

BIOLOGY AND FIRST INSTAR LARVA OF *EPIMETOPUS TROGOIDES* (COL., HYDROPHILIDAE)

ARISTIDES A. ROCHA

ABSTRACT

First instar larvae of *Epimetopus trogoides* (Sharp, 1875), found in the egg-sac of a female collected at Arinos, state of Minas Gerais (at light), are described. Richmond's discussion of the systematic position of the genus based on larval characters (1920), is briefly discussed.

A collecting party from this Departamento brought back a collection made, in November 1964, in the northwestern part of the state of Minas Gerais. Among other aquatic insects, there were two gravid females of *Epimetopus trogoides* (Sharp, 1875) from Arinos, MG. Both showed an egg-sac appended to the under surface of the abdomen, containing larvae. The presence of such a sac in *Epimetopus* has been previously reported by Sharp (1875) and Schwarz & Barber (1917), but the larva was heretofore undescribed.

The present contribution deals with a description of the sac, its position on the insect, and a description of the larva. The contribution of larval morphology to an understanding of the systematic position of *Epimetopus* is briefly discussed.

***Epimetopus trogoides* (Sharp, 1875)**

Sepidulum trogoides Sharp, 1875:349.

Epimetopus trogoides; Zaitzev, 1908:353, (Cat.); Schwarz & Barber, 1917:132 (Key); Knisch, 1924:95 (Cat.); Blackwelder, 1944:168 (Cat.); Balfour-Browne, 1949:13 (Key) fig. 1 (male genitalia).

EGG-SAC

The egg-sac (figs. 1-2, 6) is made of a closely woven silk-like material, yellowish-brown in color (lighter than the insect), completely opaque. Its contour follows that of the abdomen. It lays under the urosternites, in a depression of the ventral surface of the abdomen, not connected to the insect body, but only kept in place by the pressure of the hind femora and tibiae. One sac measured 1,25 mm in length and 1,45 mm in width.

Such a sac has been reported in other hydrophilids, being called "egg case" (Richmond, 1920; Boving & Henriksen, 1938) and "cocoon ovigère" (Miall, 1895; Bertrand, 1962).

Dissection of our two specimens revealed 17 larvae, closely packed and intertwined, in each sac.



Fig. 1: *Epimetopus trogooides* (♀) with egg-sac.

LARVA (figs. 3-5, 7-10)

This description is based on larvae taken from the egg-sac. The larvae are campodeiform, elongate, more or less compressed, scarcely sclerotized, with three-segmented cerci.

Head (fig. 3) scarcely elevated, almost horizontal, rounded, as long as 1/6 of the length of the larva, with an ocular spot on each side. Labrum and clypeus apparently fused.

Mandibles (fig. 7) well developed, with two areas: one dorsal, more sclerotized, bearing a tooth near the middle of the inner side and finely dentate from this tooth to the tip; the other area

ventral, membranous, terminating in a sharp tooth, and with several shorter teeth and bifurcate hairs on the inner side.

Maxilla (fig. 8) palpiform, conical, five-segmented, with short hairs on the inner side; basal segment as long as the following three together; apical segment shorter than the others, with five papillae at the apex.

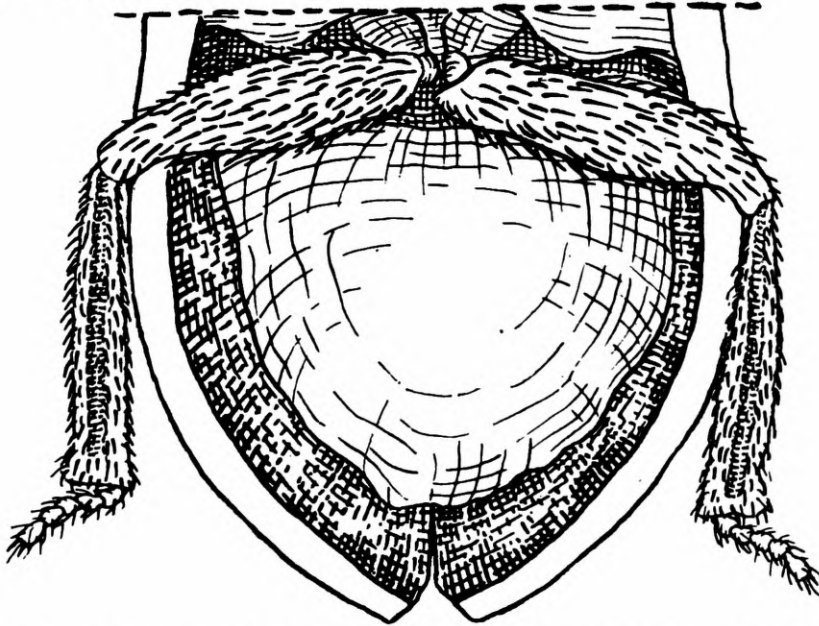


Fig. 2: *Epimetopus trogoidea* (♀) detail of abdomen containing the egg-sac.

Antenna (fig. 5) shorter than the maxilla, cylindrical, three-segmented. Basal segment shorter than the middle one; third segment small, globose, with four long apical hairs. Supplementary process conical, as long as the last segment.

Thorax more sclerotized, being the widest region of the body of the larva; each segment with one pair of legs. Leg (fig. 9) with some long hairs at the apex of the second segment. Unguiculus elongate, scarcely recurved at the tip, with two short teeth on the inner side. It should be noted that the outer side of the leg bears some hairs not shown on figure 9 on account of the position of the specimen.

Abdomen (figs. 4, 10) little sclerotized, with ten segments; the last one reduced in size, can be seen only ventrally; eighth segment (fig. 10) with four projections, each with one hair; ninth segment with two three-segmented cerci (figs. 4, 10). The other segments with scattered hairs.

SYSTEMATIC POSITION

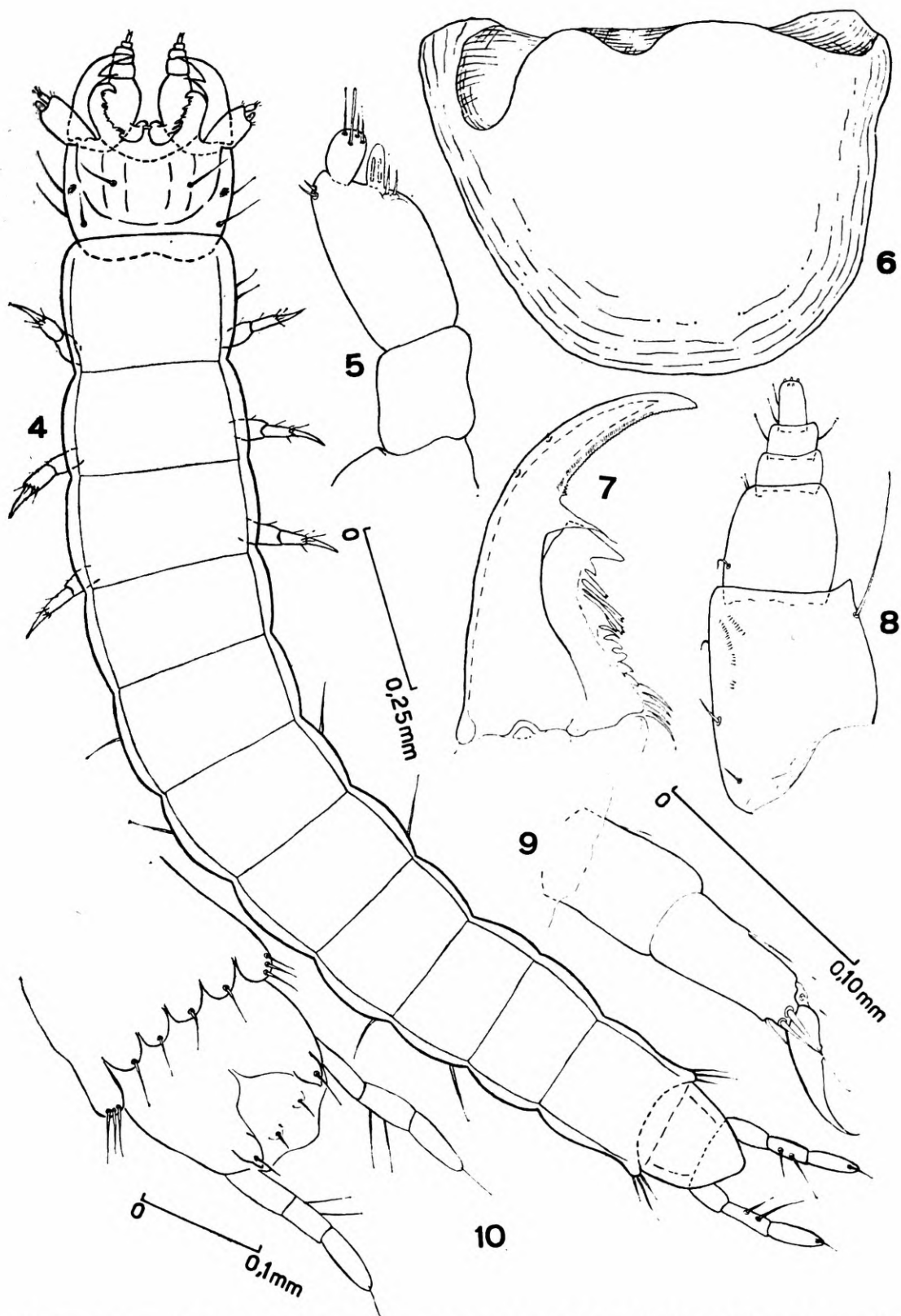
Epimetopus was placed next to *Spercheus* and far from any other genus in a phylogenetic diagram of the Hydrophilidae by Richmond (1920:81), based on the larva of all genera but *Epimetopus*. This is probably why Richmond qualified with a question mark (not explicitly explained) the relationship between the two genera.

In fact, both genera agree in that the sac remains attached to the female until the larvae are ready to feed for themselves (Leech & Chandler, *in* Usinger, 1956). Contrarily, however, they differ somewhat in larval morphology. In this regard *Epimetopus* resembles more closely *Helophorus*, whose sac is laid among vegetation or other substrata (Boving & Henriksen, 1938).

Thus, while it is probably right to say that *Epimetopus* is related to *Spercheus*, *Helophorus* must also be brought closer to the ensemble.



Fig. 4: *Epimetopus trogoidea*, head of larva (dorsal view).



Epimetopus trogoides, larva. 4: dorsal view; 5: antenna (dorsal view); 6: egg-sac; 7: mandible (dorsal view); 8: maxilla (dorsal view); 9: leg; 10: ventral view of last abdominal segments.

RESUMO

O presente trabalho trata da descrição da bôlsa e das larvas nela contidas, encontradas em fêmea de *Epimetopus trogoïdes* (Sharp, 1875), Col. Hydrophilidae, Epimetopinae.

O material foi coletado à luz, cêrca de 100 metros de um riacho, na localidade de Arinos, noroeste do Estado de Minas Gerais e está depositado no Departamento de Zoologia da Secretaria da Agricultura do Estado de São Paulo.

REFERENCES

BALFOUR-BROWNE, J.

1949: Notes on the subfamily Epimetopinae with the description of new genus and three new species. *Proc. Roy. Ent. Soc. London (B)* 18:12-18, 6 figs.

BERTRAND, H.

1962: Contribution à l'étude des premiers états des coléoptères aquatiques de la région éthiopienne (4^e note). *Bull. Inst. franc. Afr. noire* 24(A):106-1114, 39 figs.

BLACKWELDER, R. E.

1944: Checklist of the Coleopterous insects of Mexico, Central America, the West Indies, and South America. *Bull. U. S. Nat. Mus.* 185(1):XII + 188 pp.

BOVING, A. G. & K. L. HENRIKSEN

1938: The developmental stages of the Danish Hydrophilidae. *Vidensk. Medd. naturh. Foren* 102:27-162, 55 figs.

KNISCH, A.

1924: *Junk's Coleopterorum Catalogus, pars* 79, 306 pp. Berlin.

LEECH, H. B. & H. G. CHANDLER, in USINGER, R. L.

1956: *Aquatic Insects of California with keys to north american genera and California species, Coleoptera*, pp. 293-371, 67 figs. Berkeley & Los Angeles.

MIALL, L. C.

1895: *The Natural History of Aquatic Insects, Coleoptera*, pp. 30-96, 21 figs. London.

RICHMOND, E. A.

1920: Studies on the Biology of Aquatic Hydrophilidae. *Bull. Amer. Mus. Nat. Hist.* 42:1-94, 16 pls.

SCHWARZ, E. A. & H. S. BARBER

1917: Two new hydrophilid beetles. *Proc. Ent. Soc. Washington* 19:129-135.

SHARP, D.

1875: On three new species of Hydrophilidae. *Ent. Mo. Mag.* 11: 247-249.

ZAITZEV, P. H.

1908: Catalogue des Coléoptères aquatiques des familles des Dryopidae, Georyssidae, Cyathoceridae, Heterocereidae et Hydrophilidae. *Hor. Soc. Ent. Rossicae* 38:283-420.