

CONSEIL INTERNATIONAL POUR L'EXPLORATION DE LA MER

Zooplankton

Sheet 92

CRUSTACEA

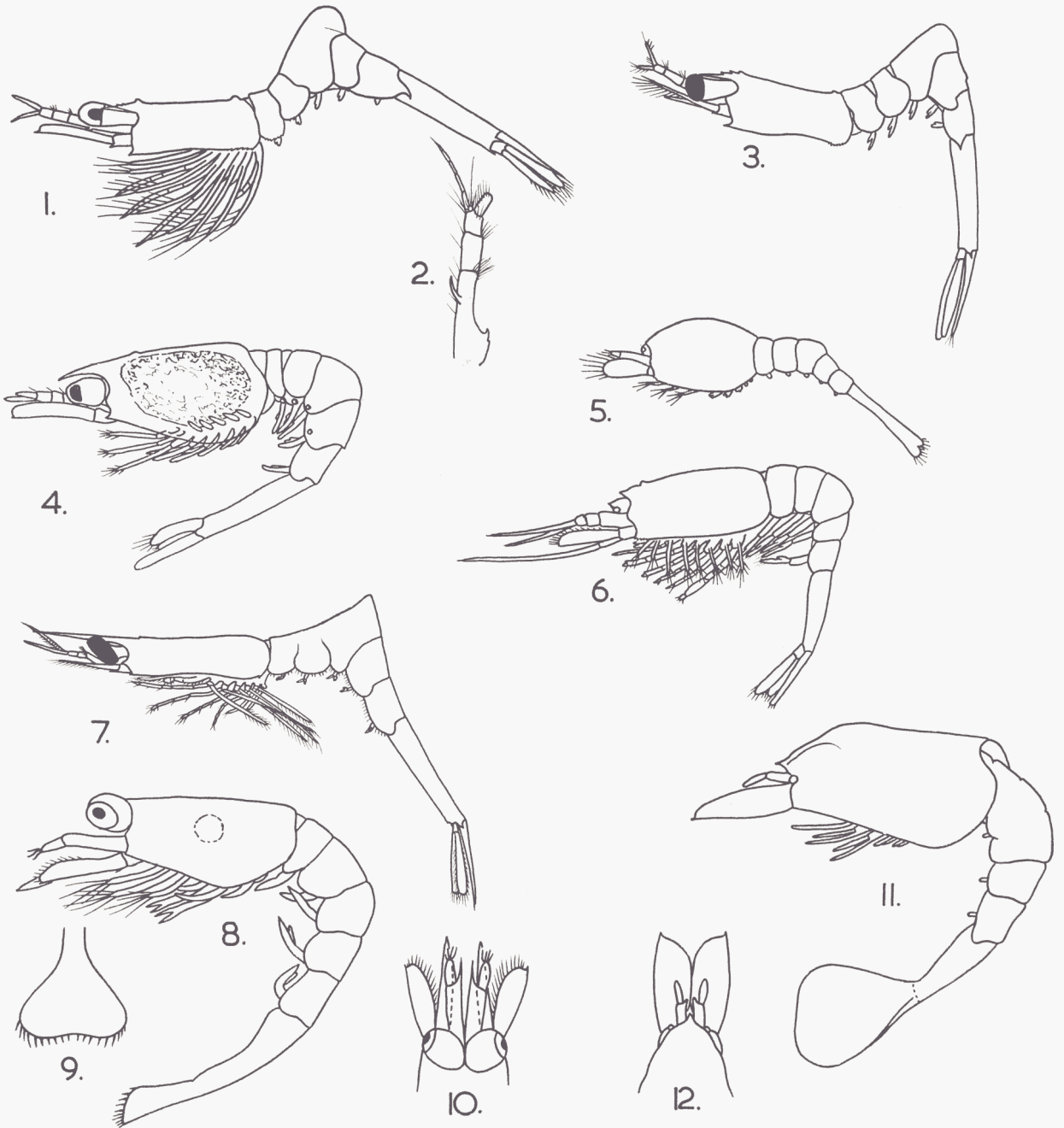
DECAPODA: LARVAE

III. CARIDEA,

**Families Oplophoridae, Nematocarinidae
and Pasiphaeidae**

(BY D. I. WILLIAMSON)

1962



Figs. 1, 2. *Acanthephyra purpurea*: 1, stage VIII? (8.75 mm); 2, antennule of last zoeal stage. — Fig. 3. *A. pelagica*, stage VIII ? (10.4 mm). — Fig. 4. *Systellaspis debilis*, stage III (10.5 mm). — Figs. 5, 6. *Hymenodora glacialis*: 5, stage I (10 mm); 6, stage V (ca. 11 mm). — Fig. 7. *Nematocarcinus ensifer exilis*, late zoeal stage (22 mm). — Figs. 8–10. *Pasiphaea sivado*, stage I (5.7 mm): 8, lateral view; 9, telson; 10, dorsal view of head. — Figs. 11, 12. *Parapasiphaë sulcatifrons*, stage I (14 mm): 11, lateral view; 12, dorsal view of head.

[1, 4 after GURNEY; 2 after LEBOUR; 3, 7 (emend.), 11, 12 after KEMP; 5, 6 after STEPHENSEN; 8–10 after D. I. WILLIAMSON.]

Oplophoridae

The key to zoeae in Sheet 67 overlooks the early stages of *Acanthephyra*. Section 17 of this key (p. 5) should be amended thus:

- 17. Setose or rudimentary exopods on legs 1–5 except in early stages of *Acanthephyra* and *Hymenodora*; abd. 3 with prominent rounded hump in *Acanthephyra*; photophores present and eyes small in *Hymenodora* 18
- Leg 5 absent (early stages) or uniramous or with minute rudiment of exopod in late stages only (Nematocarcinidae); abd. 3 with pointed hump (Nematocarcinidae) or without prominent hump; photophores absent; eyes well developed 19

*ACANTHEPHYRA A. Milne Edwards

Abd. 3 of zoeal stages with conspicuous fat-filled hump rounded in lateral view but forming a dorsal carina. No photophores. Cornea of eye wider than stalk in zoeal stages, narrower in megalopa (= “parva” stage) Rostrum with a few dorsal teeth in late zoeal stages. Pair of lateral spines on posterior margin of abd. 5 from stage II or III. Number of telson processes never exceeds 8 + 8. Antennal scale at least 3 times as long as broad in all stages, segmented at tip in stages I-III. Pleopods and posterior legs do not appear until stage VI or VII. At least 9 zoeal stages.

- 1. *A. purpurea* (A. Milne Edwards). (Figs. 1 2). Body transparent with a few red chromatophores. Denticles on both anterior and posterior parts of ventral margin of carapace in early stages, but anterior part may be smooth in late stages. Pleura of abd. 1 and 2 or abd. 1 only with denticles on ventral margin from about stage VII. Ventral spine on proximal segment of antennular peduncle from stage IV. Lateral spines on abd. 5 curved 3.4–12 mm.
COUTIÈRE, 1906, Fig. 5 (megalopa, as “larve très jeune”); 1907, Fig. 1 (last stage, as *Hoplocaricyphus similis*). H. C. WILLIAMSON, 1915, Fig. 39 (megalopa, as “sehr junge Larve”, after COUTIÈRE, 1906). GURNEY, 1924, Fig. 41 (stage VII?, as “*Acanthephyra?*”); 1942, Figs. 64, 65 (stage VIII?). LEBOUR, in GURNEY and LEBOUR, 1941, Fig. 1 a-x, Fig. 2 a-s (zoeal stages and megalopa).
- 2. *A. pelagica* (Risso) [= *A. haeckelii* (von Martens) = *A. multispina* (Coutière)]. (Fig. 3). Similar to *A. purpurea* but hump on abd. 3 slightly less prominent, no denticles on abdominal pleura and probably no ventral spine on antennular peduncle.
KEMP, 1906, Pl. II, Fig. 1 (megalopa, as *A. purpurea*); 1907, Pl. 14, Figs. 1–24, Pl. 15, Fig. 1 (zoeal stages and megalopa, as *A. purpurea* var. *multispina*). H. C. WILLIAMSON, 1915, Figs. 40, 41, 41a (stage II and megalopa, as *A. purpurea*, after KEMP).

SYSTELLASPIS Bate

At least 3 pairs photophores in stage I (at bases of leg 5 and pleopods 1 and 2), more in later stages. Much yolk in thorax. No fatty hump on abdomen. Cornea of eye a little narrower than stalk in early stages, of similar width to stalk in late zoeal stages. Number of telson processes never exceeds 8 + 8. Antennal scale only about twice as long as broad in stage I, becoming 3–4 times as long as broad in last zoeal stage; never segmented. Pleopods and biramous legs present from stage I. 3 or 4 zoeal stages.

- 3. *S. debilis* (A. Milne Edwards). (Fig. 4). Body orange-red, with dark red yolk in thorax and colourless dorsal spot on each eye-stalk. Abd. 3 with posterior dorsal spine in last zoeal stage and megalopa. 10–13 mm.
COUTIÈRE, 1906, Fig. 2 (last zoeal stage, as “larve récemment éclosé”). KEMP, 1910, Pl. VI, Figs. 5–15 (1st and last zoeal stages and megalopa, as *Acanthephyra debilis*). GURNEY, in GURNEY and LEBOUR, 1941, Fig. 5a-m, Fig. 6a-j (zoeal stages and megalopa).
- 4. *S. braueri* (Balss). Larvae not described.
- 5. *S. cristata* (Faxon). Larvae not described.

HYMENODORA G. O. Sars

No photophores. No hump on abd. 3. Cornea of eye unpigmented and much narrower than stalk. 7 + 7 (or 8 + 7) telson processes in stage I, 9 + 9 or 10 + 10 in later stages. Antennal scale always less than 3 times as long as broad, never segmented. All legs and pleopods present from stage I but exopods of legs 4 and 5 absent or minute in stage I. 5 zoeal stages.

- 6. *H. glacialis* (Buchholz). (Figs. 5, 6). 10–12 mm.
STEPHENSEN, 1935, Figs. 26–30 (zoeal stages and megalopa). GURNEY, 1942, Fig. 66 (stage intermediate between normal I and II).
- 7. *H. gracilis* S. I. Smith. Eggs large (> 2 mm). Larvae not described.

*) *Discias atlanticus* Gurney occurs in the North Atlantic (Bermuda) but has not been recorded from the ICES area. Its zoeal stages resemble *Acanthephyra* in having exopods on all legs and denticles on the anterior and posterior ventral carapace and the pleuron of abd. 1; they resemble *Nematocarcinus* (p. 4) in having the rostrum smooth in all stages, tergites 1–3 partly fused and an angular hump on abd. 3.
GURNEY, 1942, Fig. 67 (last zoeal stage).

EPHYRINA S. I. Smith

Eggs large. Larvae not described.

8. *E. benedicti* S. I. Smith.
9. *E. hoskynii* Wood Mason & Alcock.
10. *E. bifida* Stephensen.

NOTOSTOMUS A. Milne Edwards

Eggs small (< 1 mm). Larvae not described.

11. *N. vescus* S. I. Smith [= *N. batei* (Faxon)].
12. *N. mollis* (S. I. Smith) [= *N. fragilis* Faxon].

Nematocarcinidae

NEMATOCARCINUS A. Milne Edwards

13. *N. ensifer* (S. I. Smith) subsp. *exilis* (Bate). (Fig. 7). Tergites 1–3 partly fused; fat-filled hump on abd. 3 acutely pointed. Rostrum long slender, smooth. Ventral margin of carapace with single small tooth at posterior end. Abdominal somites without spines but with ventral, setae on pleura. Legs and pleopods absent on hatching. Leg 5 develops after other legs; endopod becomes almost as long as leg 4 in late stages, but exopod always minute or absent. Many zoeal stages. 4.5–35 mm.

KEMP, 1907, Pl. 15, Figs. 2–8 (specimen of 22 mm, as “larva allied to *Caricyphus*”); 1910, Pl. IX, Figs. 9, 10 (stage I extracted from egg)

Pasiphaeidae

Large number of telson processes in stage I but tendency to reduce this number in each succeeding stage. 4 zoeal stages.

PASIPHAEA Savigny

Eyes well developed, pigmented. Rostrum short, does not project beyond eyes. No dorsal carina on carapace.

14. *P. tarda* Krøyer. 14 or 15 pairs telson processes in stage I, 12–14 pairs in stage IV. 10.3–12.5 mm.
BJÖRCK, 1911, Figs. 10–15 (not Figs. 1–9) (stage IV and megalopa). ELOFSSON, 1961, Fig. 1a, e, h, i, k, l, Fig. 2a-c (stages I-IV).
15. *P. multidentata* Esmark. Probably 20 pairs telson processes in stage I, 15 pairs in stage IV. 8.5–10.5 mm.
BJÖRCK, 1911, Figs. 1–9 (stage II, as stage I of *P. tarda*). H. C. WILLIAMSON, 1915, Figs. 28–34 (stage II, as stage I of *P. tarda*, after BJÖRCK). D. I. WILLIAMSON, 1960, Fig. 2g-i (stages III and IV, as *P. principalis*); 1961, p. 158, no fig. (amendment of sp. name in previous paper). ELOFSSON, 1961, Fig. 1b, c, d, f, g, j, Fig. 2d-i (embryo and stages II-IV).
16. *P. sivado* (Risso). (Figs. 8–10). 9 or 10 pairs telson processes in stage I, 7 pairs in stage IV. 5.7–6.4 mm.
BOURDILLON-CASANOVA, 1960, Fig. 2a-o (stage I extracted from egg). D. I. WILLIAMSON, 1960, Fig. 1a-h, Fig. 2a-f (zoeal stages and megalopa).

PARAPASIPHAË S. I. Smith

Eyes small, unpigmented. Rostrum projects beyond eyes.

17. *P. sulcatifrons* S. I. Smith. (Figs. 11, 12). Stage I: telson broader than long, with about 10 + 10 short marginal processes. Stage IV: telson 3.5 times as long as broad, with 4 + 4 or 5 + 5 short marginal processes. Small dorsal carina on carapace in stage IV and megalopa. 14–15 mm.
KEMP, 1910, Pl. V, Figs. 4–20 (not Fig. 3) (zoeal stages and megalopa). H. C. WILLIAMSON, 1915, Figs. 25, 26 (not Fig. 24) (zoeal stages, after KEMP, as *Pasiphaë*). STEPHENSEN, 1935, Figs. 23–25 (zoeal stages and megalopa). GURNEY, 1942, p. 204, no fig. (zoeal stages, after KEMP and STEPHENSEN). D. I. WILLIAMSON, 1960, p. 338, no fig. (zoeal stages and megalopa, partly after KEMP and STEPHENSEN).
18. *P. cristata* S. I. Smith [= *P. macrodactyla* Chace]. Larvae not described.

DANTECIA Caullery

Larvae not described.

19. *D. caudani* Caullery.

PSATHYROCARIS Wood Mason & Alcock

Larvae not described.

20. *P. atlantica* Caullery.

Distribution of adults

| Region | Species |
|---|---|
| Gulf of Bothnia, Gulf of Finland, Baltic, Belt Sea, Kattegat..... | — |
| Skagerak..... | 14, 15, 16 |
| Northern North Sea..... | 15 |
| Southern North Sea..... | — |
| English Channel..... | (16) |
| Bristol Channel, Irish Sea, SW Scotland..... | 16 |
| Faroe, Shetland, N Scotland | 1, 2, 3, 6, 13, 14, 15, 16, 18 |
| Faroe-Iceland Area..... | 2, 3, 6, 11, 13, 14, 15, 17 |
| W Ireland and Atlantic..... | 1, 2, 3, 6, 7, 8, 9, 13, 14, 15, 16, 17, 18 |
| Bay of Biscay..... | 1, 2, 3, 4, 5, (6), 7, 8, 9, 10, 12, 13, 15, 16, 19, 20 |
| Norwegian Sea..... | 6, 14, 15, 16 |
| Barents Sea..... | 6, 14 |

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