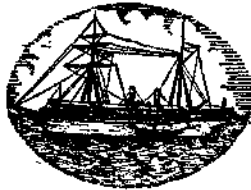


**PROCEEDINGS**  
**SYMPOSIUM ON CRUSTACEA**

**HELD AT**  
**ERNAKULAM**  
*FROM JANUARY 12 TO 15, 1965*

**PART I**



**SYMPOSIUM SERIES 2**

**MARINE BIOLOGICAL ASSOCIATION OF INDIA**  
**MARINE FISHERIES P.O., MANDAPAM CAMP**  
**INDIA**

ON A NEW SPECIES OF *LERNAEENICUS*, *L. BATAVIENSIS* (COPEPODA-LERNAEIDAE)  
WITH A KEY FOR THE IDENTIFICATION OF THE INDIAN SPECIES\*

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ABSTRACT

A new species of *Lernaenicus* parasite (Copepoda-Lernaëidae), viz., *L. bataviensis* obtained from the fish *Anchoviella bataviensis* is described and figured. The earlier works on *Lernaenicus* parasites from the Indian region are reviewed and a key is provided for the identification of the eleven Indian species.

TEN species of *Lernaenicus* have been recorded so far, from the Indian region. § They are *L. polynemi* (Bassett-Smith) 1898, *L. hemirhamphi* Kirtisinghe, 1933, *L. seeri* Kirtisinghe, 1934, *L. nemipteri* Gnanamuthu, 1953, *L. stromatei* Gnanamuthu, 1953, *L. ramosus* Kirtisinghe, 1956, *L. sayori* Yamaguti, 1939, *L. alatus* Rangnekar, 1961, *L. longiventris* Wilson, 1917, and *L. anchoviellae* Sebastian and George, 1964. *L. bataviensis* n. sp. described below is the eleventh species from the present locality.

*Lernaenicus bataviensis* n. sp.

(Figs. 1-7)

*Host and record.*—A single specimen of the parasite was found attached to the fish *Anchoviella bataviensis* (Hardenberg) with its head embedded in the dorsal muscles just behind the opercular opening. The host fish was obtained from a shore-seine operated in the Palk Bay on the South-East Coast of India.

Holotype female is deposited in the Reference Collection Museum of the Central Marine Fisheries Research Institute, Mandapam Camp, S. India.

*Description.*—The general body colour is yellowish with the genital segment orange brown.

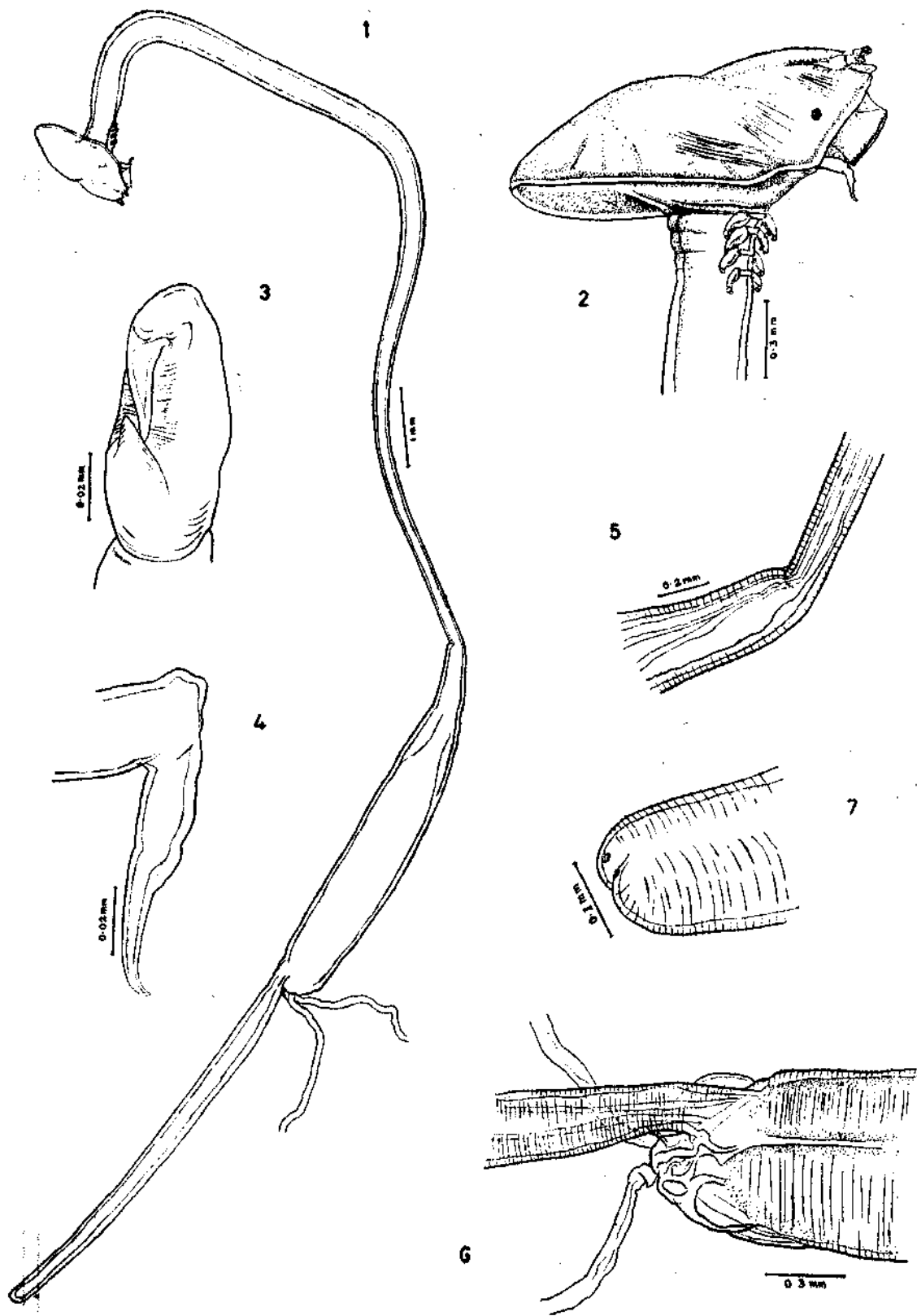
The head is situated at right angles to the free thorax; however, the anterior part of the neck has two nearly right-angled bends that the cephalothorax is turned backwards towards the abdomen (Fig. 1). The head, after a dorsal depression, is drawn out into a single posteriorly directed horn; the two together measure 1.5 mm. in length.

Antero-dorsally on the head are the first and second antennae, the first turned backwards and the second somewhat forwards. The second antenna is three-jointed, the middle joint carrying a knob on the inner side against which the terminal claw closes. Behind the antennae is the extended proboscis containing the mandibles and the maxillae. Arising from behind the base of the proboscis is a pair of maxillipeds, elongate and three-jointed, the third joint forming a claw (Fig. 4).

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§ Including the records from Ceylon.



FIGS. 1-7. *Lernaenicus bataviensis* n. sp. (1) Entire animal; (2) Cephalothorax and free thorax, enlarged; (3) Second antenna; (4) Maxilliped; (5) Beginning of the genital segment, showing the notch; (6) Posterior end of the genital segment, showing genital prominences carrying the egg-sacs; (7) Tip of the abdomen.

The free thorax, arising at right angles to the head, is indicated by incomplete segmentation and four pairs of thoracic appendages with their sternal plates. The first and second pairs of thoracic legs are biramous and the third and fourth are uniramous, all the rami are two-jointed.

The neck is much elongated and together with the free thorax measures 11.4 mm. The anterior half of the neck is enlarged, about 0.38 mm. wide and thereafter tapers to a minimum width of 0.18 mm.

The beginning of the genital segment is marked by a bend and a deep notch. It soon enlarges to a maximum width of 0.78 mm. and is more than four times its width at the beginning. The genital segment measures 4.9 mm. in length.

The abdomen is narrow, slightly longer than the genital segment (5.3 mm.) and studded with a pair of prominences at its hind end.

A pair of empty egg-sacs remained attached to the posterior end of the genital segment on marked prominences on either side, ventrally.

*Remarks.*—The present new species is unique among the Indian forms in possessing only a single cephalic horn. The only other species known with a single cephalic horn is *L. gracilis* Heller, 1865, but in this the horn is in the form of a single dorsal tubercle. Moreover, the abdomen is very minute (*vide* Wilson, 1917) quite unlike that of the present new species.

*L. bataviensis* n. sp. shows superficial resemblance to *L. anchoviellae* Sebastian and George in general size and colour of the body. However, the presence of only a single posteriorly directed cephalic horn, the enlarged anterior half of the neck and the notch and bend at the beginning of the genital segment are noteworthy differences.

*The Indian species.*—The discovery of *L. bataviensis* brings the total number of species known from the Indian region to eleven. The first species recorded from this region is *L. polynemi* (Bassett-Smith, 1898) collected from *Polynemus tetradactylus* caught at Bombay. Subsequently, Kirtisinghe (1933) described *L. hemirhamphi* from *Hemirhamphus xanthopterus* C. & V. collected from Ceylon, and Gnanamuthu (1953) redescribed the same from *Hemirhamphus far* caught at Madras. Gnanamuthu (*l.c.*) also described *L. nemipteri* and *L. stromatei* from the host fishes *Nemipterus marginatus* and *Stromateus niger*, respectively. His paper includes the description of the metamorphosed larva of *L. stromatei*. Rao (1951) reported the occurrence of a species of *Lernaeenicus* on *Scomber scomber* in the Waltair region. Kirtisinghe (1934) described *L. seeri* from an unidentified species of *Cybium* and in 1956 another species, *L. ramosus* from *Epinepheles morrhua* caught in Ceylon waters. Rangnekar (1961) described a new species *L. alatus* from *Cybium commersoni* and redescribed *L. ramosus* from *Synagris japonica*, and *L. sayori* Yamaguti (1939) from *Rastrelliger kanagurta*. Recently, Kirtisinghe (1964) reported the occurrence of *L. longiventris* Wilson (1917) on two Ceylonese host fishes, *Caranx ignobilis* and *Gnathanodon speciosus*. From *Anchoviella bataviensis* caught in the Palk Bay two new species were obtained; the first species *L. anchoviellae*, together with its three post-larval stages, is described by Sebastian and George (1964). The other species *L. bataviensis* is described in this paper.

The identification of some of these parasites is difficult since the descriptions of these species afford very little of contrasting characters. The cephalic and thoracic appendages show very little variation in the different species. The proportionate lengths of the various body regions were supposed to be specific in nature. For instance, *L. sayori* Yamaguti (1939) differs from *L. hemirhamphi* in possessing a shorter neck which is less than half the entire body length. However, Gnanamuthu (1953) has observed that the length of the neck in *L. hemirhamphi* may vary, even to the extent of being less than half the entire body length. Hence, in these species we have to look for other characters which are specific. Attempt is made here to provide a key for the identification of the Indian species, mainly based on the number, nature and position of the horns. The key is based solely on published descriptions.

## KEY TO THE INDIAN SPECIES

- 1a. Horns in a single plane, short, stout and unbranched.
- 2a. A single horn directed posteriorly from the cephalothorax....*L. bataviensis* n.sp.
- 2b. Two horns directed postero-laterally from the cephalothorax.....*L. anchoviellce* Sebastian and George, 1964.
- 2c. Three horns from the cephalothorax.
- 3a. Anterior part of body asymmetrical with cephalothorax and free thorax twisted in opposite directions.....*L. stromatei* Gnanamuthu, 1953.
- 3b. Anterior part of body symmetrical.
- 4a. Horns sharply pointed, arising posteriorly from under-surface of cephalothorax; genital segment flask-shaped, gradually enlarging posteriorly.....*L. polynemi* (Bassett-Smith), 1898.
- 4b. Horns bluntly rounded, arising posteriorly from upper surface of cephalothorax; genital segment more or less cylindrical.
- 5a. Abdomen about twice the length of genital segment.....*L. longiventris* Wilson, 1917.
- 5b. Abdomen much less than twice the length of genital segment, subequal.
- 6a. First antenna three-jointed; mandible without a proximal spiniform process; neck usually more than half total length .....*L. hemirhamphi* Kirtisinghe, 1933.
- 6b. First antenna five-jointed; mandible with a small spiniform process at proximal end; neck shorter .....*L. sayori* Yamaguti, 1939.
- 1b. Horns arising in two separate planes, an anterior set of cephalic horns and a posterior whorl of slender and elongate thoracic horns which are usually branched.
- 7a. Cephalic horns stout and nodular; thoracic horns four in number, not much elongated or branched.
- 8a. Thoracic horns not arranged in pairs, unequal in length and dissimilar in shape; abdomen about  $4\frac{1}{2}$  times as long as genital segment.....*L. seeri* Kirtisinghe, 1934.
- 8b. Thoracic horns arranged in pairs, with similar ones on either side; abdomen only about  $1\frac{3}{4}$  times as long as the genital segment.....*L. alatus* Rangnekar, 1961.
- 7b. Cephalic as well as thoracic horns arise as whorls of many slender, elongated and branched horns.
- 9a. Abdomen longer than genital segment.....*L. nemipteri* Gnanamuthu, 1953.
- 9b. Abdomen shorter than genital segment.....*L. ramosus* Kirtisinghe, 1956.

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## DISCUSSION

Dr. Ruth D. Turner: I would like to know if your species is described as new with reference to the Indian region or on a global basis.

Mr. M. J. Sebastian: The only review of the genus is that of C. B. Wilson in the year 1917. The present species is considered new in the light of this review and all the subsequent literature that I could gather.