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Bkdf. (Hym., Mymaridae)

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**Description of the male of *Eustochus atripennis*
HAL., 1833, and of new terricolous species of
Cleruchus ENOCK, with remarks on *Anagrella* BKDF.
(Hym., Mymaridae)**

(XXIII. — Researches on the *Hymenoptera Chalcidoidea*)

by

GENNARO VIGGIANI

In recent years new taxinomic and ecological knowledge has been achieved by the study of interesting Mymarids collected from moss, leafmould, decaying vegetation, dead leaves, nests of small mammals, debris left behind after a flood, etc. Several new Mymarids with apterous or reduced forms have been described (FERRIÈRE, 1952; BAKKENDORF, 1962; 1964 a; 1964 b; NOVICKY, 1965; MATHOT, 1966; 1968) and the evidence suggests for these species a connection with a subterranean life.

From Dr. CL. BESUCHET, Museum of Natural History, Geneva, I have received rich material of terricolous Mymarids for determination. In this note I describe the male of *Eustochus atripennis* HAL. and two new species of *Cleruchus* ENOCK. General information on the determined material has been provided.

To Dr. BESUCHET I wish to express my sincere thanks.

***Eustochus atripennis* HAL.**

Eustochus atripennis HALIDAY, 1833, Ent. Mag. 1: 349.

The first male of the genus *Eustochus* has been described by BAKKENDORF (1964) for the species *E. besucheti* BKDF., but the male of the genotype was unknown up to now.

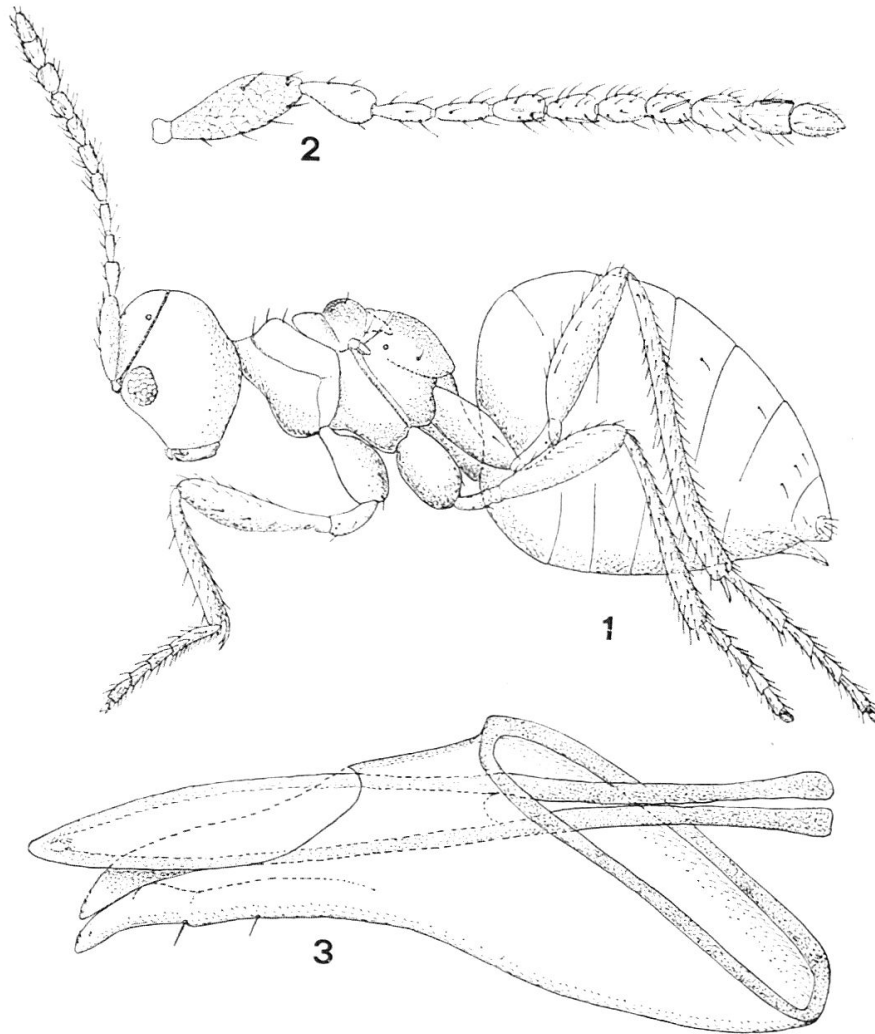
Male, apterous form (Fig. 1). Body basically yellow brown, dorsally slightly darker; legs lighter; head carinae dark brown. Length: 1,1 mm.

Head in frontal view larger than high; eyes reduced; ocelli present. Antennae (Fig. 2) composed of scape, pedicel and 9 flagellar segments; scape as long as the pedicel and the first flagellar joint combined; 4th flagellar joint narrow, longer than wide and as long as the 3th joint; subsequent joints broader toward apex, but shorter and with few elongate sensoria. Length ratio of antennal joints: 17:9:7:7:6,5:

6,0 : 5,0 : 5,0 : 5,5 : 5,5 : 6,0 ; breadth ratio : 6,5 : 5,0 : 2,5 : 2,5 : 3,0 : 4,0 : 4,0 : 4,0 : 5,0 : 5,0 : 4,5.

Thorax narrower than head and abdomen ; mesoscutum small ; scutellum clearly convex ; metanotum short ; propodeum as long as the hind coxae. Legs almost long and slender with the following length ratio among the parts : fore legs, 15 (coxa) : 10 (trochanter) : 24 (femur) : 28 (tibia) : 8 (spur) : 9 (I tarsal segment) : 5 (II tarsal segment) : 5 (III tarsal segment) : 5,5 (tarsal segment) ; middle legs, 15 : 10 : 30 : 41 : 4 : 8 : 5 : 5 : 6 ; hind legs, 25 : 10 : 40 : 63 : 4 : 14 : 9 : 8 : 7.

Petiole as long as hind coxae. Abdomen high, longer than thorax (27 : 15). Copulatory organ (Fig. 3) with large phallobase and quite long parameres ; digiti absent ; aedeagus with apodemes as long as the phallobase. Phallus length : 0,19 mm.¹



Figs. 1-3. — *Eustochus atripennis* HAL., male. — 1. Adult. — 2. Antenna. — 3. Copulatory organ, lateral view.

¹ According to BAKKENDORF (1964) in the phallus of *E. besucheti* the parameres are apparently absent.

Material examined. 1 ♂ (allotype), from ground taken near the base of an old trunk, together with 22 ♀♀ of the same species, Switzerland (Valais), Vouvry, 27.III.67 (leg. BESUCHET). Allotype in the Museum of Natural History, Geneva.

Remarks. The male of *E. atripennis* differs from *E. besucheti* mainly for the following characters: larger body size, basal flagellar joints relatively slender and segments 4–6 clearly longer than wide.

***Cleruchus longicornis* n. sp.**

Winged female. Body basically yellowish brown, with legs lighter, trabeculae dark brown, eyes reddish, ocelli light yellow and wings faintly infumated. Length: 1,0 mm.

Head slightly wider than long, eye small with 10 ommatidia visible in its length axis, ocelli disposed in a large triangle. Antennae (Fig. 4) inserted near the mouth, long a little more than $\frac{2}{3}$ of the total body length, composed of scape, pedicel, 6 funicle joints without sensoria and simple club; scape slightly longer than pedicel and I–II funicle segments combined; I–IV funicle joints longer than broad and VI as long as wide; club clearly longer than last four funicle joints. Length ratio of antennal joints: 21 : 8 : 4 : 5 : 5,5 : 4,5 : 4,0 : 3,5 : 22; breath ratio: 4 : 3 : 2 : 2 : 2 : 3 : 3 : 4 : 5.

Thorax shorter than abdomen; mesoscutum twice the length of the scutellum with distinct parapsidal sutures; mesophragma reaching nearly the base of the petiole; propodeum large, twice wider than long, with 2 and 2 subspiracular microsetae; petiole transverse. Wings in shape and structure typical for the genus. Fore wings (Fig. 5) about 10 times as long as disc width, venation (Fig. 6) in the basal $\frac{1}{3}$ of the anterior margin as long as the longest marginal cilia; disc as in other species (e.g. *Cleruchus detritus* BKDF.) with a row of hairs along the anterior border, in addition, a median row from the middle nearer the anterior margin leaving a large hairless area and a submarginal row at the posterior border. Hind wings very slender (length 76, breath 3), parallelsided, with a row of hairs along the anterior margin and fringe shorter than fore marginal cilia. Legs normal; length ratio of leg segments: fore legs, 12 (coxa) : 4 (trochanter) : 19 (femur) : 17 (tibia) : 5 (spur) : 5,5 (I tarsal segment) : 3,5 (II tarsal segment) : 3,0 (III tarsal segment) : 4,0 (IV tarsal segment); middle legs, 7 : 5 : 16 : 22 : 2 : 5 : 4 : 4 : 4; hind legs, 14 : 7 : 22 : 31 : 2,5 : 6 : 5 : 5 : 5.

Abdomen ovate, longer than thorax (55 : 42); ovipositor hardly exerted, $\frac{1}{3}$ as long as the abdomen.

Apterous female (Fig. 7). Very similar to the winged form. Length of body: 0,7 mm.

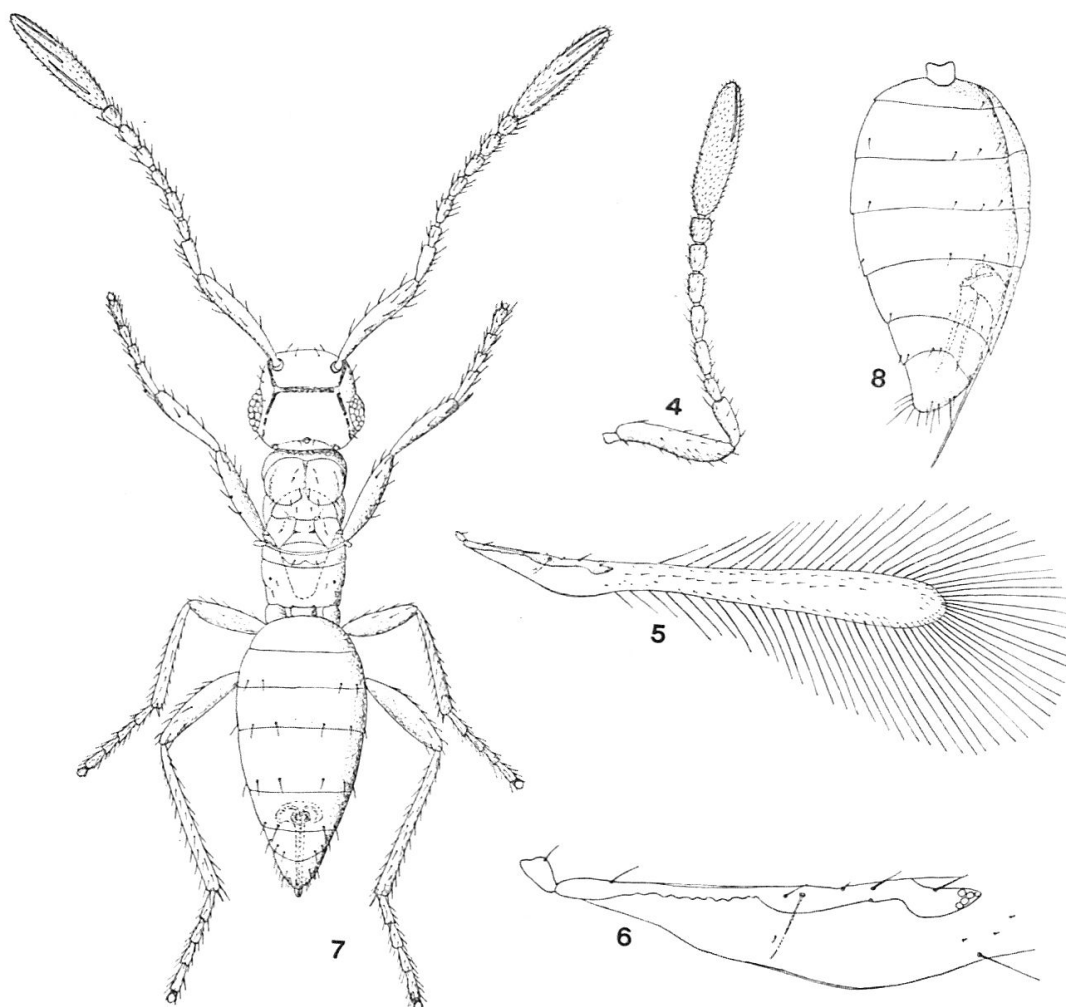
Head wider than thorax, eye small with 7–8 ommatidia in its length axis; ocelli present. Length ratio of antennal joints: 17 : 6 : 3 :

4 : 3,5 : 3,5 : 3,0 : 3,5 : 18 ; breath ratio : 3 : 3 : 2 : 2 : 2 : 2 : 2 : 2,5 : 4.
Wing stumps very short, reaching the posterior margin of the metanotum. Legs and abdomen as in the winged form.

Male unknown.

Material examined. 1 winged (holotype) and 28 apterous ♀♀, from ground taken near the base of trees, Italy (prov. Bergamo), Fonda, 25.VI.66 (leg. BESUCHET). Holotype in the Museum of Natural History, Geneva.

Remarks. The new species *C. longicornis* is related to *C. leptosoma* DEB., from which it differs mainly in the shape of some funicle joints and in the fore wing discal setae lacking the submarginal row of hairs.



Figs. 4-7. — *Cleruchus longicornis* n. sp., female. — Winged form : — 4. Antenna. — 5. Fore wing. — 6. Basal part of the fore wing with venation. — 7. Apterous form : Adult. — Fig. 8. *Cleruchus terebrator* n. sp., abdomen, lateral view.

Cleruchus terebrator n. sp.

Apterous female. Colour predominantly yellowish brown, with legs slightly lighter as in other species. Length: 0,81 mm.

Head typical for the genus; eyes relatively small; ocelli present. Antennae slender; length ratio of antennal joints: 18:6:3:5:5:5:4,5:4:17; breath ratio: 3:2:1,5:1,5:1,5:2:2:2,5:3,5.

Thorax shorter than abdomen (23:50), with general structure as in *C. longicornis*; wing stumps a little shorter than propodeum length; petiole transverse. Legs normal; length ratio of leg segments: fore legs, 8 (coxa):9 (trochanter):17 (femur):15 (tibia):5 (spur):6 (I tarsal segment):4 (II tarsal segment):4 (III tarsal segment):4 (IV tarsal segment); middle legs, 4:5:15; 20:2:6:5:4:4; hind legs, 11:10:28:25:3:8:5,5:5:4.

Abdomen ovate (Fig. 8), longer than thorax; ovipositor well developed, as long as a little more the half of the abdomen and exerted for $\frac{1}{6}$ of its length.

Male unknown.

Material examined. 1 ♀ (holotype) and 4 ♀♀ (paratypes), from dead leaves, Switzerland (Vaud), Yverdon, 8.III.66 (leg. BESUCHET et COMELLINI). Holotype in the Museum of Natural History.

Remarks. The new species *C. terebrator* differs from the other known species of *Cleruchus* mainly for the abdomen structure. It appears to be related to *C. megatrichus* NOW.

Anagrella BKDF.

BAKKENDORF (1962) proposed this new genus for a subterranean species of Mymarid with habitus very similar to *Anagrus* HAL. The main character for separating *Anagrella* from *Anagrus* seems to be the longer first funicle segment in the first genus, as in *Paranagrus* PERK. According to ANNECKE & DOUTT (1961) the grounds for separating *Paranagrus* from *Anagrus* are insufficient. The present author agrees with this view and after the study of many specimens of *Anagrella mymaricornis* BKDF. proposes to regard *Anagrella* as a new synonym of *Anagrus*.

Anagrus mymaricornis (BKDF.), n. comb.

This species has been described in detail by BAKKENDORF (1962). In the course of this work the author has examined about 40 specimens of *A. mymaricornis* from Switzerland, Italy and France and on this basis he suggests that the position of the second macrochaeta as figured by BAKKENDORF (l.c., Fig. 2) seems to be exceptional or erroneous.

Comment on the studied material

The Mymarid material submitted to me by Dr. BESUCHET for determination is represented by 233 specimens collected in 47 distinct locali-

SAMPLE No.	Number of specimens collected for each genus											
	<i>Alaptus</i>	<i>Anagrus</i>	<i>Anaphes</i>	<i>Camptoptera</i>	<i>Cleruchus</i>	<i>Eustochus</i>	<i>Litus</i>	<i>Lymaenon</i>	<i>Ooctonus</i>	<i>Patasson</i>	<i>Polynema</i>	<i>Stephanodes</i>
47										1		
Total . . .	1	47	15	5	43	61	21	3	5	13	14	5
Number of species involved . .	1	3	5	4	5	2	1	2	2	4	4	1

The genera *Eustochus*, *Cleruchus*, *Anagrus* and *Anaphes* appear to be numerically the most represented, nevertheless the frequency (Fig. 9) of each genus referred to 47 samples collected in distinct

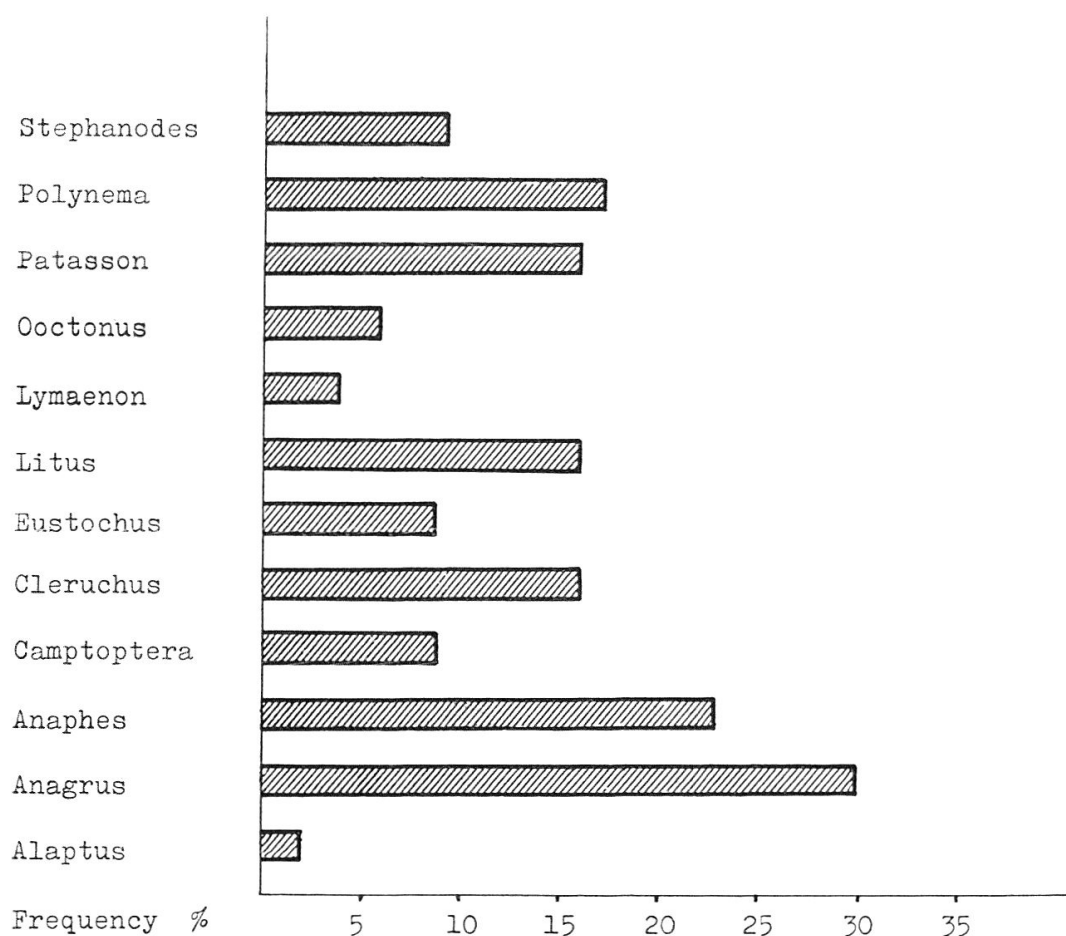


Fig. 9. — Graph showing the frequency of the genera.

localities is higher for *Anagrus* (30%), *Anaphes* (23%), *Polynema* (14%) and *Cleruchus*, *Litus*, *Patasson* (respectively, 13%). It is interesting to note that the 80% of *Anagrus* specimens collected is represented by *A. mymaricornis*.

Summary

The author describes the male of *Eustochus atripennis* HAL. and the new terricolous species *Cleruchus longicornis*, n. sp., and *Cleruchus terebrator*, n. sp. He proposes to synonymize *Anagrella* BKDF. under *Anagrus* HAL. (n. syn.) and gives general information on the terricolous Mymarids examined.

Résumé

L'auteur décrit le mâle d'*Eustochus atripennis* HAL. et les nouvelles espèces terricoles *Cleruchus longicornis*, n. sp. et *Cleruchus terebrator*, n. sp. Il propose la synonymie d'*Anagrella* BKDF. avec *Anagrus* HAL. (n. syn.) et donne des informations générales sur les Mymarides terricoles examinés.

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