

The Eggs and Newly Hatched Larva of *Typton spongicola* O. G. Costa.

By

Marie V. Lebour, D.Sc.,

Naturalist at the Plymouth Laboratory.

With 3 figures in the text.

At the end of June, 1924, a female of *Typton spongicola*, dredged by the *Salpa*, bearing eggs, was taken from the sponge *Desmacidon fruticosus* in which it lives, and given to me alive.* This was placed in a Plunger Jar in the Laboratory, and on July 8th most of the eggs hatched out. The larvæ did not live long, and never sloughed the skin; but several were preserved, and the following notes on these are of interest, as very little is known of the development in the Pontoniinæ to which sub-family of the Palaemonidæ in the Caridea, *Typton* belongs (Gurney, 1925). The female continued to live for some months at the bottom of the Plunger Jar without any sponge shelter. It ate any dead plankton, and was a useful scavenger. This is interesting, as its ordinary food is the *Desmacidon* in which it lives (Hunt, 1923).

The eggs (Fig. 1, c) when first taken were oval, measuring 0.8 mm. by 0.5 mm., with an outer thin capsule through which the larva, already brightly coloured and the eyes conspicuously black, could be seen curled up. The colour was a deep orange and yellow. The eggs fell from the parent before hatching, but this was in all probability due to confinement and not natural.

The larva, measuring 2.08 mm. in length from the tip of the rostrum to the end of the telson, is extremely like the figure of a pontoniid, Stage II, figured by Gurney from the *Terra Nova* material (loc. cit., p. 127, Fig. 51, Species 1, a), with a very conspicuous hump at the third abdominal somite (Fig. 1, a and b). The colouring is confined to the thoracic and anterior abdominal regions, the long telson being colourless. The thorax is a diffuse dull yellow, inclining to a pinkish tint on the limbs, with a large pair of scarlet chromatophores in the middle of the carapace between and behind the eyes. The first four segments of the abdomen are yellowish

* I am indebted to Mrs. H. Thompson for this specimen.

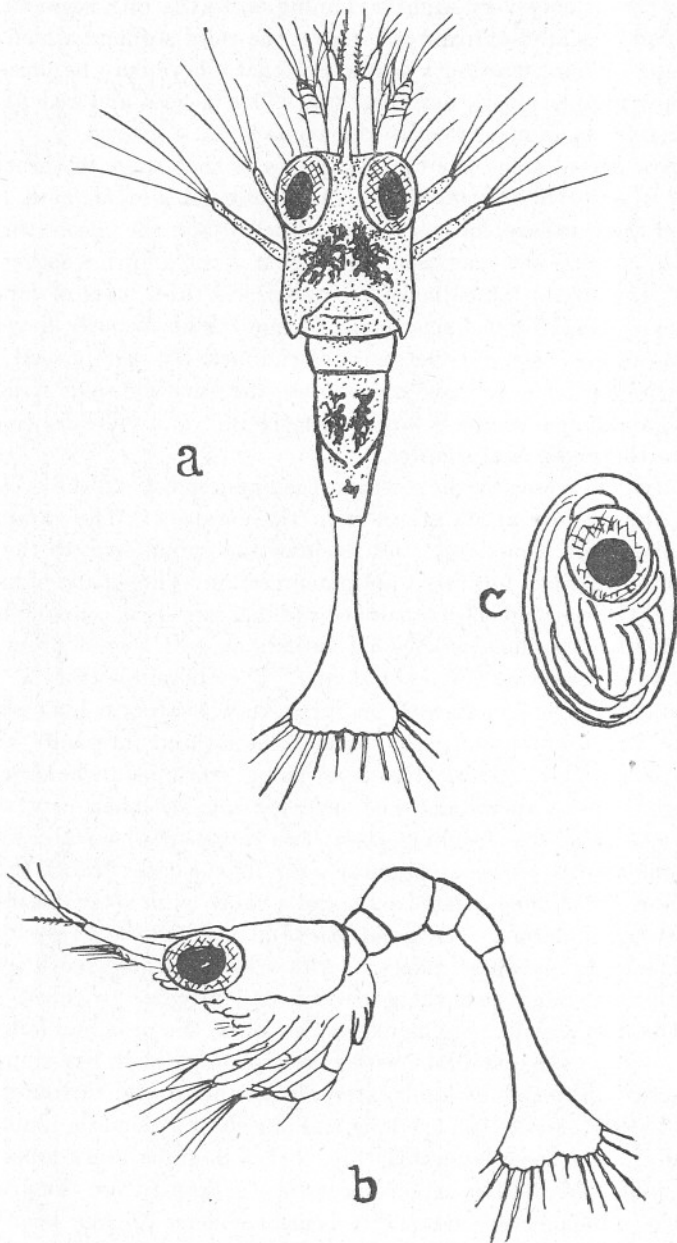


FIG. 1. Newly hatched larva and egg of *Typton spongicola*.
(a) Dorsal view, length 2.08 mm.
(b) Side view of same specimen.
(c) Egg, 0.8 × 0.5 mm.

also, the colour only very slightly running on to the fifth segment, with a large pair of scarlet chromatophores on the third segment which forms the hump. A faint trace of a scarlet chromatophore may be present on the fifth segment, but is not constant. This yellow and red pigment together give the orange effect to the whole larva.

This first larval stage has the characters of that stage in the typical Caridea, as given by Gurney (*loc. cit.*). It possesses sessile eyes, has no spines on the carapace, has seven pairs of spines on the telson (the larva within the egg was not examined, therefore it is not known whether there are only six pairs in the embryonic cuticle), has three pairs of biramous maxillipedes, and the thoracic limbs are not simultaneously developed, for in this case there are two pairs of rudimentary legs present. The second maxilla has only three inner lobes, the antennal scale is jointed, the third abdominal somite is larger than the rest, and there are no dorsal spines to the abdominal somites.

The larva has a long simple rostrum reaching well beyond the eyes, with a slight indentation at its origin from the carapace. The carapace is simple and short, eyes large. Of the five abdominal somites the third is distinctly enlarged, forming a prominent hump. Three pairs of maxillipedes are well developed, two pairs of rudimentary legs occurring behind them, the first biramous, the second uniramous, with a small prominence at its base representing the other ramus. The antennule (Fig. 2, b) has a long unjointed peduncle with an inner knob bearing a long plumose seta and an outer branch with three aesthetes, and internally a short ciliated seta. The antenna (Fig. 2, c) has a short peduncle about half the length of the antennular peduncle bearing an inner very slender branch, the flagellum, reaching about two-thirds up the scale, with an inner spine and an outer long plumose seta: in the outer branch the scale is six-jointed with nine ciliated setae and a short outer spine, besides one seta on its outer margin. The mandibles (Fig. 2, d, and Fig. 3) are strongly toothed, each side slightly different, with a long feathery tooth situated just within the main crunching portion and internal to this a setose lobe. The first maxilla (Fig. 2, e) has two lobes, the proximal lobe short with short setae, the distal lobe with two large thick hook-like spines and two fine setae, also a short knob externally at the base of the outer thick spine. The endopodite has one long and one short seta and a blunt knob externally. The second maxilla (Fig. 2, f) has three inner lobes only, bearing four, two and two setae respectively, counting from the proximal end. The unsegmented endopodite bears one seta, or may bear three. The exopodite is large with five ciliated setae, two in front, two lateral, and one large seta directed backwards. The three maxillipedes are all of the same pattern, each with a long exopodite bearing four long terminal setae. The endopodite of the first (Fig. 2, g) is unjointed,

with three terminal setæ, one lateral and four at the base, those of the second and third (Fig. 2, h and j) have three joints, the second with a thick hook and two setæ on the terminal joint, the third with three thick hooks on the terminal joint, two of which come from its base and one terminal. There are also four setæ on the terminal joint, one at the base

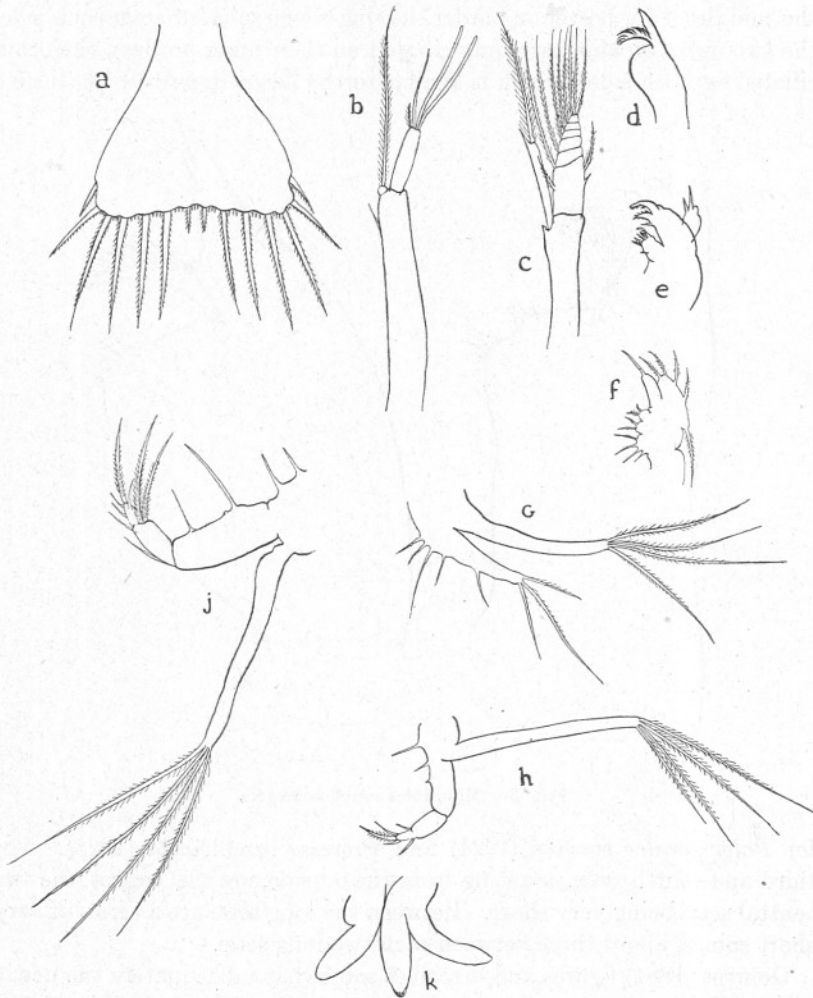


FIG. 2. Telson and appendages of the newly hatched larva of *Typton spongicola* (all drawn to same scale).

- | | |
|--------------------|-------------------------|
| (a) Telson. | (f) Second maxilla. |
| (b) Antennule. | (g) First maxillipede. |
| (c) Antenna. | (h) Second maxillipede. |
| (d) Mandible. | (i) Third maxillipede. |
| (e) First maxilla. | (j) Third maxillipede. |
| | (k) Rudimentary legs. |

of the penultimate joint and two on the inside of the first joint, the base having two internal setæ. The three exopodites are unjointed, but there are indications of three segments which will probably appear in the next moult. The hook-like spines on the second and third maxillipedes (one terminal on each and two at the base of the last joint) are provided with three rows of short spines. The telson is only slightly indented at the middle of its posterior border, having seven ciliated setæ each side, the two outer of which are only ciliated on their inner borders, the other ciliated on both sides, which is similar to the larvæ described by Gurney



FIG. 3. Mandibles much enlarged.

for *Palaemonetes varians* (1924) and *Processa canaliculata* (1923). The third and fourth setæ, counting from the outside, are the longest, the two central setæ being very short. Between the long setæ are a series of very short spines, about three between each two long setæ.

Gourret (1884) figures and describes somewhat inadequately the newly hatched larva of a *Pontonia* parasitic in *Ascidia* from Marseilles. In its segmented antennal scales, the form of its antennules and general build, it resembles the larva of *Typton*. He describes them as being colourless with a few rare spots of yellow pigment, therefore differing from *Typton* widely in this. At present this appears to be the only information we have on the pontoniid larvæ.

A comparison of the newly hatched Typton larva with that of *Palaemonetes varians* described by Gurney (loc. cit.), shows much resemblance between the two, in particular the form of the telson with the arrangement of its setæ, the segmented antennæ and the form of these and the antennules. When we have only the first larval stage for comparison, however, there is not much to go upon, and further stages are much wanted to complete the life-history.

LITERATURE.

1884. GOURRET, P. Considération sur la Faune pélagique du golfe de Marseille. Ann. du Musée d'histoire Naturelle de Marseille, Zoology, T. II.
1923. GURNEY, R. The Larval Stages of *Processa canaliculata* Leach. Jour. Mar. Biol. Assoc., N.S., Vol. XIII, No. 1.
1924. GURNEY, R. The Larval Development of some British Prawns (Palaemonidæ). I, *Palaemonetes varians*. Proc. Zool. Soc., Part I, 1924.
1925. GURNEY, R. Decapod Larvæ, British Antarctic ("Terra Nova") Expedition, 1910. Zoology, Vol. VIII, No. 2, Crustacea, Pt. IX.
1925. HUNT, O. D. The Food of the Bottom Fauna of the Plymouth Fishing Grounds. Journ. Mar. Biol. Assoc., Vol. XIII, No. 3.