

XVI. NOTES ON SOME INTERESTING  
LARVAE OF DRAGONFLIES (ODONATA)  
IN THE COLLECTION OF THE  
INDIAN MUSEUM.

By F. F. LAIDLAW, M.A.

ZYGOPTERA  
LIBELLAGINAE.

*Rhinocypha unimaculata*, Selys.

Larvae 1 ♂, 1 ♀ Kalimpong, Darjiling Dist., Apr.-May, 1915.  
F. H. Gravely  $\frac{84}{H_1}$ .

Determined from venational characters. The specimen is a male in the last instar, its total length is 19.5 mm. It lacks the lateral triquetral gills. In general the specimen bears a resemblance to that of the larva of *Micromerus lineatus*, Burm. (Fraser, *Rec. Ind. Mus.* XVI, 1919, pp. 197-198, pl. xxiii). From examination of this specimen I can add the following to his account. The tergite of the eleventh abdominal segment is present, unmodified as a gill, and apparently identical in structure with the appendix dorsalis of the Anisoptera.

The gizzard consists of sixteen folds. Each carries a single row of about five conical teeth, distant from each other. I cannot make out any differentiation into major or minor folds.

This larva, and equally that of *Micromerus*, exhibit certain primitive characters, especially in the mask, the gizzard, and in the possession of an unmodified appendix dorsalis.

They approach in some respects the larvae of the Calopteryginae, whilst remaining I think rather less specialized. They show no evidence of near relationship to the Epallaginae. This is rather surprising as the venation of the adult has by most students been regarded as indicating a fairly close connection between these two subfamilies.

Their structure certainly emphasized the desirability of according the group subfamily rank.

SYNLESTINAE.

*Megalestes major*, Selys.

(Text-figs. 1-3.)

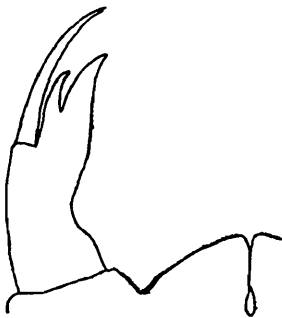
3 examples; Pashok, 5,500 ft.  $\frac{3463}{H_1}$ .

Mr. Tillyard has pointed out to me that these larvae, which I had previously identified from an examination of the venation, are not *Lestine* but most distinctly *Synlestine* in their characters. He was able to demonstrate a very close similarity in structure between the larva of *Megalestes* and that of the Australian genus *Synlestes*. Hence it is necessary to remove the genus *Megalestes* from the neighbourhood of *Lestes* and refer it to the subfamily *Synlestinae* as defined by Tillyard (*The Biology of Dragonflies*, p. 277). The subfamily will then include three genera:—*Synlestes*



TEXT-FIG. 1.—Gizzard (4 folds shown) of *Megalestes major*.

from Australia, *Megalestes* from India, and *Chlorolestes*, which is African. Needham has already described an unidentified larva of large size from India, which in important respects (*e.g.* structure of mask and caudal gills) is clearly related to *Megalestes*, though belonging to a larger insect. There is only one known Indian genus, *Orolestes* of MacLachlan, to which this larva can be assigned with any degree of probability; and in respect of details of venation, as noted by Needham, this ascription is very reasonable. Moreover, Mr. Tillyard has recently examined the type specimen of *Orolestes selysi* MacL. in the MacLachlan collection, and informs me that the species is a true *Synlestine*; so that when the identification of the larva is settled the genus must in all probability be added as a fourth to those of the subfamily. (See Needham, *Entomol. News* XXII, 1911, pp. 342—344, pl. xi, figs. 1—4.)



TEXT-FIG. 2.—Labium of *Megalestes major*.

I quote here Tillyard's definition of the larva of the *Synlestinae* (*Biology of Dragonflies*, p. 277).

“Larva very slender and elongated, with exceedingly long spider-like legs, mask with incised median lobe, lateral lobe narrow, cleft into two sharp teeth and with a denticulate inner border; movable hook long and

“slender; no setae present, antennae with greatly elongated pedicel, caudal gills with secondary tracheae somewhat oblique to gill axis. Gizzard with dentition reduced to a few large teeth on each field.”

This definition was drawn entirely from the larva of *Synlestes*, but it will be evident that the *Megalestes* larva (and also Needham's larva) show a close approach to the same type.

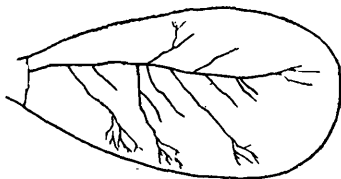
The measurements of the largest of the three larvae of *Megalestes major* (final instar?) are as follows:—

Total length 19.5 mm.; gills 5.75 mm. additional; abdomen

14 mm.; mask 3.25 mm.; antennae 3.5 mm. Breadth of head 4 mm.; length of hindermost femur 6 mm.

The creature is smooth and slender with long legs, and is of a nearly uniform sandy colour.

*Head*, widest across the middle of the large eyes; hind angles rounded, not spinulose. Antennae seven-jointed, the first and second segments stouter than the remainder, the third segment is the longest. Labium elongate, with hinge reaching to between second and third pairs of legs posteriorly. Median lobe cleft by a median incision which extends just below the level of the base of the lateral lobes. Lateral lobes with a long and strong movable hook, and with two stout incurved hooks on the end; the outer hook simple and half as large as the inner. Inner margin of lobe finely serrate. *No raptorial setae.*



TEXT-FIG. 3.—Lateral anal gill of *Megalestes major*.

*Legs* slender, longitudinally carinate. *Wings* reaching to base of fifth segment. *Abdomen* cylindrical, segment 10 slightly compressed, a dorsal ridge is present on 8-9-10, margin of the last segment entire. Lateral carinae on segments 1-9; on 6-9 these carinae each end apically in a small sharply pointed spine. Gills elongate oval, narrowed somewhat at their bases, each jointed on to a small basal segment, rounded regularly at their apices.

## ANISOPTERA.

### CORDULEGASTRINAE.

#### *Anotogaster* sp.

1 ♀ Dalat, Langbian Province, Southern Annam, 5,000 ft., C. Boden Kloss. March—May 1918. <sup>1455</sup>/<sub>H2</sub>.

Total length 45 mm; anal appendages 3.25 mm. additional. Head 9 mm. in width, equal to the greatest width of the body; labium 12 mm. long. Length of abdomen 33 mm; of hinder wing-case 9 mm. The specimen is a female, probably in the last instar. It is interesting geographically as it is I believe the first Cordulegastrine recorded from so far south, in Asia at any rate. I do not know of any record hitherto south of the Tropic of Cancer. Also its large size makes it remarkable and leads me to suppose that it is probably a larva of *Anotogaster sieboldi*, the largest species of the subfamily. The adult female of this Japanese species has a span of over 120 mm.