

**CHONIOMYZON GEN.NOV. (COPEPODA : CHONIOSTOMATIDAE)
ASSOCIATED WITH PANULIRUS**

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SINCE the publication of Hansen's (1897) monograph two genera, *Choniosphaera* Connolly (1929) and *Lecithomyzon* Bloch & Gallien (1932) were recorded within the family Choniostomatidae. Gurney (1930) expressed the opinion that *Nicothoe* should also be transferred to this family. The new genus, described below, undoubtedly belongs to the family Choniostomatidae but differs from all the existing genera. It closely resembles *Lecithomyzon* on the one hand and *Choniosphaera* on the other, and is hence named *Choniomyzon*. The only choniostomatid so far recorded from India is *Choniosphaera indica* Gnanamuthu (1954).

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Genus Choniomyzon nov.

Definition. Body demarcated into a large unsegmented prosome and a short slender fully segmented urosome. Antennule slender, twelve-segmented. Antenna prehensile, five-segmented and far removed from the antennule. Mouth tube funnel-shaped and projecting, placed at the middle of the ventral side of the prosome and surrounded by the antennae, mandibles, maxillae, maxillipeds and the first pair of legs. Mandibles styliform, maxillae three-lobed and maxillipeds prehensile. First two pairs of legs normally developed and setose, protopod and rami two-segmented, third pair of legs reduced to a two-segmented process. Caudal furca long and styliform, with four setae, one seta branched twice. Egg sacs numerous.

Associated with *Panulirus homarus* (Linn.)

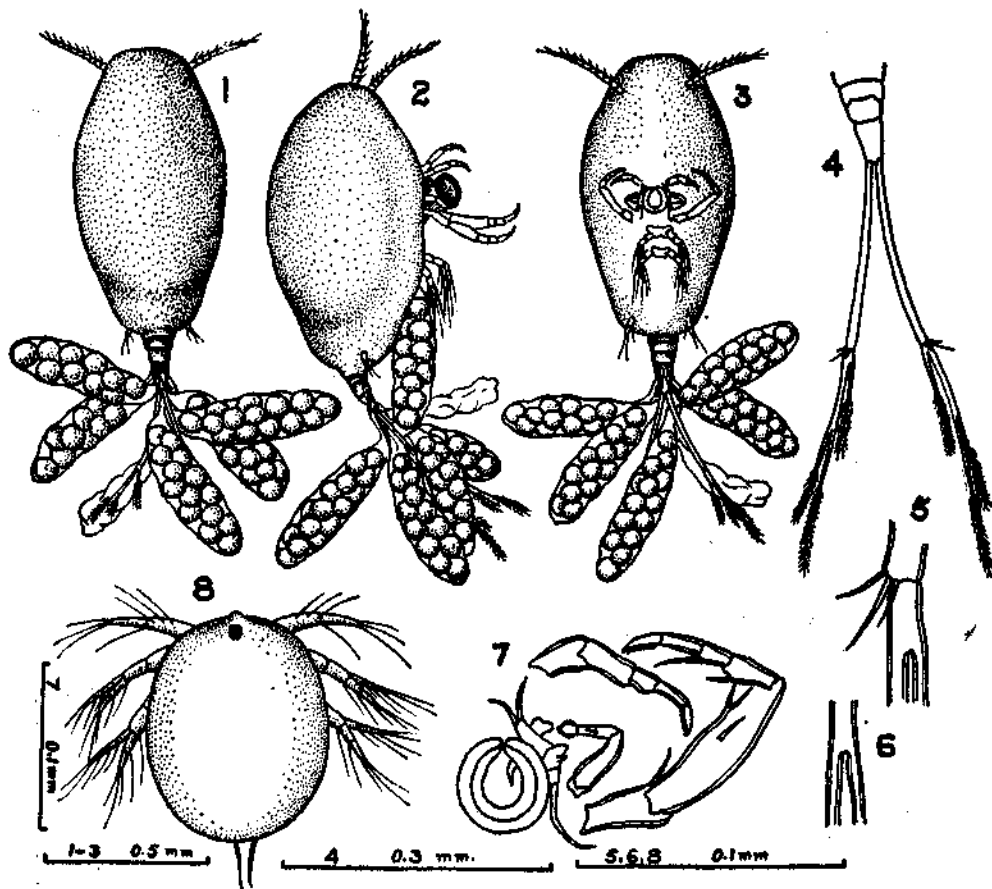
Type species : *Choniomyzon panuliri* gen. et sp.nov.

Affinities. In all the genera which Hansen assigned to the family Choniostomatidae the antennule is short and three-segmented. There are seldom more than two pairs of legs and the abdomen, when present, is considerably reduced. In *Choniomyzon* the antennule is long and twelve-segmented and there are three pairs of legs, two of the legs normally developed and the third reduced. The abdomen is well developed and shows the full number of segments. In these characters *Choniomyzon* resembles *Choniosphaera* and *Lecithomyzon*, particularly the latter. But the elongate styliform caudal rami with branched setae and the curious multiplication of attached egg sacs distinguish *Choniomyzon* from all the other genera.

Hansen placed Choniostomatidae close to Lernaeopodidae and Wilson (1911) accepted this arrangement. This classification was based primarily on the similarity in development. It is now known that in *Choniosphaera*, *Lecithomyzon* and *Choniomyzon* the first free swimming larva is a nauplius. These genera undoubtedly belong to Choniostomatidae and thus ontogenic evidence does not support the above grouping. If the characters of the adult *Choniomyzon* is taken into consideration one cannot fail to detect its distinct cyclopoid characters. While describing the copepodid of *Nicothoe* Gurney (1930) observed that *Nicothoe* represents the primitive choniostomatid form and that choniostomatids are paedogenetic larval forms. The study of the present genus lends support to the earlier part of Gurney's observation. It may, however, be pointed out that in the structure of the adult and in the fact that the first larva is a nauplius, *Choniomyzon* appears to show characters more primitive than those of *Nicothoe*. The abbreviation in development, seen within the family, is obviously the result of specialisation, and appears to have very little phylogenetic significance.

Choniomyzon panuliri gen. et sp. nov.

(Figs. 1-19)



Figs. 1-8. 1. female, dorsal view; 2. same, lateral view; 3. same, ventral view; 4. abdomen and anal styles; 5. same, first branching of the seta; 6. same, second branching; 7. oral tube and cephalic appendages; 8. nauplius.

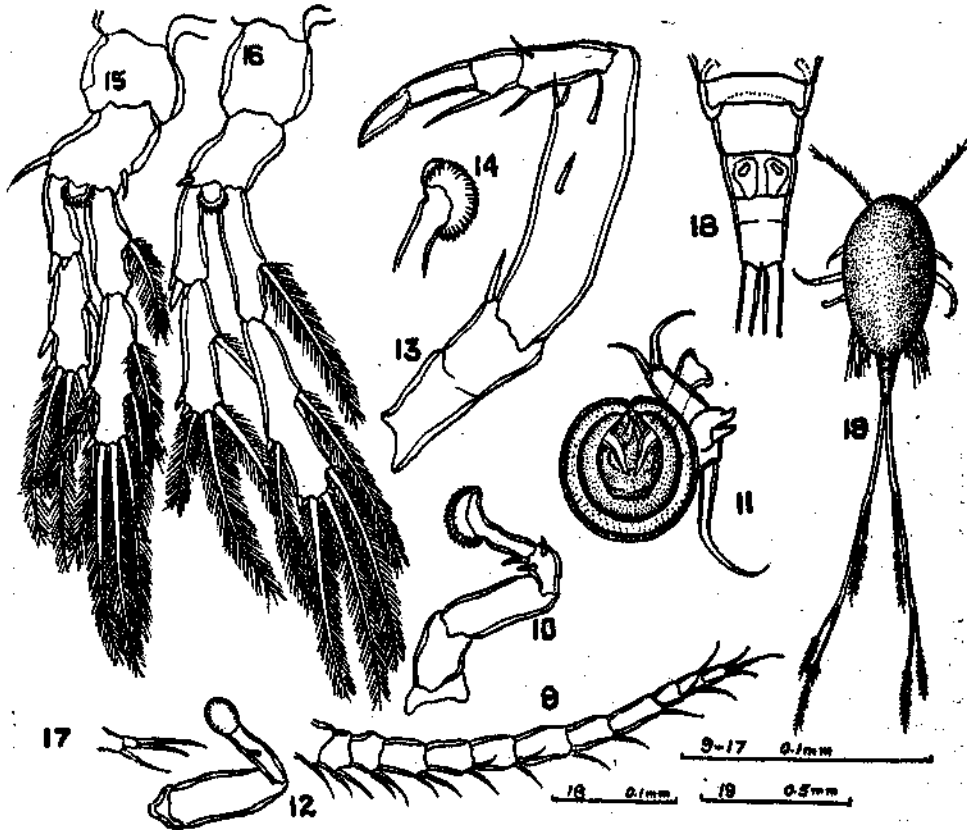
Host and record. A large number of specimens from the ventral side of the abdomen of *Panulirus homarus* (Linn.) examined at Vizhingom, Kerala, India. They were found all over the ventral side, but were more numerous on the thin areas connecting the ventral plates.

Female. Body has the typical cyclopoid shape and is distinctly demarcated into a prosome and a urosome. Prosome, when dorsally viewed, is elongate ovate or elliptical, its anterior border is perfectly rounded and the posterior slightly more truncate, the prosome visibly narrows backwards. A distinct flattening from side to side makes the depth of the prosome exceed its width. Urosome is short and very much narrowed, it is slightly overlapped by the prosome. The urosome is clearly divided into four segments and the last segment shows two indistinct divisions. The prosome lacks segmentation and is evidently formed by the cephalon and the first three pedigerous segments.

Antennules are placed wide apart antero-laterally on the ventral side and are formed of twelve segments, each segment carrying one or two setae at the inner distal angle, ultimate segment carries three slightly longer setae. Antenna is prehensile and placed far away from the antennules, just in front of the mouth tube; it is composed of five segments, first and fourth segments are small, the latter carrying three spines, fifth segment is slender and terminates in an assymmetrically placed serrate expansion. Mouth tube is funnel-shaped, with an anterior median gap. It is seen as two concentric rings with minute prickles and the outer ring is bordered by a flexible membranous rim. The mouth tube is placed exactly at the middle of the ventral side and is surrounded by the second antennae, mandibles, maxillae, maxillipeds and the first pair of legs. Mandibles are stout unjointed rods with pointed tip projecting into the mouth tube anteriorly at an angle with the long axis of the body. Maxilla is composed of a median lobe carrying one tooth and two cylindrical processes, the one directed forwards is short and carries two long setae and that bent backwards is long and carries a very long seta. First maxilliped is three-segmented, basal segment is very short, second stout, third is slender and carries a small spine and a circular terminal expansion with serrate border. Second maxilliped is very long and prehensile, five-segmented, first segment has an inner distal spine, second is largest and has three spines, third and fourth segments are short and each carries one spine, the spine on the fourth segment is long, fifth segment is slender and ends in an assymmetrically placed expansion very much similar to that of the second antenna.

First two pairs of legs are normally developed and placed close together immediately behind the cephalic appendages, the members of each pair are very near each other and connected by a chitinous plate just as in free living copepods. The protopod is two-segmented and the rami two-segmented, with long plumose setae and strong teeth. Distal protopod segment of first leg has an outer long and inner short spine, distal border is produced into a serrate lobe projecting between the bases of the rami, exopod is shorter than the endopod, first exopod segment with two outer teeth, second segment with two outer teeth and five setae, three of the setae are on the distal border and two on the inner. Distal protopod segment of second leg has a short outer spine and a serrate lobe as in the first leg, first segment of exopod has three strong outer teeth, second segment with two outer distal teeth and four setae, one seta is inner and three distal, outer distal seta is comparatively small; first segment of endopod with an inner seta, second segment with three teeth, one outer and two distal, there are four setae, two distal and two inner. Third leg is situated on the postero-lateral part of the ventral side of the prosome and is a

minute two-segmented process carrying three setae. Caudal rami are long and slender, each with four apical setae, three of the setae are small and one is as long as or even slightly longer than the ramus, it bifurcates very near its base into a small inner and large outer branch, the outer branch again divides into a short outer and long inner branch, this seta is thus divided into three branches with the distal half of each branch plumose.



FIGS. 9-19. 9. antennule; 10. antenna; 11. mouth tube, mandible and maxilla; 12. first maxilliped; 13. second maxilliped; 14. same, tip enlarged; 15. first leg; 16. second leg; 17. third leg; 18. abdomen; 19. male.

Up to seven egg sacs were observed in a cluster, each sac is roughly club-shaped and connected with the genital segment by short flexible membranous stalks. There are up to fifteen eggs in each sac.

Total length excluding the anal furca 1.5 mm., length of prosome 1.3 mm., breadth of prosome 0.7 mm., depth of prosome 0.9 mm., length of furca 0.7 mm.

Male. The collection contains several small specimens with comparatively long antennules, second maxillipeds and caudal furca. In the absence of definite sexual dimorphism these are provisionally identified as males.

Nauplius. The eggs hatch out into free swimming nauplii. The nauplius is oblong in shape and is only slightly longer than broad. The antero-median part is slightly produced. A coloured antero-median patch represents the nauplius eye. The body encloses numerous yolk globules. The hind border carries a pair of backwardly directed caudal filaments. The antennules are two-segmented, basal segment with four and distal with three setae. Antennae and mandibles are subsimilar, with two-segmented protopod, two-segmented endopod and four-segmented exopod.

Types. The entire collection including the holotype, is deposited in the Marine-Biological Laboratory.

SUMMARY

A new genus of chonistomatid copepod, *Chonimyzon*, associated with *Panulirus* is described. The study of the morphology and development of this species has shown that Chonistomatidae is more closely related to Cyclopoida than Lernaeopodoida.

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