A cave-dwelling *Myrmeleon* from Israel (Neur. Myrmeleontidae)

By Bo Tjeder

Three males of the new species discussed at this time were included in a small collection of Neuroptera sent for identification by Dr. J. Wahrman of the Hebrew University, Jerusalem. The species had been the object for certain cytological studies, recently carried out at the Hebrew University. After having found that the specimens represented an undescribed species I communicated with Dr. D. E. Kimmins of the British Museum, Natural History, who informed me that the museum possesses one pair of the same species among undetermined material. Moreover, he kindly sent me the ♀ specimen and a preparation of the abdominal end of the ♂ for study and comparison with the available specimens mentioned above.

I wish to thank Dr. Wahrman for the opportunity to study this and other species from Israel and I gratefully acknowledge the co-operation of Dr. Kimmins who made it possible for me to describe also the female of this interesting species.

Myrmeleon circumcinctus n. sp.

(Figs. 1—13)

Locus typicus: Qeisariya crossroads, Israel. — Type: a ♂ in the collections of the Hebrew University, Jerusalem.

Description

Holotype ♂ (pinned).

Size: body 32 mm, abdomen 24 mm, forewing 33 mm, hindwing 31 mm, antenna 4.5 mm.

Head greyish yellow with black markings (fig. 1). Colour of lower part of frons shining black with a central yellow spot. Clypaeus also shining black with yellow margins. Labrum brownish with pale margins. Upper part of frons dull greyish black and rugose. Spots on anterior part of epicranium dull black and finely reticulate. Hind part of epicranium with a central brown spot, divided by the epicranial suture which is pale, and an elongate, irregular black spot on each side. Postocular lobes with a brown, linear stripe on each side near the eye. Maxillary palpi with 3rd and 4th segments blackish

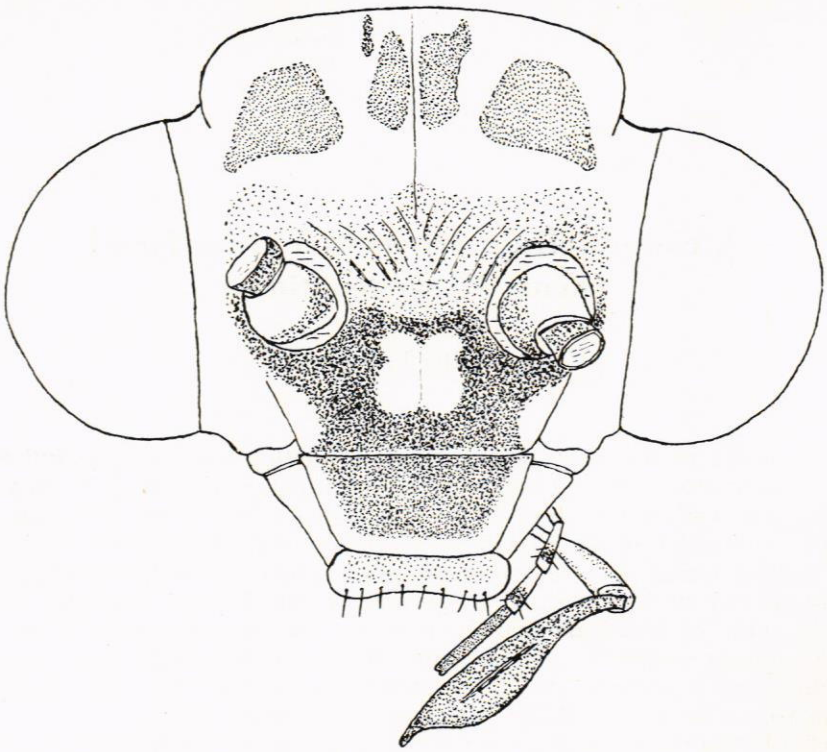


Fig. 1. *Myrmeleon circumcinctus* n.sp. holotype ♂. Head in front.

before apex; 5th segment all black. Labial palpi pale with last segment shining black. Antennae (broken but found and gummed to a slip of paper fixed on the pin) short; scape yellow, black on inside; pedicel black; flagellar segments brown.

Pronotum yellow with a narrow black middle-stripe and a large, irregularly triangular black spot on each side, which spot extends forwards to the transverse impression. Lateral margins broadly yellow, hind margin narrowly so. Meso- and metanotum yellow in the middle, blackish along the lateral margins. Lateral sides of meso- and metathorax with black and brown spots, darkest below the root of forewing. The whole thorax with rather long, not very dense, pale hairiness. Legs yellow with tips of tarsal segments narrowly black. Spurs shorter than 1st tarsal segment, reddish; claws red. Hairs of legs black.

Wings hyaline, without spots. Venation luteous, almost citrine. Only the extreme root of Cu in forewing dark and R in hindwing with a dark spot on root. Hairs on veins short, dark. Marginal fringes short, black, very dense, so that the pale wings appear to have a narrow black margin. Venation as in fig. 2. Pilula present, yellowish with a dense golden hair-brush.

Abdomen yellowish with rather dense, short, yellow hairiness. Tergites 2—8 with a narrow dorsal middle-line, narrowly broken over the base of each tergite, and with a broad blackish lateral stripe which on segments 7

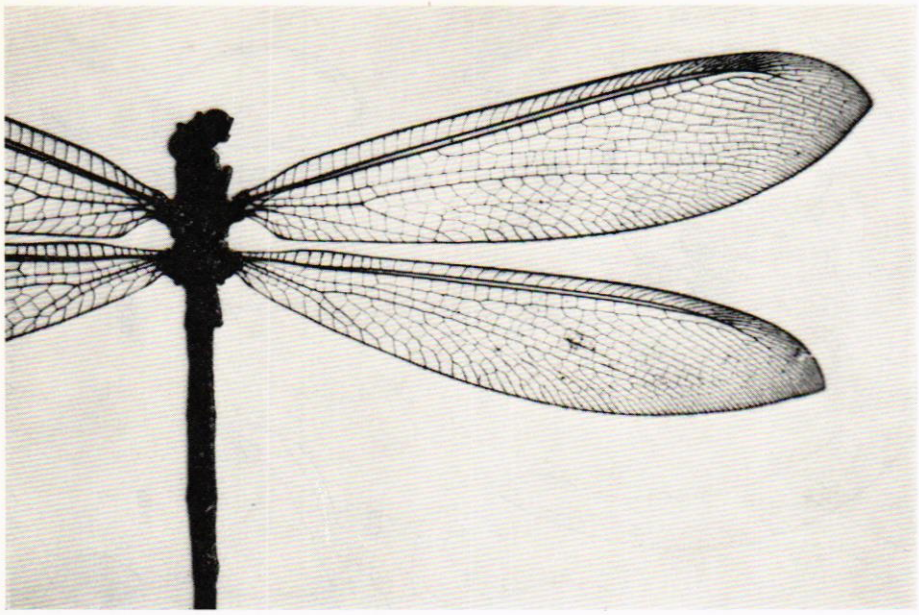


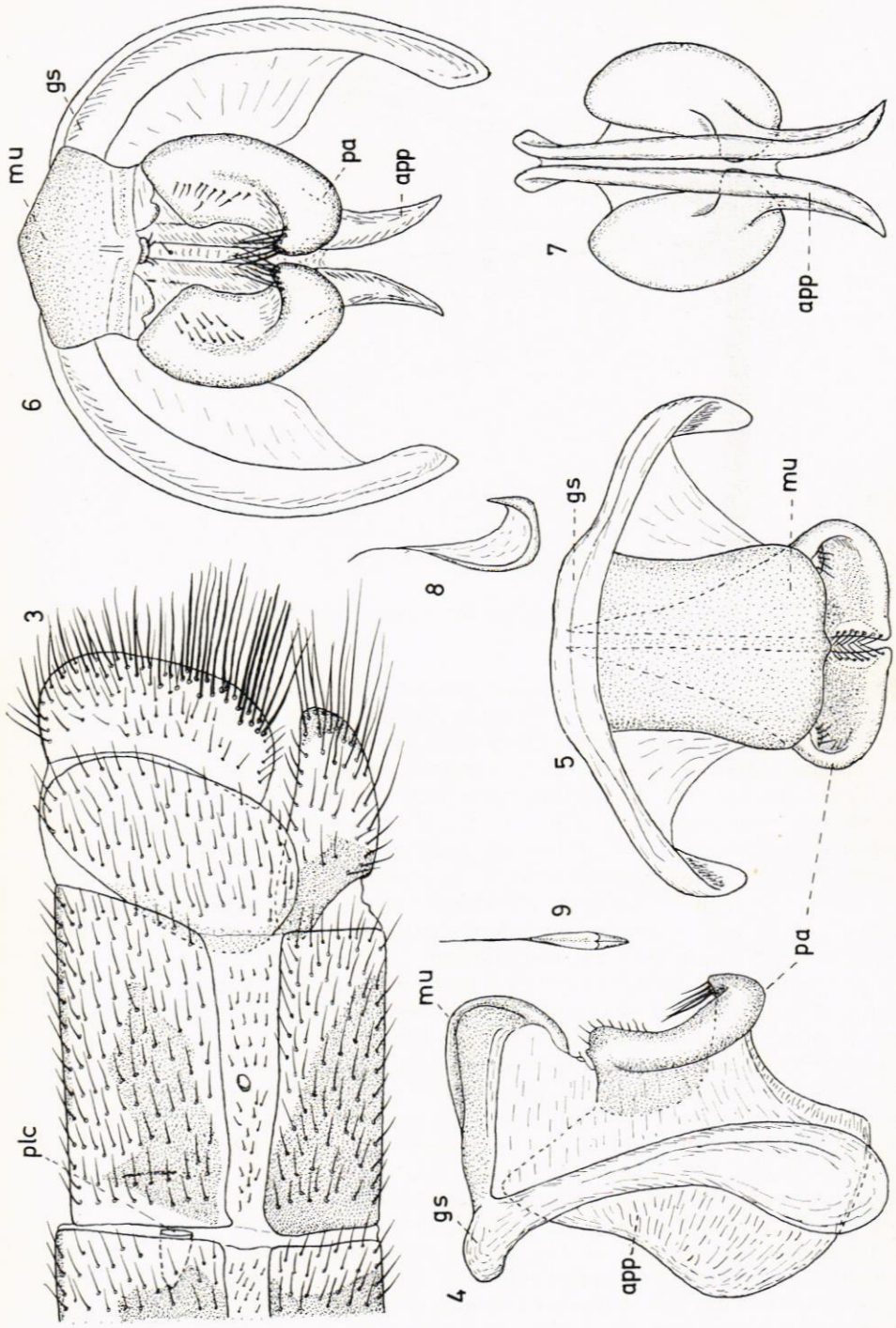
Fig. 2. *Myrmeleon circumcinctus* n.sp. holotype ♂.

and 8 does not reach the hind border. Sternites 2—7 blackish with narrow, yellow hind margins. Sternite 8 broadly yellow in its distal part (fig. 3). Pleuritocavae short. Halves of tergite 9 broadly ovate with smoothly rounded lower margin. Sternite 9 elongately scoop-like, projecting. Ectoprocts narrow; their lower portion not projecting, smoothly rounded. Gonarcus a slender arch without entoprocessus (figs. 4—6). Mediuncus large, blackish, very broad in dorsal view (fig. 5); its apical part curved downwards-forwards as illustrated in fig. 4 and having centrally on underside a very small plate with a few short setae, shown in fig. 6. Parameres (figs. 4—7) large, each with an extremely large and expanded apophysis proxima, not fused but membranously strongly connected to one another. Their apical part broad with concave surface and upwards bent tip as shown in figs. 4 and 6. Tip with a group of long hairs. Some short hairs present on the upper part. Hypandrium internum small and pale, of shape as illustrated in figs. 8 and 9.

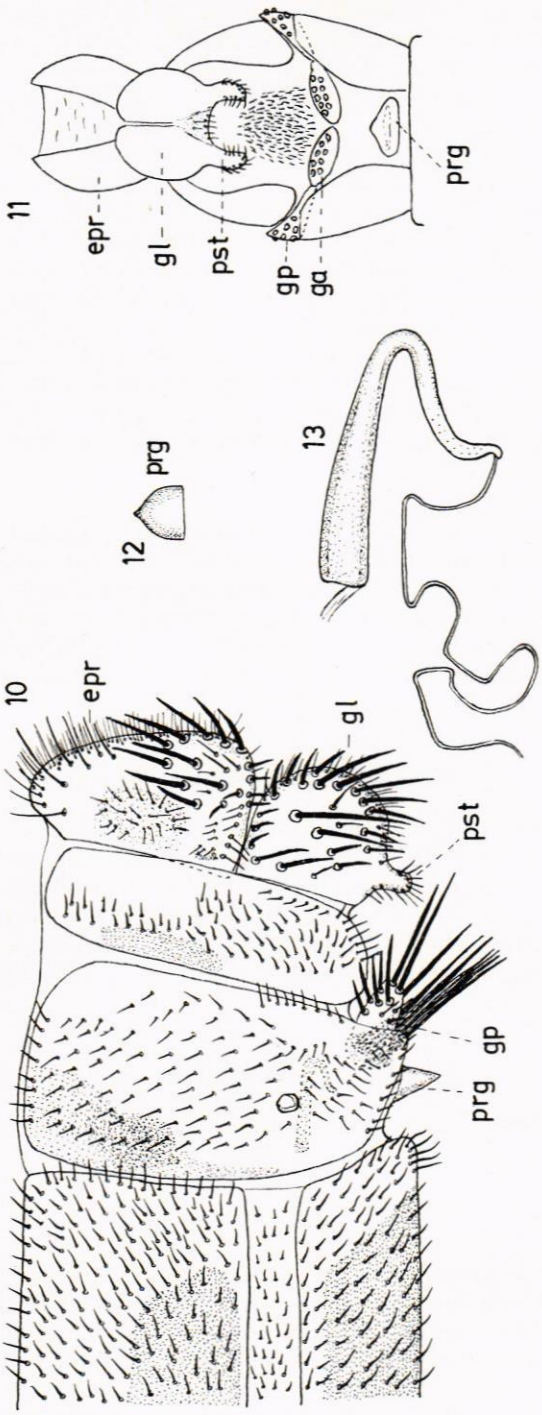
Allotype ♀ (pinned; slightly teneral; antennae lost).

Very similar to the holotype ♂ but slightly paler (on account of its teneral state). The markings of the head are thus more brownish than black. The central stripe on pronotum does not reach the hind border. Meso- and metanotum also a little paler than in the holotype.

Abdomen as in the holotype but the pale hairiness towards the end of the abdomen intermingled with black hairs. Hairs on segments 7—9 also shorter and more stiff than in the ♂; on tergites 8—9 very short, stiff and black. Colour of segments 1—7 as in the holotype. Tergites 8 and 9 each with a dark spot as shown in fig. 10. Halves of tergite 8 very broad in the dorsal part, slightly tapering downwards. Halves of tergite 9 long and narrow, of uniform



Figs. 3—9. *Myrmeleon circumcinctus* n.sp. holotype ♂. — 3. Apex of abdomen, lateral. — 4. Gonarcus and parameres, lateral. — 5. Ditto, dorsal. — 6. Ditto, caudal. — 7. Parameres, frontal. — 8. Hypandrium internum, lateral. — 9. Ditto, dorsal. Abbreviations: app=apophysis proxima; gs=gonarcus; mu=mediuncus; pa=paramere; plc=pleuritocava.



Figs. 10—13. *Myrmeleon circumcinctus* n.sp. allotype ♀. — 10. Apex of abdomen, lateral. — 11. Ditto, from below and somewhat from behind. — 12. Praegenitale, caudal. — 13. Spermatheca, lateral.

Abbreviations: epr = ectoproct; ga = gonapophysis anterioris; gl = gonapophysis lateralis; gp = gonapophysis posterioris; prg = praegenitale; pst = pseudostylus.

breadth. Ectoproct a little broader than tergite 9 with somewhat projecting upper part and smoothly rounded lower angle. Praegenitale present, being a large, stiff, tooth-like structure (figs. 10, 11, 12, prg). Gonapophyses anteriores (fig. 11, ga) elongate, transverse, not visible in lateral view. Gonapophyses posteriores (gp) short, projecting. Gonapophyses laterales (gl) large, rounded, with a ventral expansion (pseudostylus, pst), apparently for digging purposes. The two gonapophyses laterales are fused in their lower portion by means of a thin membrane which carries some short setae as illustrated in fig. 11. Spermatheca tubular, bent angularly as in fig. 13. The membrane which ventrally covers segment 9 is infolded and clothed by a very dense, short hairiness (fig. 11). Long and strong digging hairs are present on the three pairs of gonapophyses and on the ectoprocts as shown in fig. 10. The ectoprocts carry in addition to the digging hairs a number of ordinary hairs along the hind margin, most of them very thin and pale. A number of thin hairs is also present centrally on the ectoproct, arranged as trichobothria but not being true trichobothria, their sockets being simple like those of ordinary hairs.

Paratypes ♂♂ (pinned).

One paratype from the same locality as the holotype agrees perfectly with the holotype but is slightly smaller; forewing 30 mm. Another paratype, from Khirbet Sanasin, is very teneral and therefore much paler than the holotype; spots on head pale brown instead of black, stripes on pronotum vestigial, a.s.o. A third paratype, from Carmel, is also in teneral condition. The genital structures of the paratypes have been examined. They agree with those of the holotype.

Geographical Distribution

Israel: Qeisariya crossroads, holotype ♂ (coll. no. 810) and paratype ♂ (coll. no. 808), 26.vi.1961, leg. Friedlander. Holotype in the coll. of the Hebrew University, Jerusalem, paratype in the author's collection. — Khirbet Sanasin, paratype ♂ (coll. no. NE 558), 10.viii.1961, leg. U. Ritte, in the coll. of the Hebrew University. — Carmel, allotype ♀ and paratype ♂, July 1931 (bred from larvae), leg. P. A. Buxton, in the collections of the British Museum, Natural History, London.

Ecological Distribution

The specimens from Carmel were bred from larvae, found in the floor of a cave.

Note

This species is distinguished by the pale wings with yellow venation, bordered by a thin black line, formed by the dense row of dark fringes, and by the genital structures which are quite unlike those of all other species of which the genitalia have been described. The modifications of the abdominal end of the female: the large and strong praegenitale, the presence of pseudostyli and the strengthening fusion of the gonapophyses laterales seem

to be specializations for digging in harder ground than usual. No one of the few European and Mediterranean species of this genus exhibit modifications of such a kind. The praegenitale is thus small or lacking and the gonapophyses laterales are free from one another and lack pseudostylus. — A similar pseudostylus is known to occur in Australian Ithonidae and was by Tillyard called psammarothrum (i.e. sand-plough).

Cave-inhabiting species are scarce in this family but are known before, from other regions. According to Adams (Psyche, 63, p. 92, 1957) the species *Eremoleon longior* Banks from Yukatan is a cave-dweller, and the types of *Eremoleon pallens* Banks were collected from a mine shaft in Arizona. The species *Xantholeon helmsi* Till. lives in sandstone caves around Sydney, N.S.W.