

A NOTE ON THE PHYLLOSOMA OF *PUERULUS SEWELLI* RAMADAN*

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PRASAD and Tampi (1959) in their paper 'On a collection of palinurid phyllosomas from the Laccadive seas' described a type of phyllosoma larvae which resembles the phyllosomas of palinurids except in that the larvae have bifid second antennae. This type was provisionally designated as the larva of *Panulirus* sp. VI. Since the publication of the paper the authors had occasion to examine several specimens of *Puerulus sewelli* Ramadan collected from the west coast of India at depths varying from 200 to 350 m. The collections included a good many berried individuals with the eggs in different stages of development. As there is no information in literature on the larvae of *Puerulus* an attempt was made to dissect out the embryos to study them. Some of the eggs were in an advanced stage of development and the embryos taken out from them showed sufficient diagnostic characters. Examination of this material revealed that the larvae have uniramous first antennae and biramous second antennae (Fig. 1A). The third maxilliped is biramous and so also the first three pereopods. The exopod of the third pereopod, however, is only in the form of a short bud (Fig. 1B). This condition, in which the larvae have the third maxillipeds with exopod and bifid second antennae, closely resembles the characteristics of the first phyllosoma stage of *Panulirus* sp. VI of Prasad and Tampi (1959). The figure of this larva (Fig. 17 of Prasad and Tampi, 1959) is reproduced here for the sake of comparison.

In this connection it should be mentioned that Feliciano (1956) described the prenaupliosoma stage with biramous second antennae in *Panulirus argus* from developing eggs but was not sure whether this stage occurs only within the eggs or hatch as such. However, the first phyllosoma of *P. argus* described by Lewis (1951) does not show the second antenna as bifid. In this case also the specific identity of the first stage of phyllosoma cannot be doubted as these have been obtained from freshly hatched eggs. It seems unlikely that the bifid second antennae of the prenaupliosoma would become uniramous before metamorphosing into the phyllosoma. On the contrary uniramous second antennae have been known to change to biramous condition. Gilchrist (1913 & 1916) and Von Bonde (1936) described the naupliosoma and the prenaupliosoma stages in *Jasus lalandii*. They did not notice the bifid second antennae of these changing into uniramous ones. Harada (1958) who described the naupliosoma of *Ibacus ciliatus* found that 'there is no great difference in the basic plan of its structure between the naupliosoma and the newly hatched phyllosoma, except that there is no setae at all on appendages in the former and except for the form of the first and second antennae.

* Published with the permission of the Director, Central Marine Fisheries Research Institute, Mandapam Camp.

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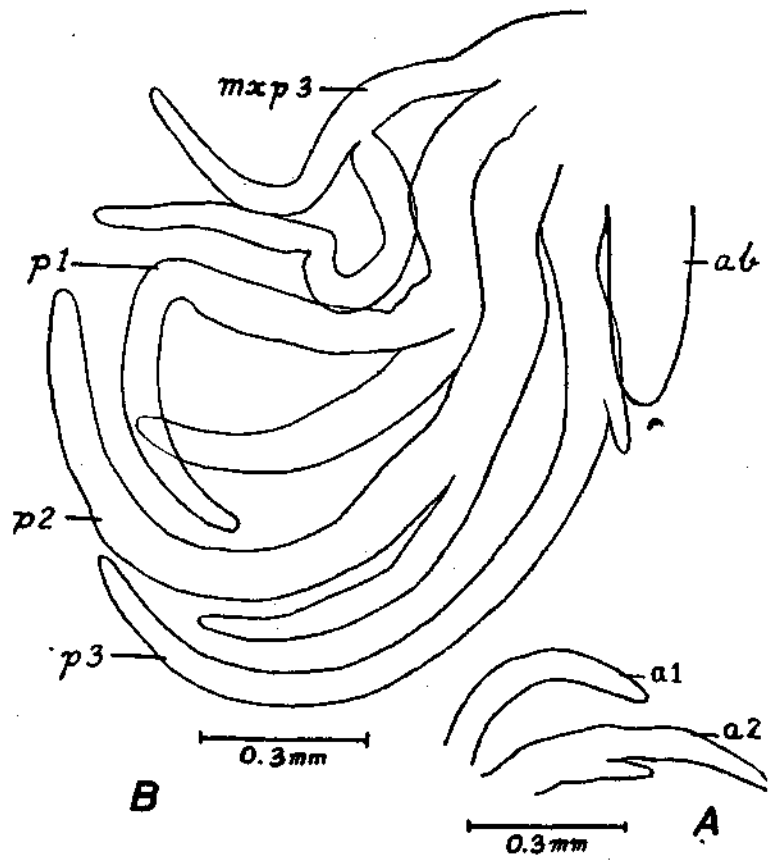
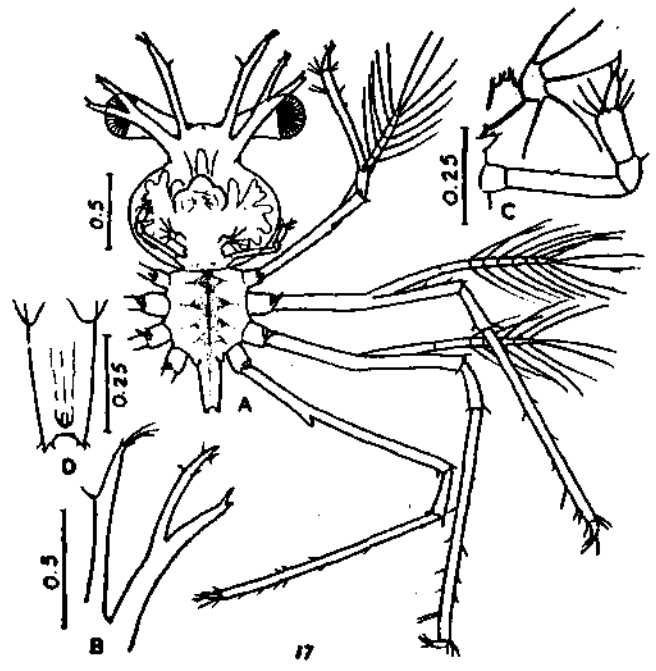


Fig. 1A. The first and second antennae. Fig. 1B. The third maxilliped, the first, second and third pereopods and abdomen. a1, first antenna; a2, second antenna; ab, abdomen; mxp3, third maxilliped; p1, p2 and p3, the first, second and third pereopods.



The phyllosoma of *Panulirus* sp. VI. (Reproduced from Prasad and Tampi, 1959. FIG. 17)

'The first antenna of the naupliosoma is not biramous and has no setae as in the newly hatched phyllosoma described above, though the biramous first antenna of the following stage is discernible in it.

'The second antenna terminates into eight setose branches, and is longer than that of the following stage, which is discernible in the first (proximal) and last (distal-most) branches.' Further, the prenaupliosoma presumably of *Panulirus argus* collected by Sims (1965) from plankton sample has uniramous second antennae. He remarks that 'the presence of an exopod on the third maxilliped and the lack of a biramous antenna indicate that the larvae belong to the genus *Panulirus*. The setose exopod on the third maxilliped and the uniramous antennae are prominent features in laboratory-hatched larvae of *Panulirus argus*.'

The present authors presume that the characteristics of the second antennae, third maxilliped and the number of pereopods noticed in the dissected out larvae of *Puerulus sewelli* remain unchanged in the first phyllosoma stage also. Thus, the free swimming larvae have uniramous first antennae, biramous second antennae, the third maxilliped with exopod and all the three pereopods with exopods.

In view of the close similarity between the two sets of larvae mentioned above and the fact that *Puerulus sewelli* occurs commonly in the area* from where the phyllosomas of *Panulirus* sp. VI also have been collected, the authors are inclined to re-designate the phyllosoma larvae described earlier as of *Panulirus* sp. VI as the first phyllosoma stage of *Puerulus sewelli*.

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* Berried females have been obtained in the months of April, August-September and November and the phyllosomas of *Panulirus* sp. VI were collected in the month of April.