

**LERNAEA BENGALENSIS, SP. NOV : A COPEPOD PARASITIC
ON CHANNA PUNCTATUS**

By

C. P. GNANAMUTHU

Zoology Laboratory, Madras University, Madras

About a dozen copepod specimens were obtained by Dr. D. P. Sen Superintendent of Fisheries, West Bengal, from *Channa punctatus*. They were attached mainly near the dorsal and caudal fins and near the gill opening and are reported to cause the death of the hosts. The author is thankful to Dr. Sen for the gift of the specimens and they are described herein as *Lernaea bengalensis*, sp. nov. The types will be lodged in the collections of the Zoological Survey of India, Calcutta.

***Lernaea bengalensis*, sp. nov.**

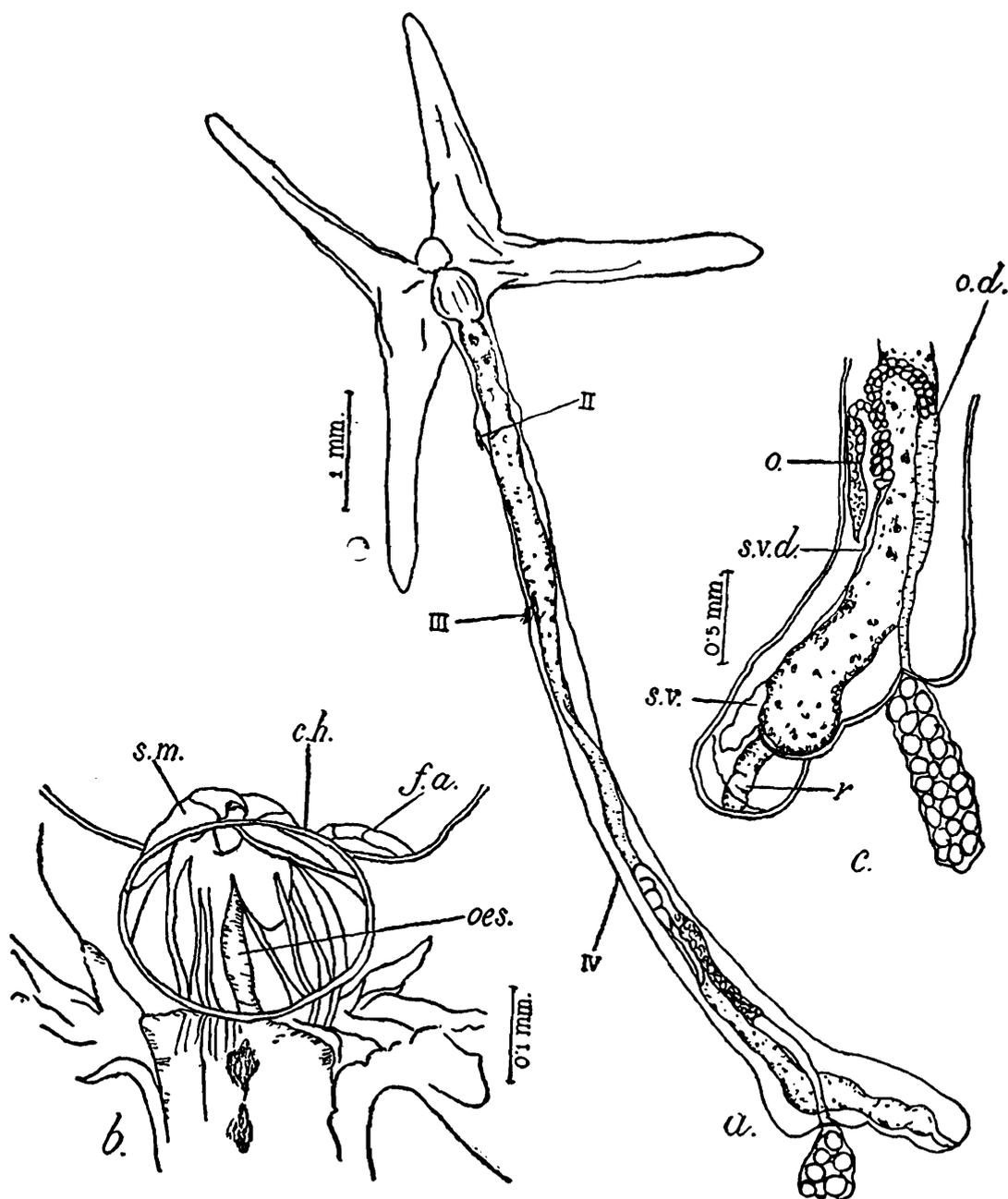
The total length of the adults exclusive of the eggs and cephalic arms varied from 7 mm to 9.42 mm. In a form 9 mm long the head was 0.255 mm long, the first thoracic segment 0.42 mm long and the cephalic arms 2.2 mm and 2.8 mm long, the trunk and abdomen measured 4.7 mm and 1.3 mm respectively. The parasites were thickly covered with colonies of *Carchesium* and algae but the body of the parasite was transparent. Only spirit preserved specimens were examined and these were dirty brown in colour.

Body.—The head is covered by a sub-elliptical lobe (“cephalon” of Wilson). It is fused all round and is not free anteriorly as in *Lernaea chackoensis*¹. The musculature of the lobe is also different, there being eight columns of muscles arranged lengthwise in the present form. The anterior edge of the lobe does not cover the antennae, as well as the tips of the maxillae and maxillipedes. The first thoracic segment fused to the head, is the broadest part of the body and is extended into four arms in four different directions. There was no indication of variability in the shape of the arms as was observed in *L. chackoensis*. The anterior arms were always shorter than the posterior and the lengths of the arms varied slightly in different individuals. The front edges of the anterior arms meet below the head.

The first segment also bears the first pair of legs which are curved towards each other. The neck or free thorax is uniformly slender and bears the second and third pair of legs. Where the second pair of legs is attached there is a node-like swelling while the rest of the trunk bears no external swelling but gradually widens. The genital part of the body which commences only 6 mm behind the front end is the widest part of the body, being slightly less than 1 mm. This bears the 3rd and 4th

¹ Gnanamutbu, C. P., *Parasitol.*, 41, pp. 143-147 (1951).

pairs of legs. The posterior end of the trunk is marked by two large rounded pregenital prominences pressed together to form the "heel." The abdomen which forms the rest of the foot of the parasite is borne at an angle to the trunk. Two constrictions suggest the three-segmented nature of this part of body. Between the abdomen and the heel occur a deep notch in which are situated the two large cylindrical egg sacs.



TEXT-FIG. 1.—*Lernaea bengalensis*, sp. nov.

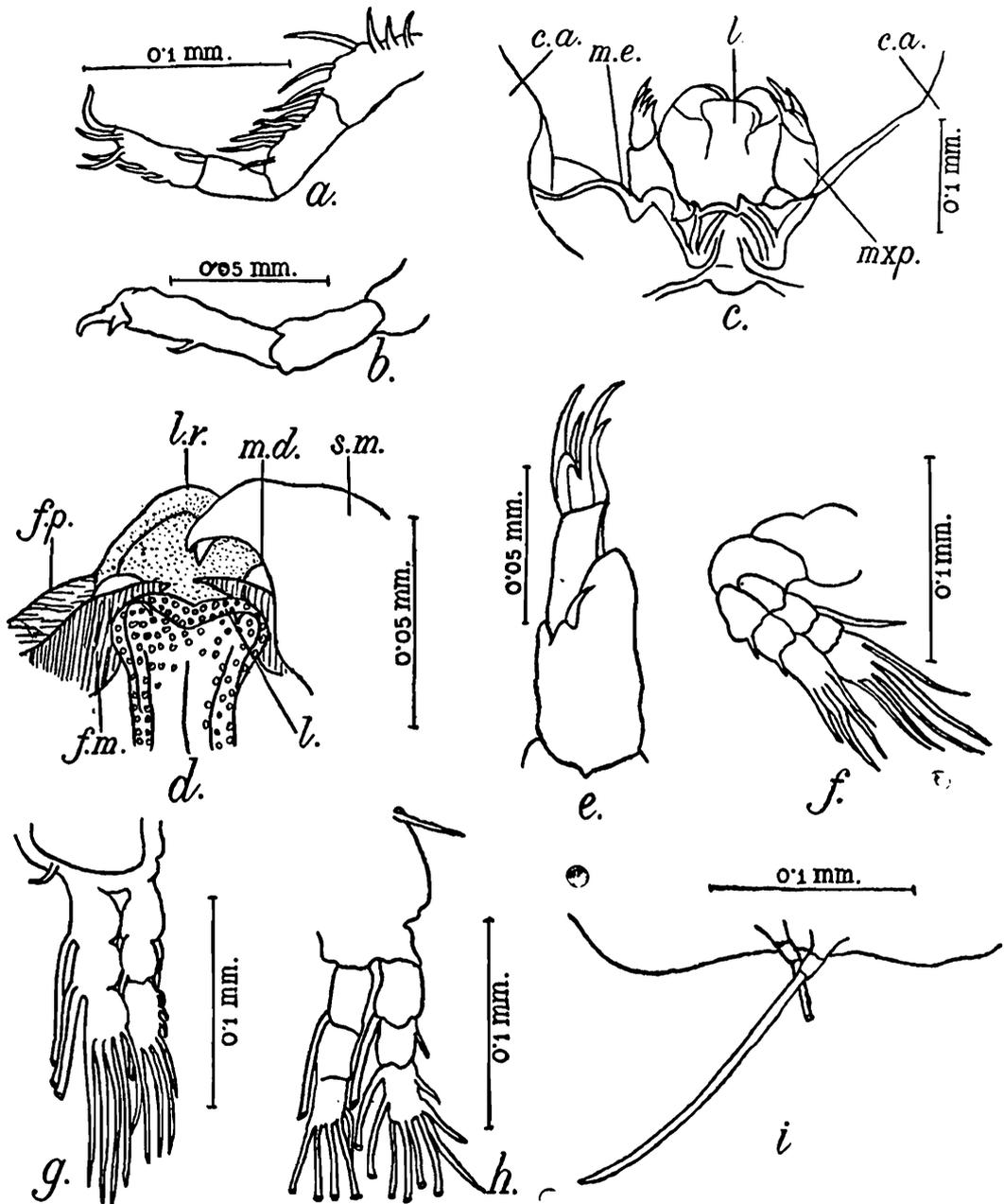
a. Entire animal; b. Dorsal view of head; c. Posterior end of body.

c. h., cephalic hood; f. a., first antenna; o., ovary; oes., oesophagus; r., rectum; s. m. second maxilla; s. v., seminal vesicle; s. v. d., duct of seminal vesicle; II, III, IV, legs.

The posterior end of the abdomen is bluntly rounded and carry two conical tapering anal laminae bearing a long slender seta each.

Appendages.—The first antenna is four-jointed, each joint bears far fewer setae than that of *L. chackoensis*. The terminal joint, for example, bears only four in the present form while it bears ten in *L. chackoensis*. The second antenna is best seen in a ventral view. The

distal segment bears a small spine in the middle, and three terminal spines of which, the central is recurved and thick. In *L. chackoensis* there are seven hook-like spines. The labrum is formed by a chitinous plate with a median rostral lobe. The labium is a pad with a concave margin in front and with sides supported by muscles. Between the two lips medially starts the narrow oesophagus leading backwards



TEXT-FIG. 2.—*Lernaea bengalensis*, sp. nov.

a. First antenna ; b. Second antenna ; c. Ventral view of head ; d. Dorsal view of mouth parts.

c.a., cephalic arm ; f.m., first maxilla ; f. p., frontal plate ; l., labium ; l.r., labrum ; m.d., mandible ; m.e., median edge of cephalic arm ; mxp., maxillipedes.

into a very wide stomach. On either side of the mouth are seen the two mandibles—if the specimen is dissected or cleared in xylol—from the dorsal side. Each mandible has a stout distal joint which bears a strongly curved sharp tip. The first maxilla has a narrow hook-like blade whereas the second maxilla has a double blade whose tips overlap each other medially. The maxillipedes are long columnar two-jointed.

On the edge of the first joint are two short claws while terminally there occur five long curved spines.

Of the thoracic legs only four pairs were found. It is possible while removing the large masses of algae and vorticellids attached to the trunk, the fifth legs were removed but since out of nearly ten parasites so cleared and examined there was not even a mutilated remnant of the appendages, it is probable that they are absent. The first legs are arched and kept at right angles to the body and may assist the arms in fixing the head of the parasite. Each leg has a two-articled protopodite and two three-jointed rami. The exopod carries eleven spines and the endopod bears seven. The second, third and fourth pairs of legs are held straight and close to the body. They resemble the first pair in setation and structure.

Taxonomic remarks.—This species differs from *L. chackoensis* in the non-variability of the form of the cephalic arms, in the cephalic hood being sub-elliptical and fused all round, and in this lobe having a different pattern of musculature. The trunk is more slender, the abdomen constricted more clearly into three segments and the pregenital prominence being relatively more conspicuous. Of the appendages the first antenna is less setose and ends in far fewer spines; the second antenna bears only 3 terminal spines; the second maxillae are far larger and more conspicuous; the labrum and labium are well marked; the mandible is curved like a scythe. In view of these differences the present form is treated as a new species *L. bengalensis*, and can be defined as follows :—

The cephalon or cephalic hood is sub-elliptical, fused all round and supported by longitudinal muscles; the cephalic arms are four, simple and unlobed, arranged in a crosswise fashion; the second maxillae are large, hooked; prominent upper and lower lips; the mandibles scythe-shaped and the abdomen distinctly constricted into three.