

form of a Nauplius,  $\frac{8}{1000}$  of an inch in length, and, according to Professor Brooks' figure, nearly as much in its broadest diameter. The brephalos is ovate in form and carries three pairs of free appendages, of which the anterior is single-branched and the two succeeding biramose. The anterior labrum is large and prominent; posterior to it is a double row of four pairs of bud-like eminences, arranged in longitudinal series. The three free appendages have hairs projecting from their extremities, which lengthen considerably within a few minutes after the embryo is extruded from the egg. These three appendages are organs of locomotion, and by their agency the animal is propelled through the water. The motions of the brephalos are very erratic and violent, and consist of a series of quick leaps produced by vigorous strokes of the appendages, much like those of a young Copepod or Cirriped.<sup>1</sup>

The outline of the body (Professor Brooks says) is pear-shaped, with the broad end at the posterior extremity, when the second maxillæ are in the centre of the field of view; but when the metastoma is in the centre this is reversed, and the broad end is in front. This difference is due to the fact that the dorsal region is much wider than the labrum and to the series of buds, which together form a ridge along the ventral surface.

The dorsal portion of the posterior region of the body is swollen and rounded, and near its lateral margins there is a pair of small but very conspicuous dark pigment-spots, which might easily be taken at this stage for ocelli, since they are nearly of the same size and colour. These two pigment-spots are very conspicuous during all the early stages of the metamorphosis, and their position during the later stages shows that the portion of the Nauplius body which bears them becomes the pereion and not the pleon in the maturer form.

When the brephalos is just hatched it is, as in this stage of all these animals, enclosed within a delicate cuticle, which, however, is soon torn off, probably through the forcible extension of the hairs of the appendages. In this early stage Professor Brooks had no difficulty in keeping it alive, and was thus enabled to contribute largely to our knowledge of the life history and morphology of this curious and interesting little creature.

In about twelve or fourteen hours the Nauplius sheds its skin, and increases in length from  $\frac{8}{1000}$  (0.2 mm.) to  $\frac{9}{1000}$  (0.225 mm.) of an inch, and the extremity of the pleon is posteriorly projected, showing the telson in a forked condition, and furnished with two pairs of short stout spines, the inner pair being longer than the outer. A well-marked fold of the surface of the body now distinguishes the posterior and lateral margins of the carapace, but this line is not continued on to the anterior end of the body, and the posterior edge is not yet raised or separated from the hind body as it is, according to Metschnikoff, in the Nauplius stage of *Euphausia*.

The two small pigment-spots that were noticed in the earlier stage are in this drawn out in such a way as to surround a large rectangular area at the posterior end of the carapace, and in the region where the heart becomes visible in the next stage.

<sup>1</sup> *Loc cit.*, p. 73 *et seq.*