THE NEWLY HATCHED LARVA OF *SPIRONTOCARIS SPINUS* (SOWERBY) VAR. *LILLJEBORGI* DANIELSSEN

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(Text-fig. 1)

On February 29 1937 the larvae of *Spirontocaris spinus* var. *lilljeborgi* were hatched out in the Dove Marine Laboratory by Dr H. O. Bull and sent to me for examination. As the larvae differ in certain important points from those of other species known and there is no published account of them, it seems worth while giving a short description, although the later larvae have not been identified and it was not possible to rear them further.

The parent was intermediate between the type *S. spinus* and the var. *lilljeborgi*, having the rostrum like the latter, but the dorsal spine on the third abdominal segment fairly prominent much as in typical *S. spinus*. The rostrum being regarded as the more important feature, the specimen is relegated to the variety.

Spirontocaris spinus is the type of the genus, but it differs considerably from those common British species which live closer inshore, leading up through *S. pusiola* to *S. occulta* and *S. cranchii* (see Lebour 1936). The larva of *S. pusiola* is not known (although Sars (1912) states that he has hatched it from the egg and that it closely resembles *Hippolyte*), but those of the inshore species *Spirontocaris occulta* and *S. cranchii* and several inshore species from California hatched by Needler (1933) all agree in certain features which may be regarded as typical for this group; they are in fact very closely related to *Hippolyte* which is essentially an inshore genus. *Spirontocaris spinus* var. *lilljeborgi* has a long rostrum in the newly hatched larva (absent in all the others and only appearing as a very short one in Stage II) and the endopod of the antenna, usually a single rod terminating in a setose spine, bears on its outer side a long plumose seta. It is also larger and further developed than any of the inshore species. Stephensen (1912, 1916, 1935) described several larvae of *Spirontocaris* from the deep water round Greenland, all of which hatch in an advanced stage, as is also the case in *S. polaris* taken from the egg by Krøyer (1842). Thus the more open water species are more advanced in hatching and tend to have their larval life abbreviated, whilst the inshore forms hatch in a less developed state and have a more or less prolonged larval life. Stephensen suggests that his larva No. 1 (1916) which he considers to be identical with his No. 1A

(1935) might belong to *S. groenlandica*, *S. gaimardi* or *S. spinus*; but it cannot be *S. spinus*, as it does not agree with those hatched from the egg. His larva No. 5 (1935) has a long rostrum but is obviously different from *S. spinus* and, as he suggests, very probably belongs to *Dichelopandalus leptoceros*.

Mr R. Elmhirst has hatched the larvae of *Spirontocaris spinus* var. *lilljeborgi* at Millport and Dr H. O. Bull has hatched them twice at Cullercoats. Their notes, which they kindly allow me to quote, agree in all essentials with mine. Elmhirst's specimens were hatched on March 29 1934. He states that the species breeds from December to April, and that the newly hatched larva are coloured bright red and yellow. The long rostrum and the seta on the antennal endopod are noted; also the rudiments of legs. Bull's first specimens were hatched on March 10 1934. He notes the same characters.

Description of the Newly Hatched Larva (Figs. 1 *a–d*)

The egg with the larva ready to hatch is 0·96 mm. by 1·2 mm. In the embryonic cuticle there are 6 + 6 spines on telson, the two inner setae enclosed in one envelope, as is usual in the Caridea. The newly hatched larva is 3·7 mm. long from tip of rostrum to end of telson. There is a tooth at the antero-ventral corner of carapace but no ventral denticulations. Lateral spines are present on abdominal segment 5. The anal spine is conspicuous as early as the first stage which is a characteristic of the genus. The telson is deeply excavated posteriorly with the usual seven spines on each side and the uropods beginning to show underneath (Figs. 1 *a*, *b*). The antennule (Fig. 1 *c*) shows on the outer branch three incipient segments, armed with two aesthetes and several hairs. The inner branch is represented by a long plumose seta. The antennal scale is not segmented at the tip; there is one seta externally and nine from the tip round the internal margin. The endopod is a long rod terminating in a setose spine, bearing on its external side about a third of the way up a long plumose seta (Fig. 1 *d*). The mandible, maxillule and maxilla are similar to those of the other species. The second and third maxillipedes bear five setae at the ends of the exopods, three at the tips. Rudiments of all the legs are present.

The essential differences between this larva and those of *S. occulta* and *S. cranchii*, as typical of the inshore species, are thus the long rostral spine and the form of the antennal endopod. Also the fact that it is larger and further advanced. There are no denticulations on the carapace which are usually, but not invariably, present in other species. The differences are of a character which would tend to make it better adapted for an open-water life. A comparison with the larvae of *Caridion gordoni* and *C. steveni* shows that these also have a long rostrum and a somewhat similarly shaped antenna. Gurney (1936) also has recently described the larva of *Latreutes fucorum* which has the antennal endopod of the same type. These are all Hippolytid larvae of the open water.

Miss Frost (1936) has described several larvae belonging to the genus *Spirontocaris* from Newfoundland waters, two of which have a long rostrum (*A* and *B*). Of these *A* has lateral spines on both abdominal segments 4 and 5, but *B* has them only on 5. It seems possible that *B* may be the later larva of

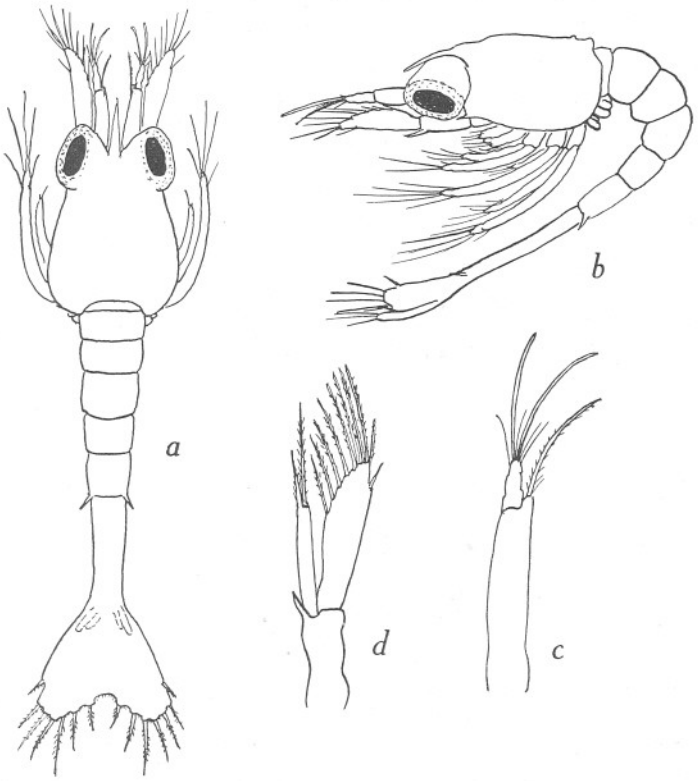

Fig. 1. *a*, dorsal view of newly-hatched larvae of *Spirontocaris spinus* var. *lilljeborgi*, 3·7 mm. long. *b*, the same, side view. *c*, antennule. *d*, antenna.

S. spinus, for both *Spirontocaris spinus* and the var. *lilljeborgi* are recorded by Miss Rathbun (1929) from the Canadian Atlantic fauna.

It is hoped that later larvae of *S. spinus* will be forthcoming, so that further comparison may be made, and that no opportunity of hatching the larvae of other species of the genus will be lost.

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