of *Carpacoris pudicus* Poda? in dorsal and ventral view, from the left egg a nymph is hatched, from the other ones emerged a full winged ♀, 2 micropterous ♀♀ and a micropterous ♂ of *Ooencyrtus telenomicida* Vas. Above, detail at a larger scale.

with 7-10 whitish processes around the operculum (text fig. 3).

The species is redescribed 1961 (Ferrière et Voegelé).

43. ***Ooencyrtus vagus?*** Mercet 1921: 304.

Nikolskaya 1952: 385.

Tab. 8: 4-9.

Thy: Nors, July 1953, 1 ♂ (Fog). - Nors, 8. 7. 55, 1 ♂, do. 15. 7. 55, 1 ♂, all brachypterous.

Spain.

Host unknown. Most of the *Ooencyrtus* species are parasites of lepidopterous eggs, one from hemipterous eggs.

Male: 0.7 mm. Body dark brown with bronzish lustre, lower face with bluish lustre, eyes blackish, ocelli and trophi yellowish, scape at base and pedicel dark brown, flagellum and tegulae brown, coxae, femora and hind tibiae blackish, fore and middle tibiae, trochanters, knees and tarsi yellow-brown, middle tibiae with a brown annulus at base.

Head finely punctuated, vertex about twice as broad as an eye, margined behind, occiput concave, cheeks as long as eye length, mandibles 3-dentate, maxillary palpi 4-, labial 3-jointed. Toruli short, oval, at level with lower margin of eyes, scape rather slender, pedicel roundish, first funicle joint 3 times as long as broad, following joints slightly decreasing in length and increasing in breadth, sixth joint double as long as broad, the hairs of funicle about 1.5 times as long as breadth of joints, moderately raised, club a little shorter than 2 preceding joints together. Length ratio of antennal joints, 50?, 16, 24, 22, 24, 24, 26, 24, 42, breadths, 10, 14, 8, 8, 9, 10, 11, 12, 13. Pronotum moderately narrow, mesoscutum reticulate, axillae feebly sculptured, meeting at meson, scutellum roundish-triangular, reticulate-chagriniate, 2 placoid sensillae present. Fore wings oval, vaulted, only reaching the base of gaster, subcosta with 4 strong bristles, venation diffuse, costal cell broad, hairy, wing

disc haired at distal half and along subcosta, no fringe present, hind wings with an arched submarginal vein ending together with the pointed disc in a thorn and 2 cilia, the disc with a few cilia but no fringe. Gaster roundish-triangular, pygostyles near the middle, parameres short, adpressed, digiti with an apical spine, aedeagus rounded at apex, sensillae mostly covered.

The fragmentary material makes it impossible to determine this species with any certainty. The description is derived from 3 specimens, of which the wings of two are figured.

44. **Ooencyrtus** sp.

Tab. 8: 10—11.

Th y: Isbjerg, 25. 7. 56, 1 ♀, brachypterous.

This specimen may probably be a short-winged form of *obscurus* Mercet; a short description is given below.

Female: 0.8 mm. Head and thorax blue-black, antennae and legs light yellow with dark shading at the base of middle and hind coxae and near the base of their tibiae, gaster dark brown, light yellow towards base.

Head in frontal view roundish, vertex not sharply margined behind, narrower than an eye, 7, 9, ocelli very small, in an equilateral triangle, occiput concave, cheeks shorter than eye length, antennae inserted just below the level of lower eye border, scape slender, pedicel as long as broad, and as long as 2 following joints together, funicle joints increasing in size, first and last funicle joints 1.5 times as long as broad, middle joints slenderer, club 3-jointed, broader than funicle, as long as 3 preceding joints. Length ratio of antennal joints, 67?, 18, 9, 10, 12, 12, 13, 14, 40, breadths, 9, 8, 6, 6, 6, 7, 8, 9, 13. Pronotum rather narrow, mesoscutum transversely reticulate, axillae reaching the meson, scutellum roundish triangular, longitudinally chagrinata-striate, dull, mesopleures reaching behind propodeum. Wings brachypte-

rous, reaching approx. middle of gaster, fore wings oblong, somewhat truncate at apex, subcosta long, venation not touching the margin, postmarginal vein short, twice as long as broad, stigmal a little longer and more slender with 3 placoid sensillae at apex, disc passing venation for a short distance only, ciliation sparse, oblique unhaired line present, narrowed anteriorly and bordered with normal cilia, no fringe, hind wings with a long submarginal vein ending with a thorn and some small cilia, the disc slender, with a group of small cilia at the middle of hind margin, the end of disc rounded towards the apex of venation. Gaster ovate, larger than thorax, pygostyles behind the middle, ovipositor hardly exerted, occupying about $\frac{2}{3}$ the length of gaster.

45. **Paraphaenodiscus incertus** Mercet 1921: 600 (*Aschitus*).

Nikolskaya 1952: 444 (*Asch.*); Hoffer 1954; Erdős et Novicky 1955: 172; Ferrière 1956 a: 395.

Tab. 10: 6—8.

Thy: Isbjerg, 15. 7. 61, 1 ♀.

Sealand: Sandkroen, 9. 8. 1929, 1 ♀ (J. P. Kr.).

Spain.

Host unknown, allied species have been bred from COC., *Micrococcus* and *Aclerda* spp.

The yellow parts of the legs and wings are somewhat contrasting to the blue, metallic thorax, grey eyes and bronzyish gaster, however preparation now very bleached. Length ratio of antennal joints, 80, 22, 11, 12, 11, 11, 11, 11, 42, breadths, 33, 12, 11, 13, 14, 15, 16, 17, 23. Ratio of wing veins, m. p. s., 25, 13, 23.

46. **Protyndaricus metallicus** Mercet 1921: 650 (*Tyndarichoides*), 1922 b: 480 (*Tynd.*).

Erdős et Novicky 1955: 173, 182, 188, 194.

Tab. 3: 1—13. Tab. 4: 1.

Thy: Nors, 9. 7. 55, 1 micr. ♀, do. 11. 7. 55, 1 macr. ♀, do. 15. 7. 55, 1 macr. ♂. - Tved Plantation, 26. 6. 57, 1 micr. ♂.

Sealand: Dyrehaven, 9. 8. 1881, 1 micr. ♀ (R. W. S.),
do. 2. 9. 1883, 1 micr. ♀ (R. W. S.).

Spain.

Host unknown.

Macropterous female: head and thorax purplish-black, eyes black, ocelli and palpi yellow, scape and pedicel light brown, flagellum and legs yellow, middle and hind femora blackish at the middle, hind coxae blackish at base, wings slightly fumated, venation yellowish.

Vertex narrow, not sharply margined behind, ocelli small, in an acute triangle, hind ones as greatly removed from occiput as from the anterior ocellus, eyes large, lengthened downwards, with the inner orbits slightly hollowed, cheeks short, not longer than $\frac{1}{3}$ of the eye length, mandibles 3-dentate. Antennae inserted about level with lower border of eyes, scape a little dilated at the middle, pedicel as long as two first funicle joints which are quadrate, following joints larger, last funicle joints subtransverse, club 3-jointed, the sutures thin but distinct in strong magnification, as long as 4 preceding joints and nearly twice as broad. Mesoscutum scaly-reticulate, scutellum strongly striate-reticulate. Marginal vein of fore wing 2-3 times as long as broad, and slightly longer than stigmal or postmarginal vein. Spur of middle tibia longer than the metatarsus. Gaster black with bronzy lustre, pygostyles placed near the base of gaster, ovipositor protruding as much as the length of hind metatarsus.

Macropterous male: vertex broad, palpi yellow, last joint of maxillary palpi dark, antennae brown, inserted at level with lower eye border, scape yellow below, dark above, pedicel dark brown, flagellum darker towards apex, funicle joints shorter and broader towards apex, first funicle joint 1.5 times as long as sixth joint, club shorter than 2 preceding joints, antennae haired,

the hairs shorter than breadth of joints. Scutellum longitudinally striate-reticulate, legs yellow, middle coxae and hind legs with dark parts. Phallus long and slender, parameres adpressed, digiti with one strong spine, aedeagus rounded at apex, details not visible.

Micropterous female (new): fore wings reaching nearly to middle of gaster, rounded apically, without fringe except along marginal vein, the disc haired apically, partly in rows and with a few stronger cilia flanking the un haired line. Hind wings with a normal subcosta bearing 3 hooks at apex, from which the wing disc slopes inwards posteriorly, fringe present only at the middle of hind margin.

Micropterous male (new): palpi yellow with last joint of maxillary palpi dark, antennae brownish, scape lighter below, dark brown above, pedicel dark brown at base, flagellum darker towards apex, middle coxae and hind legs dark brown with lighter knees and tarsi. Fore wings rounded apically, fringe present along marginal vein and apex of wing, the disc with widely spread hairs becoming denser towards apex and with longer cilia along the un haired line. Hind wings pointed, with fringe along the hind border distally, the disc somewhat haired, the subcostal vein in a bow to the tip. The length ratio of antennal joints, 34, 11, 20, 18, 18, 17, 16, 15, 28, breadths, 9, 6, 6, 7, 8, 9, 9, 9, 10. Phallus long and slender, distally broader, parameres short and finger-like, bent towards digiti which are normal triangular-rectangular with a strong spine at apex, and a bristle laterally, another bristle situated at the base of parameres, aedeagus slender, rounded at apex, with some sensillae on the border.

The micropterous forms have been mentioned by Mercet and by Erdős and Novicky but not described.

47. Pseudencyrtus misellus Dalman 1820: 171, ♂ (*Encyrtus*).

Walker 1837: 47 (*E. tennes*); Ashmead 1900: 396 (*E. clavellatus*);
Ferrière 1953 a: 21 (*clav.*); Graham 1958: 158.

Tab. 11: 7—8.

Thy: Isbjerg, 29. 6. 57, 1 ♀, do. 30. 6. 57, 1 ♀.

Host: DPT., *Rhabdophaga salicis* (Schr.).

Sweden, England.

The species may be widely distributed; however it is not easily determined (most often as *Encyrtus clavellatus* of authors, nec Dalman). *Encyrtus clavellatus* Dalm., Thomson seems to be a different species having the pygo-styles at basal third of gaster and the pedicel 3 times as long as first funicle joint.

Female: 1.7 mm. Body dark green, metallic, gaster black-brown, lustrous, scape and pedicel black-brown with the apex light, funicle and club dark brown, apex of club light. Legs black-brown with knees, apex of tibiae and inner joints of middle tarsi light, venation with a feeble shading around marginal vein.

Head seen from in front roundish, vertex broader than an eye, a little rounded behind, ocelli in a flat triangle, outer ones their own breadth from the eyes, occiput concave from side to side, toruli ovate, double as far removed from the eyes as from the mouth. Mandibles 3-dentate. Maxillary palpi 4-, labial 3-jointed. Scape with slightly flat dilation before the middle, pedicel slightly longer than first funicle joint which is 1.5 times as long as broad, funicle joints nearly equal in length and increasing a little in breadth, last funicle joint only slightly longer than wide, club 3 jointed, somewhat broader than last funicle joint and a little shorter than 4 preceding joints. Length ratio of antennal joints, 80, 20, 14, 15, 14, 13, 13, 15, 52, breadths, 14, 13, 9, 10, 10, 11, 12, 14, 19. Pronotum forming a narrow arch of equal breadth, meso-scutum and scutellum reticulate, axillae not meeting at meson, scutellum longer than broad, rounded at apex.

Oblique unhaired line of fore wings bordered distally with 2 short stout bristles and proximally with 5 longer setae. Marginal vein longer than thick, as long as post-marginal, stigmal vein as long as these two together, ratio of m. p. s. 20, 20, 40. Gaster ovate, pointed, longer than head and thorax together, pygostyles at apical third, ovipositor from near the base, somewhat exerted.

48. **Psyllaephagus merceti** Ferrière 1961: 44.

Thy: Isbjerg, 26. 7. 57, 1 ♀, do. 27. 7. 62, 1 ♀.

Spain.

Host unknown.

49. **Rhopus semiapterus** Mercet 1921: 103, 685, ♂ (*Pholidoceras*).

Mercet 1928: 5 (*Xanthoencyrtus*); Nikolskaya 1952: 341 (*Xanth.*); Ferrière 1953 b: 1, ♂ ♀ (*Xanth.*); Erdös et Novicky 1955: 173.

Thy: Nors, 14. 7. 55, 1 ♂.

Spain, England.

Hosts: COC., *Ripersia* sp. on *Deschampsia caespitosa* (Gramineae) and *Trionymus perrisi* Sign. found at base of Gramineae in a sandy and hot locality.

The species *europaeus* Grlt. (*Mirastymachus*) known from Denmark (Girault, 1915) seems allied, but the female with 3-jointed club, in *semiapterus* 2-jointed (Ferr., l. c.).

50. **Syrphophagus fuscipes** Dalman 1820: 365 (*Encyrtus* ♂).

Thomson 1875: 165 (*Microterys* ♂, ♀); Ferrière 1953 a: 21 (*Pseudencyrtus*); Graham 1958: 160.

Tab. 11: 9—11.

Thy: Fladekær between Langsø and Store Vand, 8. 6. 60, 1 ♀ (B. P.). - Syvklit, same date, 1 ♂ (B. P.), - the following damaged specimens may belong to this species: Nors, 10. 7. 55, 1 ♂, do. 26. 7. 56, 1 ♀.

Sweden, Germany.

Host: DPT., *Rhabdophaga salicis* Schr.

Female: head with the face fairly blue, the vertex and thorax blackish blue-green, metallic, the colour

blackening gradually towards gaster which is black and shining, eyes and antennae black, ocelli reddish, venation rather robust and dark brown with shading below marginal vein, legs black with the knees and tarsi paler. In male the scape and pedicel black brown, the former light brown apically, funicle and club brown, middle tarsi yellow.

Female, 1.6 mm. Head finely reticulate-punctate, vertex and frons along the eyes with series of punctures, the vertex broader than long and broader than an eye, the hind margin a little rounded, ocelli in a flat triangle, hind ocelli their own breadth from the orbits, occiput concave, eyes about as long as cheeks. Antennae rather short and abruptly clavate, inserted nearer to the mouth than to the lower border of eyes, toruli short oval, scape slightly dilated at the middle, pedicel 1.5 times as long as first funicle joint, the latter 1.5 times as long as broad, the funicle is thickened distally, sixth joint 1.25 times as long as broad and about twice as broad as first funicle joint, club 3-jointed, considerably broader than last funicle joint, and nearly as long as 4 preceding joints together. Mandibles 3-dentate. Maxillary palpi 4-, labial 3-jointed. Mesoscutum scaly-reticulate with rows of light brownish hairs, axillae meeting at meson (however, in the dried specimen covered by mesoscutum and appearing to be separated), scutellum rather long, triangular, rounded apically, finely scaly-reticulate, nearly smooth. Fore wings with the marginal vein about double as long as broad, stigmal vein straight, cuneate, longer than marginal, the latter equal to postmarginal. Hind tibiae and femora flattened, broader than in middle legs. Gaster longer than thorax, triangular, ovipositor from near the base of gaster, exerted as much as end joint of hind tarsi, pygostyles within apical half of gaster.

Male: 1 mm. Head transverse, face roundish, vertex about double as broad as an eye, acutely margined be-

hind, eyes oblong, hind ocelli nearly twice their own breadth from margin of eyes, scape short, not reaching height of anterior ocellus, pedicel short, rounded, the 6-jointed funicle slightly flattened and with hairs as long or longer than breadth of joints, funicle joints shorter and slightly broader distally, club shorter than two preceding joints together. The length ratio of antennal joints, 49, 14, 34, 29, 27, 28, 28, 26, 49, breadths, 14, 15, 14, 14, 14, 14, 15, 15. Length ratio of marginal, postmarginal and stigmal veins, 4, 6, 5. Gaster triangular, nearly as long as thorax, pygostyles one third from the base of gaster. Phallus in the specimen from 10. 7. 55 rather slender, parameres small, adpressed, with an apical cilium, digiti with a spine, aedeagus somewhat rounded at apex, sensillae covered by precipitations.

A slight incision of the male antennal club led to the counting of 7 funicle joints, but the mounting of an antennae in balsam showed that no suture was present and the antennal formula 1161.

Some doubt exists about the determination of this species, the hind margin of vertex in female appears a little rounded, however, seen from above the margin seems more sharp, and thus in better agreement with Graham's remark (1958: 160) about the type specimen, a male in Dalman's collection, "the occiput is quite sharp".

51. **Trichomasthus cyaneus** Dalman 1820: 160 (*Encyrtus*).

Mayr 1875: 709, 718 (*Enc.*); Mercet 1921: 372; Nikolskaya 1952: 400; Jansson 1954: 255.

Thy: Nors, 9. 7. 55, 1 ♂.

N. Sealand: Fortunens Indelukke, 13. 6. 1930, 1 ♂, 1 ♀, lab. "Trichomasthus coeruleus Merc." (J. P. Kr.). - no date, 2 ♀♀ (J. P. Kr.). - no date, 2 ♀♀, lab. "Trichomasthus cyaneus Dalm." (coll. Zool. Mus.)- M ø e n: Karensby, 20. 8. 1925, 1 ♀ (O. B.).

W. Europe, Transcaucasia, Ctr. Asia.

Hosts: COC., *Pseudococcus phalaridis* L., *Eriopeltis*

festucae Fonsc., *E. lichtensteini* Sign., *Pulvinaria vitis* on *Salix repens*.

52. **Zeteticontus laeviscutum** Thomson 1875: 166 (*Microterys*).

Mercet 1921: 570; Ghesquière 1951: 247; Nikolskaya 1952: 438; Ferrière 1953 a: 19.

Tab. 9: 11—13.

Thy: Nors, 14. 7. 55, 1 ♀.

Sweden, Belgium, Hungary, Spain.

Host: COL., *Cryptophagus validus* and *Carpophilus* sp. (Ghesquière).

Female: 1.9 mm. Body metallic, head dark blue, eyes dark, antennae black-brown, mandibles with two dark brown teeth and a short, light tooth, mesoscutum black-brown, axillae and scutellum dark brown, smooth, lustrous, legs dark brown, knees, fore and middle tarsi light, gaster brown, smooth, lustrous.

Head with some large punctures along the eye borders, broader than long in frontal view, 31, 28, vertex broader than an eye, cheeks shorter than eye length, toruli short-ovate, less than their length from the mouth, more than double their length from the eyes. Antennae longer than thorax, 54, 48, scape slightly broader at apex, pedicel twice as long as broad, first funicle joint shorter than pedicel, 1.25 times as long as broad, following joints shorter and broader, 6th joint 1.5 times as broad as long, club considerably broader than funicle, as long as 3 preceding joints together. Length ratio of antennal joints, 85?, 25, 17, 15, 15, 16, 15, 14, 16, 15, 14, breadths, 12, 13, 13, 14, 15, 17, 19, 20, 26, 25, 21. Maxillary palpi 4-, labial 3-jointed. Mandibles 2-dentated with a third, short and light inner tooth. Marginal vein of fore wing 2-3 times as long as broad, longer than postmarginal and shorter than stigmal vein, ratio of m. p. s. 18, 11, 21, unhaired line bordered with larger cilia. Pronotum short, narrow, mesoscutum with rather dense and moderately

large punctures on a background of fine punctures, axillae not meeting, scutellum smooth, flattened, rounded at apex. Gaster longer than thorax, 59, 48, and slightly broader, 33, 32, pygostyles before the middle, ovipositor somewhat exerted, thick and short, occupying one third the length of gaster, the ratio, 59, 25, included exerted part, 5.

53. **Encyrtidae sp.**

Thy: Nors, 12. 7. 55, 1 ♀. Antennae missing, etc., probably related to *Protyndarichus* Mercet.

Remarks on adaptation and age of the Encyrtid fauna.

The list of species from the reservation shows a comparatively large number of *Encyrtidae*. It raises the question whether the family is especially adopted to this kind of locality, characterized by the strong wind from the sea passing over the low vegetation of the heath and dunes, which could cause small and feeble insects to be blown away.

The Encyrtids seem to avoid the wind by leaping instead of flying, they are the best leapers among the Chalcidoidea (which habitually leap a few centimeters). The strong Encyrtids are able to leap out from the bottom of the sweeping net and seldom take to the wing. I have never actually seen them fly, although they might well be able to do so, owing to the well developed wings in some species. However, many of them are brachypterous or even apterous.

Encyrtids are characterized by the middle legs developed for leaping, the swollen mesopleures, the axillae produced towards or meeting at the meson, and the fore wings with an oblique line devoid of hairs. These characters may have developed in the following way; the muscles of the middle legs situated in the mesepisternites have caused these to enlarge and swell (in contradistinction to other Chalcids, having the mesopleures

furrowed and grooved). The axillae are pressed by the pleures towards the meson, where they sometimes meet and may become truncated. The wings are applicated firmly to the back along the scutellum, which becomes triangular and somewhat elevated above the wings and propodeum, thus sheltering the wings against the wind. The hind border of one fore wing crosses the opposite wing at the oblique un haired line which is flanked by some strong setae, dividing the wing into a corium and a membrane. The latter feature is somewhat similar to the wings in the Hemiptera, the corium sometimes with coarser pubescence. This dividing line may also have contributed to the abbreviation of the marginal vein characteristic of many Encyrtids. For these reasons I am of the opinion that the Encyrtids are adapted to low vegetation blown by strong winds.

The long-bristled pygostyles in Encyrtids have migrated more or less towards the base of gaster; the reason for this is not known — unless it may be an advantage to have them placed nearer the centre of gravity during leaping. The cerci in crickets, according to Wigglesworth (1956: 116), are primarily tactile organs sensitive to air movements.

The question have been raised whether faunal relicts are to be found in Thy. From the theory presented above it could be concluded that a great many of the Encyrtids may have been present from a time before the immigration of the mixed forest.

The following new genera and species of Encyrtids have been proposed,

Centrolinea heterocornis n. gen. n. sp.

Copidosoma igneum n. sp.

Litomastix suspectus n. sp.

„ *tvediensis* n. sp.

Mercetia n. gen. (Type sp. transferred
from *Copidosoma* Ratz.)

Metaphycus hanstediensis n. sp.

Microterys apicipennis n. sp.

„ *minutus* n. sp.

„ *provisorius* n. sp.

Summary.

The author gives a list of the Perilampidae, Eupelmidae and Encyrtidae collected in the Hansted Reservation in Thy during the present investigation. Some other material from the Zool. Museum in Copenhagen has been used and registered. The species are roughly classified after the biotopes. In the list of species are given some redescrptions, synonyms, a key to brachypterous females of *Microterys* Thoms. and descriptions of 2 new genera and 8 new species of *Encyrtidae* listed above. The author gives a theory established on morphological considerations for the adaptation of the Encyrtids to a windy climate.

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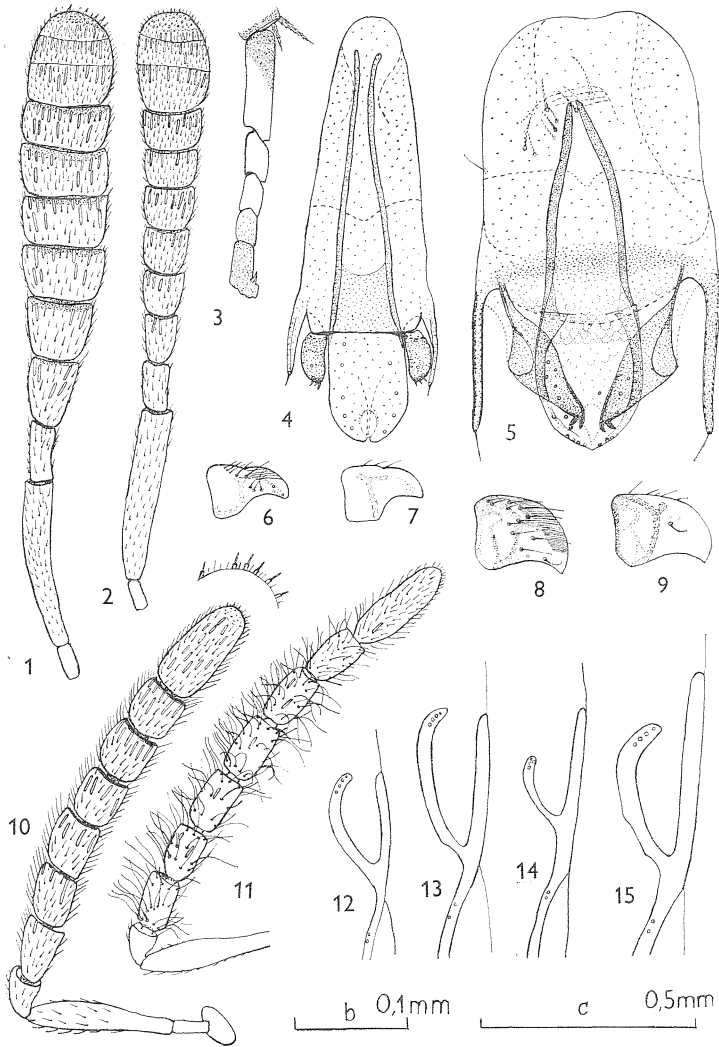
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Errors:

- p. 120, line 5 above, instead of 2—5 read: 6—14.
- p. 122, — 4 below, instead of 1—8 read: 9—11.
- p. 140, — 5 above, instead of 1—8 read: 1—5.
- p. 145, — 6 above, instead of 1—7 read: 1—3, 6—7.
- p. 151, — 9 below, instead of 2—6 read: 2, 4—6.
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TABLE 1.

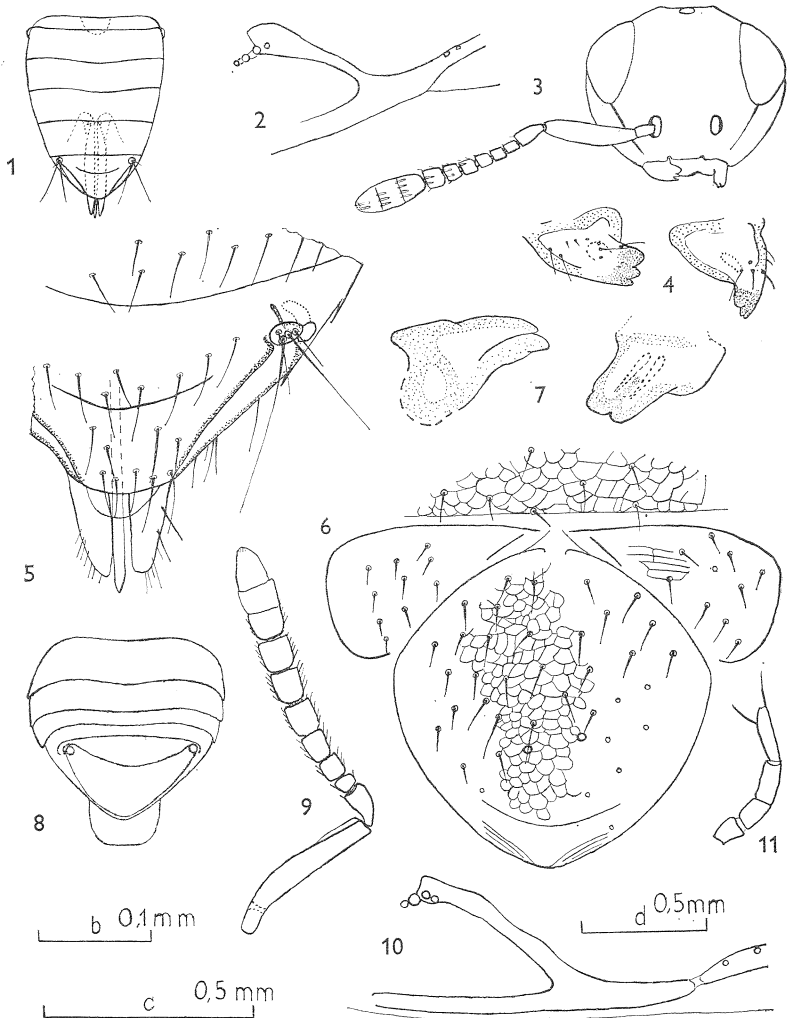


Encyrtus albitarsis Zett. ♀, fig. 1, antenna, —3, hind tarsus, —4, ♂, phallus, —6, left mandible, outer view, —7, right one, inner view, —11, antenna, —12, ♀, venation, —14, ♂, do.

Encyrtus infidus Rossi, ♀, fig. 2, antenna, —5, ♂, phallus, —8, left mandible, outer view, —9, right one, inner view, —10, antenna, —13, ♀, venation, —15, ♂, do.

b, scale of figs. 4—5; c, of figs. 1—3, 6—15.

TABLE 2.

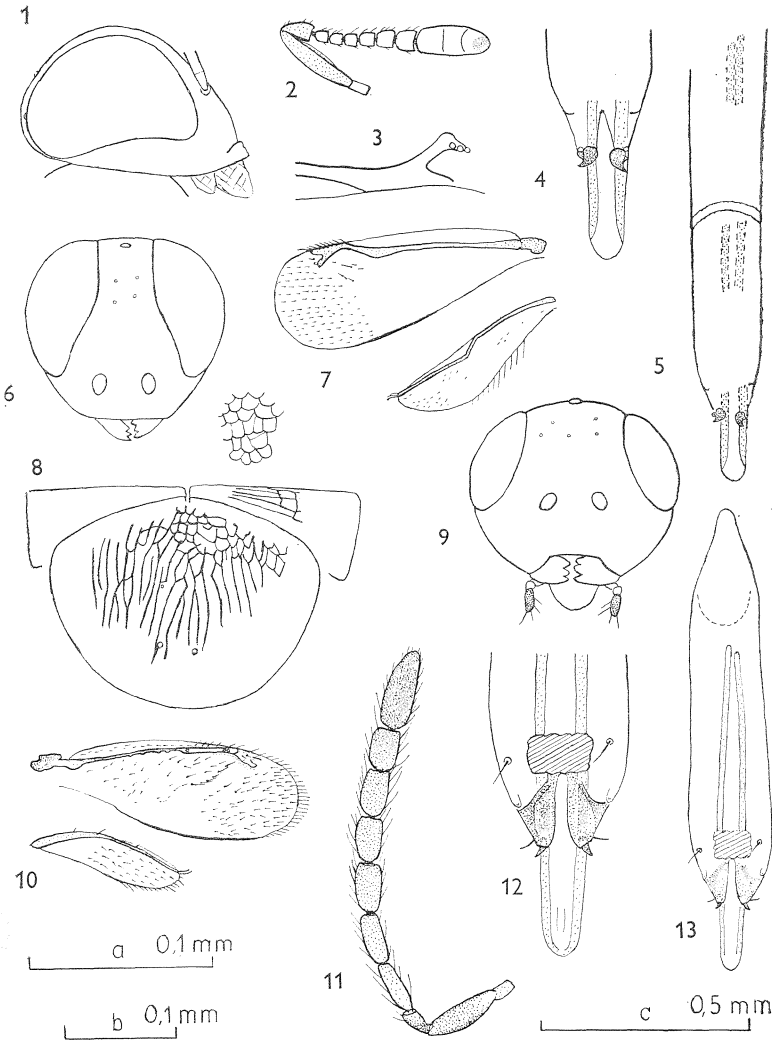


Aphycoides clavellatus Dalm. ♀, fig. 1, gaster, —2, venation, —3, head with antenna, frontal view, —4, mandibles, —5, apex of gaster, the pygostyle plate is seen above the spiracle, —6, scutellum.

Moraviella inexpectata Hoff. ♀, fig. 7, mandibles, —8, gaster, hypogonium outstretched during preparation, —9, antenna, —10, venation, —11, maxillary palpus.

b, scale of figs. 2, 4—7, 10—11; c, of figs. 3, 9; d, of figs. 1, 8.

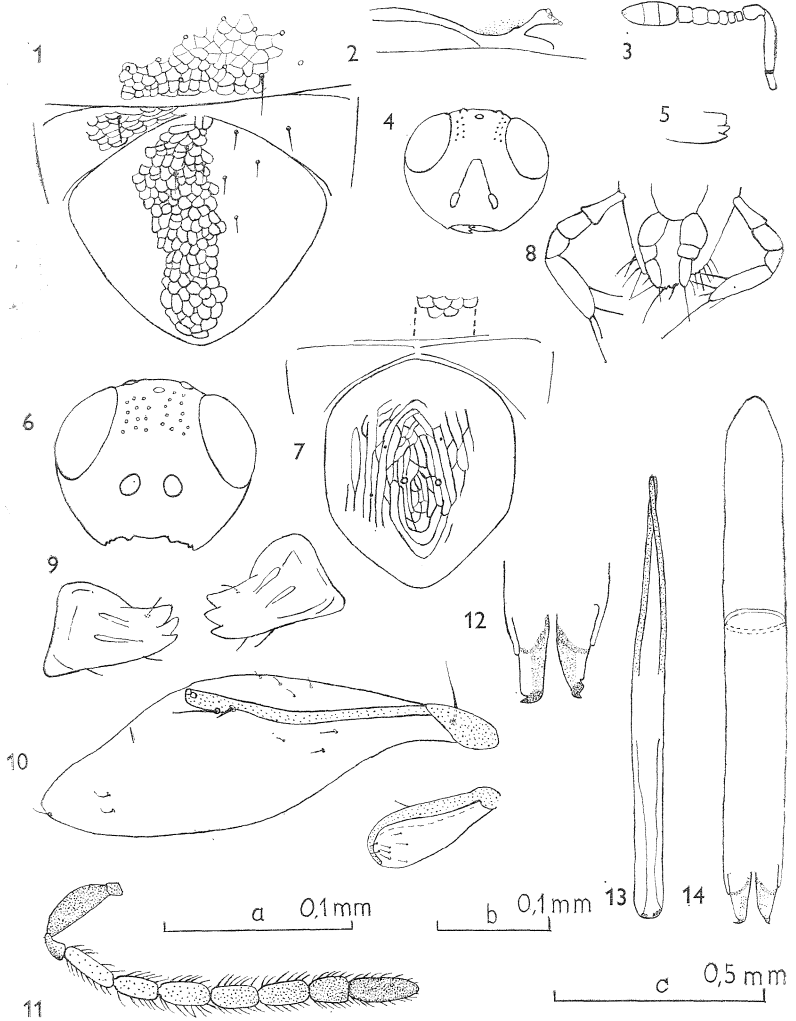
TABLE 3.



Protyndarichus metallicus Merc. fig. 1, macropterous ♀, head in lateral view, —2, antenna, —3, venation, —4, macropterous ♂, apex of phallus, —5, part of phallus, —6, micropterous ♀, head in frontal view, —7, wings, —8, scutellum with axillae and sculpture part of mesonotum, —9, micropterous ♂, head in frontal view, —10, wings, —11, antenna, —12, apex of phallus, —13, phallus.

a, scale of figs. 4, 12; b, of figs. 3, 5, 8, 13; c, of figs. 1—2, 6—7, 9—11.

TABLE 4.



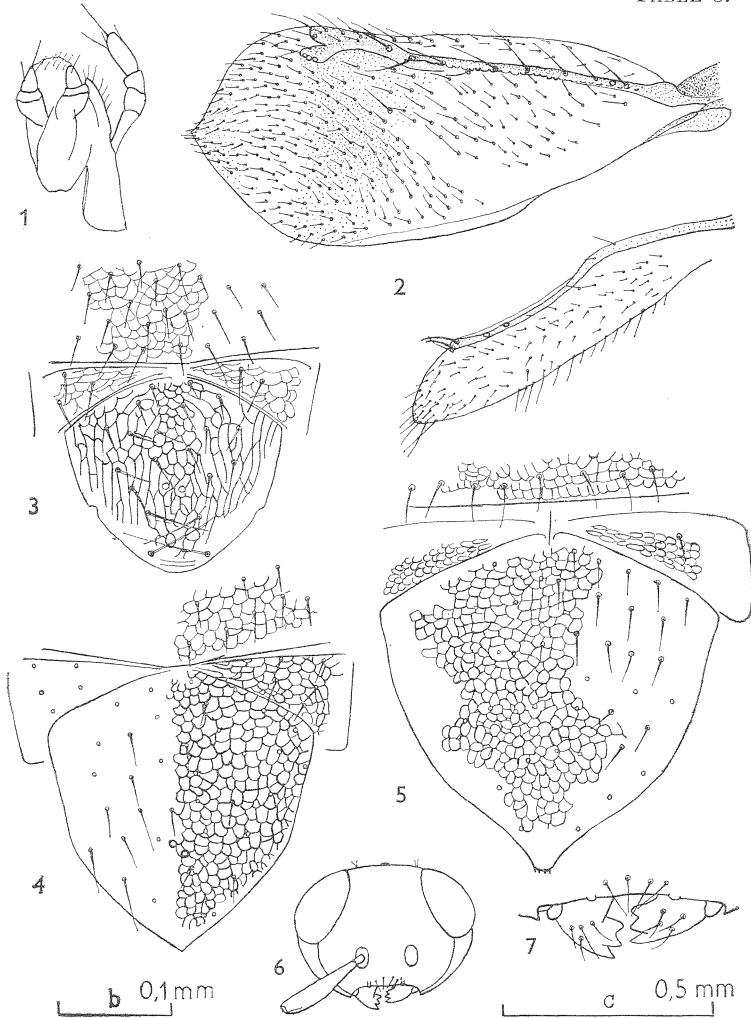
Protyndarichus metallicus Merc. fig. 1, micropterous ♂, scutellum.

Aphidencyrthus aphidivorus Mayr, fig. 2, ♀, venation, —3, antenna, —4, head in frontal view, —5, mandible.

Concentrolinea heterocornis n. sp. fig. 6, ♂, head in frontal view, —7, scutellum, —8, labium, —9, mandibles, —10, wings, —11, antenna, —12, digiti, —13, aedeagus, —14, phallus.

a, scale of fig. 12; b, of figs. 1—2, 5, 7—10, 13—14; c, of figs. 3—4, 6, 11.

TABLE 5.



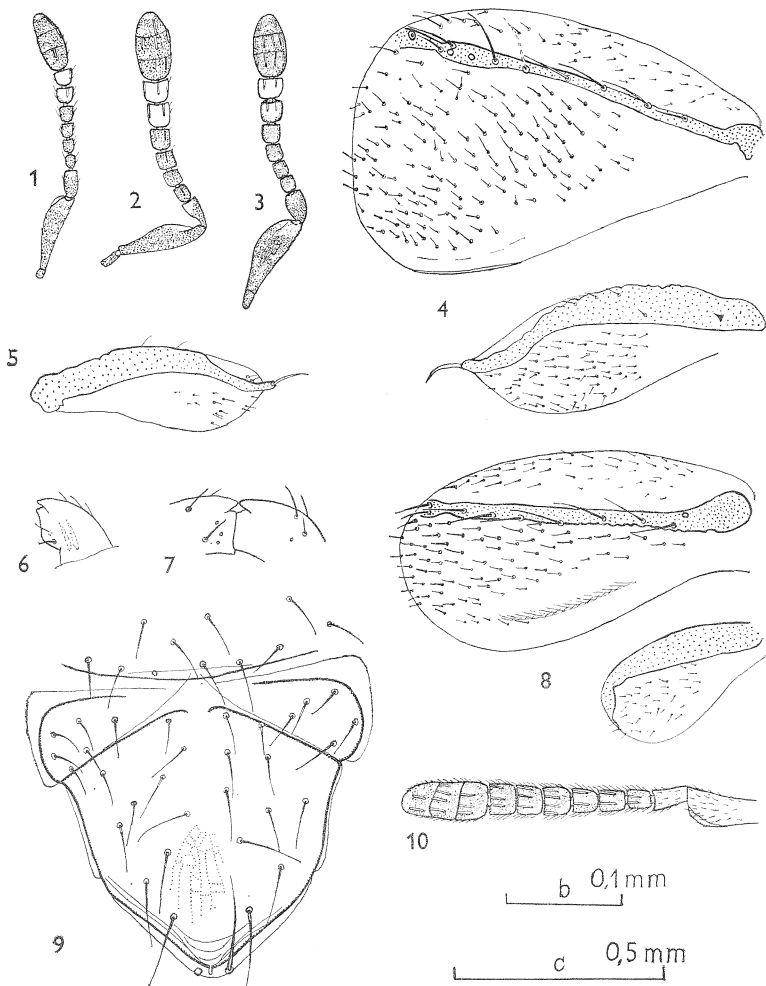
Microterys apicipennis n. sp. ♀, fig. 1, labium with two labial and one of the maxillary palpi, —2, wings, —3, scutellum, —6, head in frontal view, —7, mandibles.

Microterys minutus n. sp. ♀, fig. 4, scutellum.

Microterys truncatipennis Ferr. ♀, fig. 5, scutellum.

b, scale of figs. 1—5, 7; c, of fig. 6.

TABLE 6.



Microterys apicipennis n. sp. ♀, fig. 1, antenna.

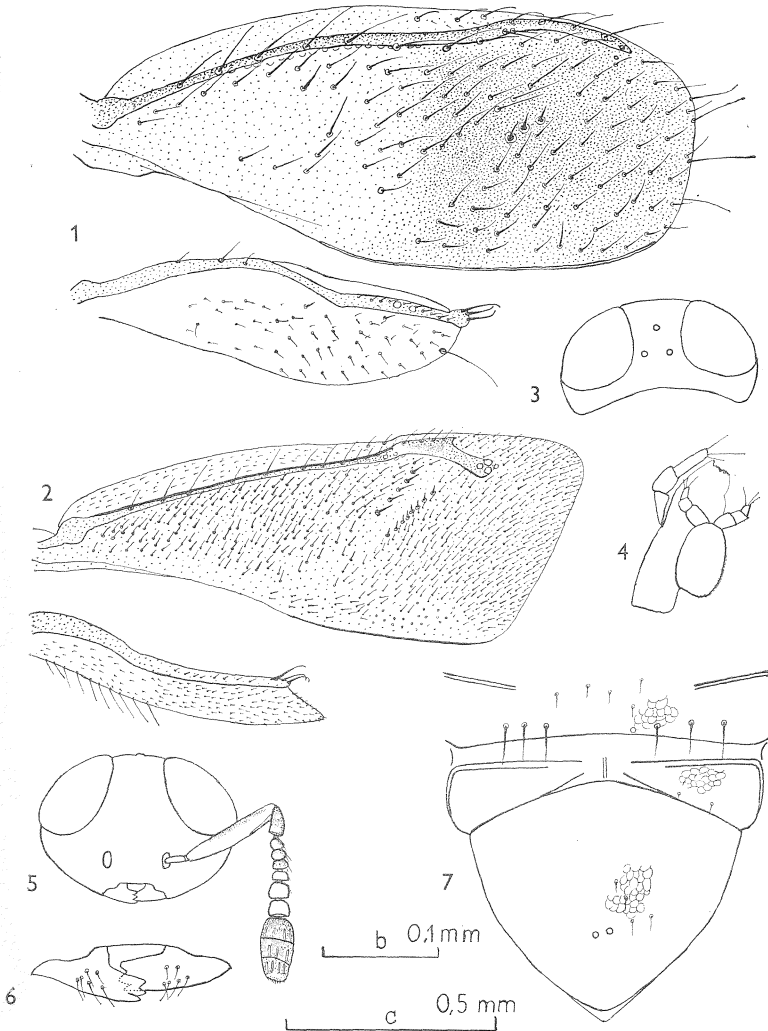
M. truncatipennis Ferr. ♀, fig. 2, antenna, —4, wings, —5, hind wing of a smaller specimen, —6, mandible.

M. minutus n. sp. ♀, fig. 3, antenna, —7, mandibles, —8, wings.

M. micropterus Merc. ♀, fig. 9, scutellum, —10, antenna.

b, scale of figs. 4—9; c, of figs. 1—3, 10.

TABLE 7.

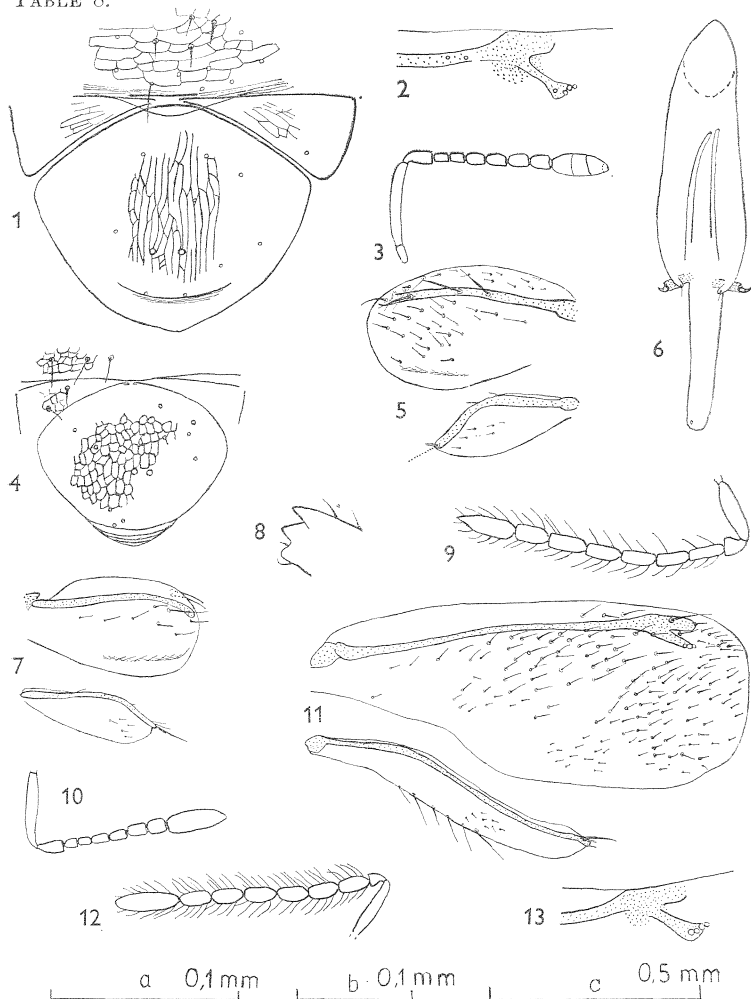


Microterys micropterus Ferr. ♀, fig. 1, wings.

Metaphycus hanstediensis n. sp. ♀, fig. 2, wings, —3, head in dorsal view, —4, part of labium with two labial and one of the maxillary palpi, —5, head in frontal view, —6, mandibles, —7, scutellum.

b, scale of figs. 1—2, 4, 6—7; c, scale of figs. 3, 5.

TABLE 8.



Ooencyrtus obscurus Merc. ♀, fig. 1, scutellum, —2, venation, —3, antenna.

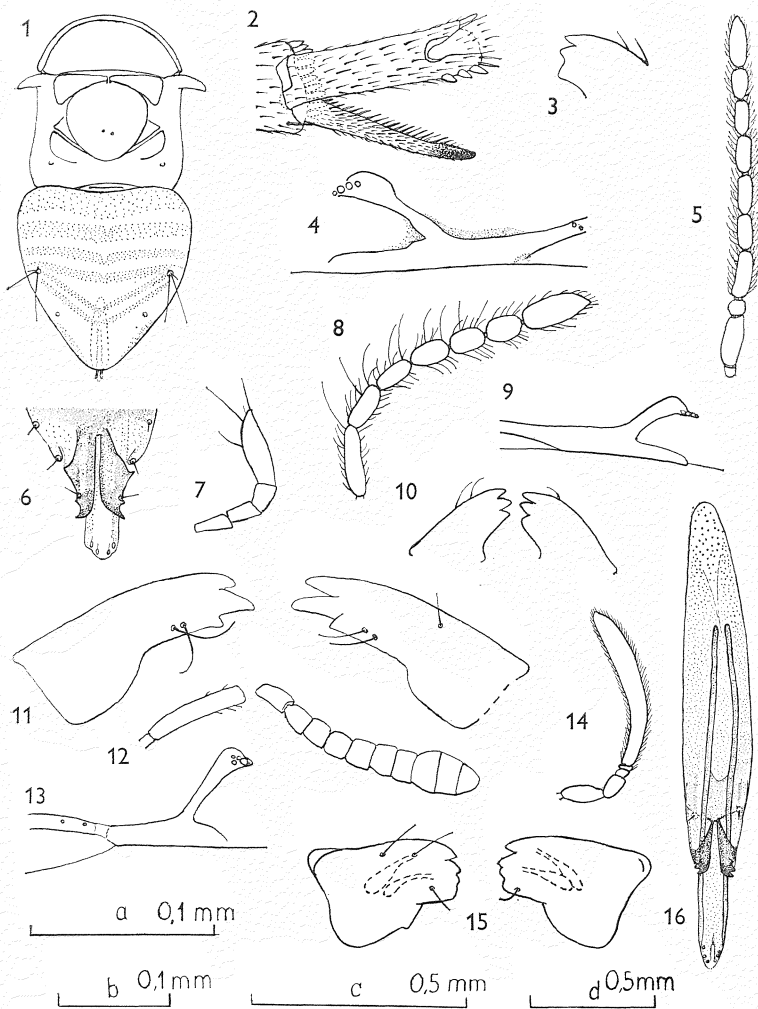
O. vagus? Merc., ♂, fig. 4, scutellum, —5, wings, —6, phallus, —7, wings of a smaller specimen, —8, mandible, —9, antenna.

O. sp. ♀, fig. 10, antenna, —11, wings.

O. pinicola? Mats. ♂, fig. 12, antenna, —13, venation.

a, scale of figs. 6, 8; b, of figs. 1—2, 4—5, 7, 11, 13; c, of 3, 9—10, 12.

TABLE 9.



Microterys provisorius n. sp. ♂, fig. 1, body, —2, middle metatarsus and spur, —3, mandible, —4, venation, —5, antenna, —6, apex of phallus.

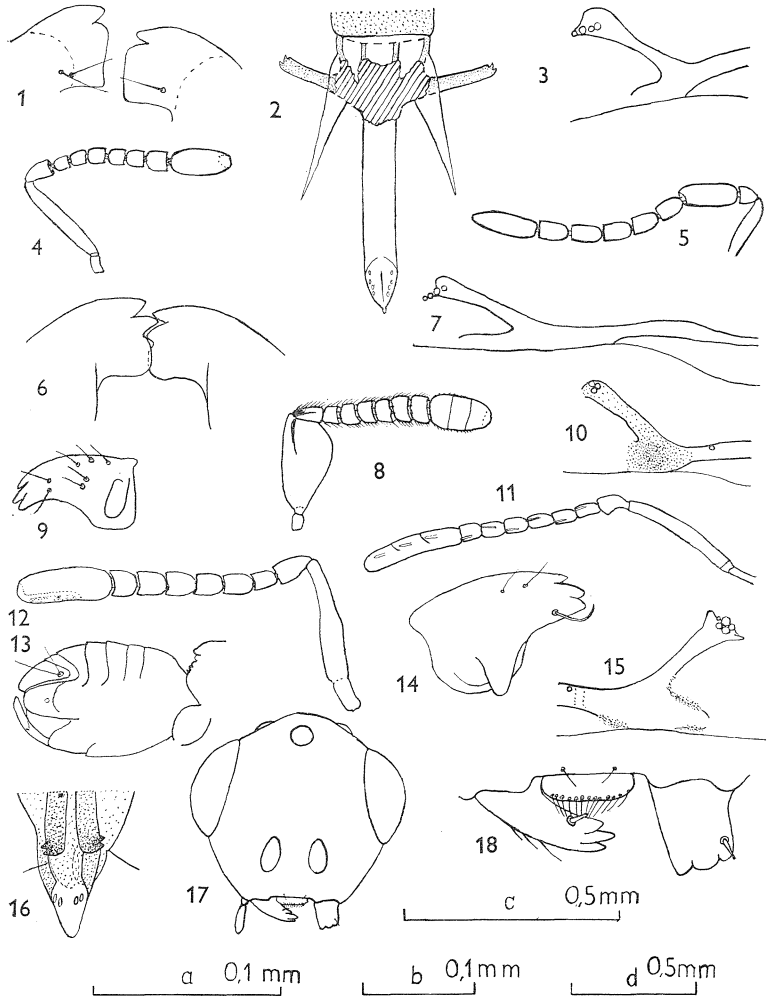
Mayridia sp. ♂, fig. 7, maxillary palpus, —8, antenna, —9, venation, —10, mandibles.

Zeteticontus laeviscutum Th. ♀, fig. 11, mandibles, —12, antenna, —13, venation.

Anabrolepis zetterstedti Westw. ♂, fig. 14, antenna, —15, mandibles, —16, phallus.

a, scale of figs. 6, 15—16; b, 2—4, 7, 9—11, 13; c, 8, 12, 14; d, 1, 5.

TABLE 10.



Mercetia lusitanica Merc. fig. 1, ♀, mandibles, —2, ♂, apex of phallus, —3, ♀, venation, —4, antenna, —5, ♂, do.

Paraphaenodiscus incertus Merc. fig. 6, ♀, mandibles, —7, venation, —8, antenna.

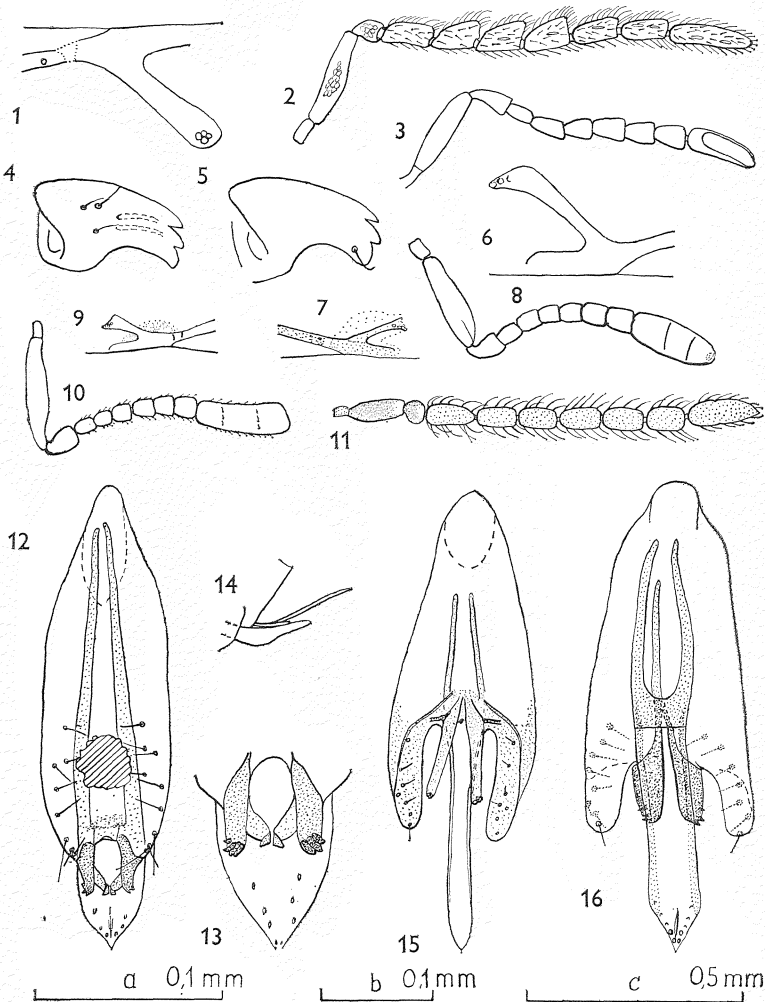
Copidosoma montanum Merc. fig. 9, ♀, mandible, —10, venation, —11, antenna.

Copidosoma igneum n. sp. fig. 12, ♀, antenna, —13, abdomen, —14, mandible, —15, venation.

Listomastix suspectus n. sp. fig. 16, ♂, apex of phallus, —17, head, —18, mandibles.

a, scale of figs. 1—2, 6, 16; b, 3, 7, 10, 14—15, 18; c, 4—5, 8, 11—12, 17; d, 13.

TABLE 11.



Litomastix suspectus n. sp. ♂, fig. 1, venation, —2, antenna.

Lit. tvediensis n. sp. ♂, fig. 3, antenna, —4, left mandible, outer view, —5, right one, inner view, —6, venation, —14, external part of phallus, lateral view, —15, phallus, dorsal view.

Pseudencyrtus misellus Dalm. ♀, fig. 7, venation, —8, antenna.

Syrphophagus fuscipes Dalm. ♀, fig. 9, venation, —10, antenna, 11, ♂, antenna.

Litomastix truncatellus Dalm. ♂, fig. 12, phallus, —13, the apical part from another specimen.

Lit. chalconotus Dalm. ♂, fig. 16, phallus, ventral view.

a, scale of fig. 13; b, of fig. 1, 4—6, 12, 15—16; c, of figs. 2—3, 7—11, 14.

