

Naupliosoma

Each larva removed as it was released from the pleopods of the female proved to be at the naupliosoma stage. This thus almost certainly is the newly-hatched form in *Jasus edwardsii*. However, as no late embryos in glass bowls hatched while I was actually watching them, I am not absolutely certain of the absence of a pre-naupliosoma stage, such as has been described by von Bonde (1936) in the South African crawfish, *Jasus lalandii*, although it seems highly improbable.

The naupliosoma is a rather round-shaped larva (Fig. 1), that swims slowly upwards with its rowing biramous second antennae. These, in the late embryo and in the naupliosoma, are setose and relatively large in relation to the thoracic limbs. They are the active large appendages in this briefly transient larval stage. The first three pairs of thoracic limbs at this stage are folded under ventrally, their endopodites condensed in tight zig-zags.

Judging from von Bonde's figure (Plate X, 1936), the *J. edwardsii* naupliosoma does not have such proportionately large antennae as that of *J. lalandii*, and is a larval phase of much briefer duration.

Moult from naupliosoma to first phyllosoma

This was observed several times, and takes only a few minutes. The first obvious external change is the elongation of the eyestalks. Then the cephalic shield expands laterally as the naupliosoma skin is being shed. The first and second antennae become inactive and hang down ventrally. The first, second and third pairs of thoracic limbs, whose endopodites were concertina'd within their coverings in the naupliosoma, now straighten and elongate with twitching movements. During this, the naupliosoma "skin" is being kicked off by the three pairs of thoracic limb endopodites, last resting on the tips of the large third maxillipeds. The plumose naupliosoma covering of the second antennae is not shed until slightly later than the main part of the "skin"; so that a very early Stage I phyllosoma may transiently appear to show plumose antennae. The larva lies on its back during this moult.

Stage I Phyllosoma

This is shown in dorsal view in Figure 2, while the appendages not clearly visible in this drawing are shown in Figures 6-8. The cephalic shield is rather flattened, broadly pear-shaped in outline, and wider than the hind-body (or thorax). In some fixed specimens its margins appear crenulate. The straight gut, lobed digestive gland and long, tubular heart are readily visible in living larvae. The small median and large compound eyes are black. The compound eyes show unsegmented stalks. On the anterior margin of each, a clear body (glandular?) is conspicuous. The abdomen is short and not obviously segmented. It terminates posteriorly in two slight protrusions, each of which carries a short, stout spine and three slightly longer, plumose setae (Fig. 4).

Body lengths, from the anterior end of the cephalic shield to the posterior end of the abdomen (excluding spines), were measured in 10 live phyllosomas seven days after hatching. They were 2.1, 2.2, 2.2, 2.2, 2.2, 2.1, 2.0, 2.2, 2.2 and 2.2mm, mean 2.16mm. Five live Stage I phyllosomas, measured 20 days after hatching, were 2.2, 2.2, 2.2, 2.1 and 2.1mm long, giving virtually the same mean. The Stage I phyllosoma overall measures 7.4mm across, and the width of the cephalic shield is 1.2mm.