

The digestive tract has become visible; the œsophagus, which commences immediately behind the labrum, rising upwards and backwards to open into the floor of the stomach. The intestine is small, with thin walls, and it follows the dorsal curvature of the body to the anus, which is placed just in front of the spines of the telson.

The nervous system is present in the form of a cerebral ganglion and a neural mass that is obscurely divided into segments, which passes beneath the stomach.

Within twelve hours the animal moults, and increases from $\frac{9}{1000}$ (0.225 mm.) to $\frac{20}{1000}$ (0.5 mm.) of an inch, or to rather more than twice its length, and changes its form from that of a Nauplius to that of a Zoea—a change chiefly due to the development of the carapace and the great increase in the length of the pleon.

The great increase in size, more than twice, and the remarkable variation in form are such, that nothing less than the exactitude shown in the observations made by Professor Brooks would have precluded critical discussion, but he, having placed the Nauplius which has just been described, alone in a watch-glass of sea-water, at 9 P.M. on September 28, found on the 29th at 9 A.M. that it had changed into the Zoea form.

This Zoea has the carapace developed in a horse-shoe form, much like that of the king-crab, *Limulus*, and it forms about one-half of the entire length of the animal. The frontal margin is produced anteriorly in the median line to a strong and pointed rostrum, about one-third of the length of the carapace. The posterior margin is concave and produced in the median line into a short tooth that is obliquely elevated, and the postero-lateral angles are produced to long, posteriorly directed teeth. The walls of the carapace are folded down, and laterally compressed, so that all the appendages except the antennæ are almost completely enclosed and protected.

Dana¹ described and figured two specimens of this form under the name of *Erichthina demissa*; the earliest stage had no eyes visible, only the central ocellus, but in the older one the eye was present in a more advanced stage than that shown in either of Brooks' figures.

This is as far as Professor Brooks was able to trace the development of one specimen, but he has shown from others taken at a similar period that there are three forms that correspond with this Zoea moult.

This stage corresponds with the accompanying figure (fig. 54), taken from Willemoes Suhm's drawings, which he defines, as—

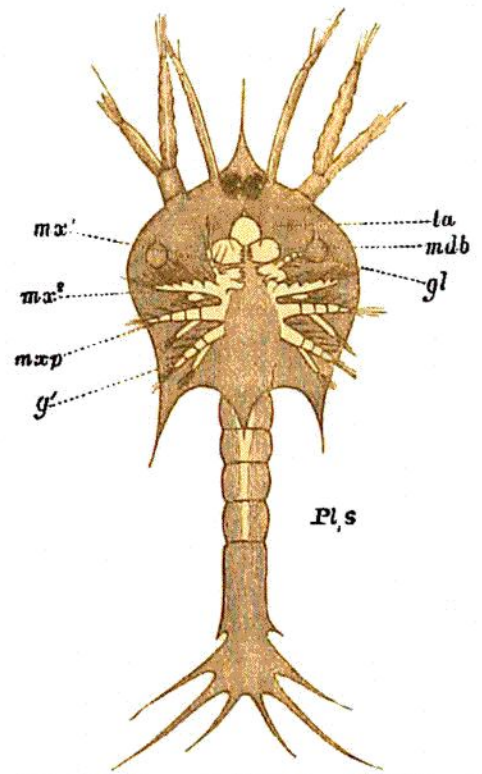


FIG. 54.—Zoea of *Lucifer reynaudii*. *gl*, gland in the carapace; *Pl, s*, provisional segments of the pleon; *la*, labrum; *mdb*, mandible; *mx¹*, first maxilla; *mx²*, second maxilla; *mxp*, maxilliped; *g¹*, gnathopod.

¹ U.S. Explor. Exped. Crust., p. 634, pl. xlii. figs. 3a-d.