CONSEIL INTERNATIONAL POUR L'EXPLORATION DE LA MER

Zooplankton

Sheet 115

(To replace Sheet No. 5)

OSTRACODA I – MYODOCOPA

SUB-ORDER: CYPRIDINIFORMES

Families: Cypridinidae, Rutidermatidae, Sarsiellidae, Asteropidae

(By E. M. Poulsen)

1969

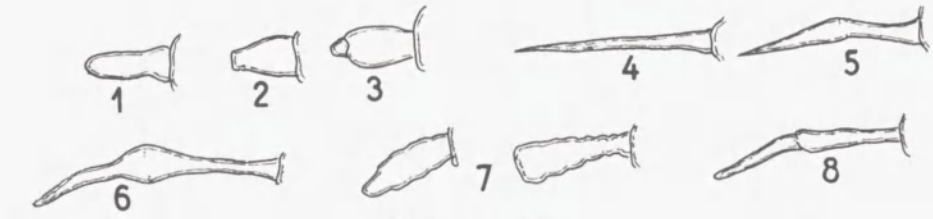

Figure 1

Figure 2

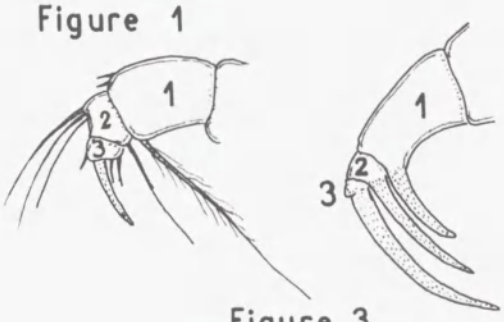

Figure 3

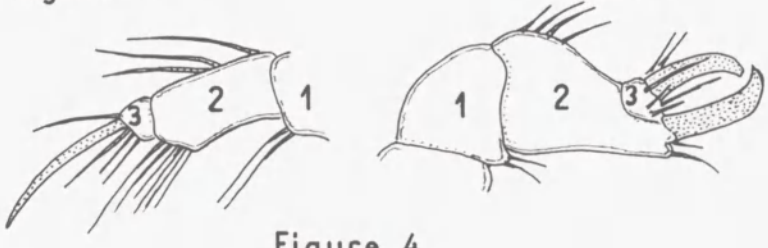

Figure 4

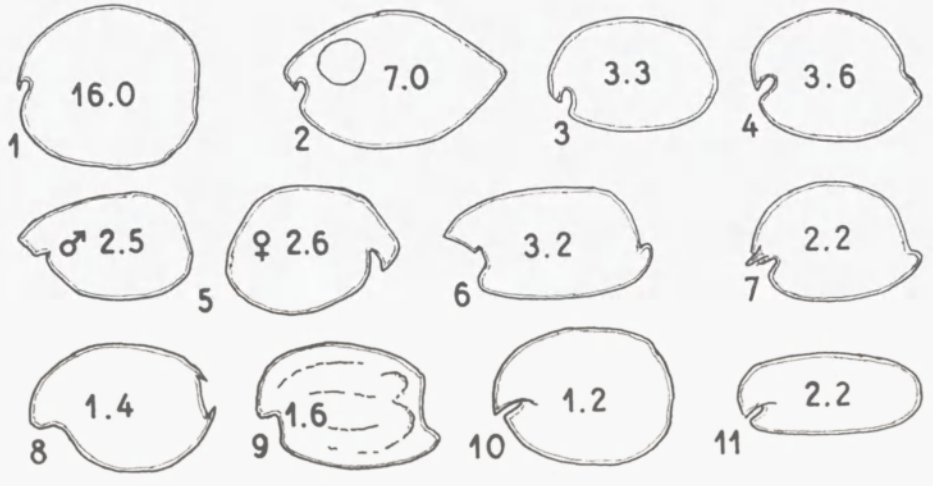

Figure 5

Figure 1. Frontal organ. 1 – *Macrocypridina;* 2 – *Skogsbergia;* 3 – *Vargula;* 4 – *Philomedes;* 5 – *Euphilomedes;* 6 – *Rutiderma;* 7 – Sarsiellidae; 8 – Asteropinae.

Figure 2. *Parasterope muelleri*, maxilla with "baleen"-comb.

Figure 3. Sarsiellidae, endopodite (joints 1.2.3.) of mandible, left ♂, right ♀.

Figure 4. Rutidermatidae, endopodite (joints 1.2.3.) of mandible, left ♂, right ♀.

Figure 5. Contour drawings of shell (length in mm noted) of: 1 – *Gigantocypris muelleri*, (after Skogsberg). 2 – *Macrocypridina castanea* (after Skogsberg), 3 – *Vargula norvegica* (after Sars), 4 – *Skogsbergia megalops* (after Sars), 5 – *Philomedes globosus* ♂ and ♀ (after Skogsberg), 6 – *Philomedes lilljeborgi* ♂; 7 – *Philomedes macandrei* (after Brady & Norman); 8 – *Euphilomedes interpuncta* (after Brady & Norman); 9 – *Rutiderma compressa* (after Brady & Norman); 10 – *Parasterope muelleri* ♀; 11 – *Asteropina mariae* ♀ (after Sars).

OSTRACODA I – MYODOCOPA

SUB-ORDER: CYPRIDINIFORMES

Diagnosis: Shell ovoid, more or less elongate, rarely almost circular, dorsal margin more or less arched anteriorly, with rostrum and incisure (in a few cases weak or almost missing), posterior margin often pointed and/or with processes. 2nd antenna a powerful locomotory organ. 5th limb with short endopodite and exopodite and a flat, respiratory part (epipodite) with about 30–60 long bristles. 6th limb flat, leaf-like, no respiratory epipodite, in its place a few short, simple bristles. 7th limb a worm-shaped cleaning organ distally with bristles and teeth, in the Sarsiellidae ♂ rudimentary. Paired male copulatory limbs. Furcal rami lamelliform with strong marginal claws. A short or longer unpaired frontal organ (Figure 1) present below the median eye. Lateral eyes present, rarely reduced or missing.

KEY TO FAMILIES AND SUB-FAMILIES

(Only the North Atlantic, N. of 40° N lat. considered).

1. Basale of maxilla elongate, ventrally with a dense comb of numerous long bristles (Figure 2) ..... Asteropidae
   a. 2 or more bristles on 2nd joint of 1st antenna, 4–6 bristles on 2nd joint of maxilla endopodite ..... Cyclasteropinae
   b. 1 bristle on 2nd joint of 1st antenna, 1 (–2) bristles on 2nd joint of maxilla endopodite ..... Asteropinae
1. Basale of maxilla short, stout, ventrally with few or no bristles 2
2. End-joint of mandible with at most 4 bristles of which one is stout, claw-like; female mandible with 3 long "curved" distal claws (Figure 3) ..... Sarsiellidae
2. End-joint of mandible with 5–7 bristles of which one or more are claw-like 3
3. Mandible exopodite missing or not more than half as long as 1st endopodite joint, its bristles shorter than the exopodite itself; female mandible forms distally a strong pair of pincers (Figure 4) ..... Rutidermatidae
3. Mandible exopodite longer than half the length of 1st endopodite joint, at least one of its bristles longer than the exopodite itself ..... Cypridinidae
   a. No hairs along the margin of furcal laminae ..... Cypridininae
   b. Hairs along this margin between the claws ..... Philomedinae

Family CYPRIDINIDAE

Shell with more or less arched dorsal and ventral margins, slight or no sexual dimorphism. 6th limb lamelliform, epipodial appendage represented by only a few short bristles. The last, 7th, limb long, slender, ringed, worm-shaped (cleaning organ), distally with long bristles and teeth, spines or claws. Several limbs with a more or less pronounced sexual dimorphism. Furcal lamellae rather elongate. Paired lateraleyes present or rudimentary (especially in ♀), in rare cases missing. Median eye developed. Size 0.5–30 mm.

Sub-family CYPRIDININAE

Frontal organ short (not reaching end of 1st joint of 1st antenna), stout and blunt, or rudimentary. Protopodite of 2nd antenna with a distomedial bristle. No hairs on furcal margin. Lateral eyes present except in a few bathypelagic species. Sexual dimorphism in 1st antenna (clasping organs and better developed sense organs in ♂) and in some genera in the endopodite of the 2nd antenna (clasping organ in ♂). 4 genera, each with one species in the North Atlantic.

1. *Gigantocypris* G. W. Müller

Shell thin, transparent, almost circular, slightly compressed, Lateral eyes much reduced. Endopodite of male 2nd antenna a clasping organ. 7th limb with numerous (> 60) cleaning bristles and distally on each side with a long, dense comb of 20 or more teeth. Frontal organ rudimentary. Size 8–30 mm. Bathypelagic. *G. muelleri* Skogsberg (Figure 5, 1). 7th limb with 100–150 cleaning bristles and 60–70 comb teeth on each side. Upper lip with a straight margin, without processes. All furcal claws well delimited from lamellae. Size 13–20 mm. To 64° N. Lat.

2. *Macrocypridina* T. Skogsberg

Shell ovoid. Lateral eyes present, the part of the leathery dark-brown shell over the eyes forms a circular, transparent spot. Endopodite of 2nd antenna elongate, 3-jointed, similar in both sexes. The 7th limb with in all 30–40 bristles and about 15 teeth or spines. Upper lip with a rounded margin and a few small posterior processes. All furcal claws well delimited from lamella. *M. castanea* Brady (Figure 5,2), size 5–7 mm, bathypelagic, (300–3000 m, young also closer to the surface) in the Atlantic to 56° N.

3. *Vargula* T. Skogsberg

Shell ovoid, posteriorly evenly rounded or with process. Lateral eyes present. Endopodite of 2nd antenna elongate, 3-jointed, similar in both sexes. Upper lip with an unpaired anterior and a paired posterior part, the latter with 2 large tusks. One or two furcal claws united with lamella. *V. norvegica* (W. Baird) Figure 5,3. Shell posteriorly evenly rounded, 7th limb with a total of abt. 40 bristles and 15 teeth or spines, 2nd and 4th furcal claw united with lamella. Size 3.4 mm, NE-Atlantic to 70° N. Lat.

4. *Skogsbergia* Erik M. Poulsen

Shell ovoid, posteriorly rounded, with a low flange, or with a square-cut process. Lateral eyes present. Endopodite of 2nd antenna a small, triangular, unjointed plate, similar in both sexes. Upper lip divided into lobular plates, without larger processes. 2nd furcal claw or no claws united with lamellae. *S. megalops* (G. O. Sars) Figure 5,4. Posterior part of shell with a low flange, furcal lamellae with 11 claws all well delimited from lamellae, size 3–3.5 mm, NE Atlantic off Norway.

Sub-family PHILOMEDINAE

Shell almost circular to elongate ovoid, smooth or with ridges or processes; higher, and with better developed rostrum and incisure in ♂ than in ♀. Frontal organ long, slender, pointed. Protopodite of 2nd antenna without disto-medial bristle. Furcal margin with long hairs between the claws. Lateral eyes present in ♂, absent in ♀. Sexual dimorphism strong in most limbs: ♂ 1st antenna with better developed sense organs; endopodite of 2nd antenna a clasping organ; mandible, maxilla and 5th limb reduced especially as to provision with bristles and teeth. Two genera, 4 species in the North Atlantic.

1. *Philomedes* Lilljeborg

Shell surface smooth or with hollows. The long frontal organ gradually tapering towards the tip. About 3–11 short, thumb- or finger-shaped pegs opposite the teeth of the 7th limb. The furcal claws decrease gradually in size dorsally. 2nd joint of endopodite of male 2nd antenna with 3 spines. Male copulatory limbs rather short.

P. lilljeborgi (Sars). Figure 5,6. Shell surface smooth, 10–11 pegs on 7th limb, 2–3 times longer than broad; a small, dorsally turned, round process on lower part of posterior shell margins, size 2–3 mm. NE Atlantic. *Ph. globosa* (W. Lilljeborg) Figure 5,5; (*Ph. brenda*, various authors) shell surface with densely placed small hollows; pegs on 7th limb not longer than broad; no rounded process on the posterior shell margin; size 2–3 mm. N Atlantic. *Ph. macandrei*, (Baird) Figure 5,7. Shell with a horn-like process on either side of rostrum, surface of shell smooth, size 2 mm. Faroe-Shetland area.

2. *Euphilomedes* Erik M. Poulsen

Shell surface with ridges, processes or/and hollows or more rarely smooth. Frontal organ slender, widened at its middle. Only 1–2 terminal pegs, shaped as curved spines, on the 7th limb, in some cases with marginal teeth. On furcal lamellae smaller, secondary claws are placed between larger, main claws. 2nd endopodite joint of ♂ 2nd antenna with only 2 spines. The male copulatory limbs long, reaching or surpassing the tip of furcal lamellae. *E. interpuncta* (Baird), Figure 5,8. E Atlantic 30–65° N. Lat.; shell surface bare of hairs and without hollows. Posterior margin with a ventrally pointing dorsal and a dorsally pointing ventral process; claws 1. 2. 4. and 6. of furca are main claws.

Family RUTIDERMATIDAE

Great sexual dimorphism in shell and in most limbs. Shell short with backwards reaching ridges or processes. The ♂ mandible ends with a single claw, the ♀ with two claws forming a strong pair of pincers. The endopodite of the ♀ 2nd antenna is only a small plate with a few short bristles, in ♂ a large clasping organ. Exopodite of mandible small or lacking. 7th limb a worm-shaped cleaning organ in both sexes. *Rutiderma compressa* Brady and Norman (Figure 5,9); Bay of Biscay; with 3 main and 2 secondary claws on furcal lamella.

Family SARSIELLIDAE

Great sexual dimorphism. Shell of ♀ oval or circular with a smaller or larger postero-ventral process and weakly developed rostrum and incisure; ♂ shell more elongate, rostrum and incisure better developed, shell processes and ridges more pronounced. End-joint of ♂ mandible with one stout claw; in ♀ the two last joints shortened and each of the 3 last joints disto-ventrally with a long, stout, curved claw. Endopodite of ♀ 2nd antenna a rudimentary bulge or ridge, in ♂ of most species a larger clasping organ, in a few species rudimentary. 7th limb in ♀ a worm-like cleaning organ, in ♂ rudimentary, thumb- or finger-shaped. Frontal organ rather short with a slender proximal and a widened distal part. Lateral eyes present, in most species small, largest in ♂. Size 0.5–2.5 mm.

Two species are recorded from the area, both characterized by a few strong, radial ridges on the shell: *Eusarsiella americana* (Cushman) with teeth on antero-ventral shell margin, and *E. zostericola* (Cushman) without such teeth; NW Atlantic, Cape Cod region.

Family ASTEROPIDAE

Shell elongate-ovoid to almost circular; dorsal and ventral margins are arched. A conspicuous chitinized ridge with spines and bristles runs medially inside the posterior shell margin. Rostrum usually strongly bent downwards, incisure rather deep, but in a few species rostrum almost missing and incisure very shallow. Sexual dimorphism in the main limited to the 1st and 2nd antennae. 1st antenna longer and stronger in ♂ than in ♀, its sensory bristle with numerous filaments, in the ♀ only a few. Endopodite of the ♀ 2nd antenna finger-shaped, shorter or longer, jointed or unjointed, in ♂ a prehensile clasping organ. Mandible in both sexes with a long curved, serrate endite, and protopodite of maxilla with a "baleen"-comb formed of numerous long, densely placed, bristles. The 7th limb in both sexes a worm-shaped cleaning organ with long bristles. Lateral eyes well developed, except in few deeper water species. Frontal organ elongate, weakly 2–3 jointed. 7–10 leaf-shaped gills on the dorsum, but rudimentary in very few, small, species.

Sub-family CYCLASTEROPINAE

Shell high; bottom of incisure evenly rounded; furcal lamellae triangular; 7th limb with many (up to 200) bristles; 2–9 dorsal bristles on 2nd joint of 1st antenna; 4–6 bristles on 2nd endopodite joint of maxilla. Not reported from the area, but from close to it (Mediterranean and W of Morocco).

Sub-family ASTEROPINAE

Shell more elongate; the dorsal and ventral shell margins cross in the bottom of the incisure; furcal lamellae oval; 7th limb with few (up to 25) bristles; 1 dorsal bristle on 2nd joint of 1st antenna; one (in a single species 2) bristles on 2nd endopodite joint of maxilla; 2nd endopodite joint of mandible with 4 exceptionally long and stout bristles along the dorsal margin, and a varying number of slender or short bristles. Mainly tropical and subtropical; 3 genera reported from the N Atlantic.

1. *Parasterope* Erik M. Poulsen

Shell comparatively short; 1st antenna with 6 filaments on sensory bristle; exopodite of mandible 3/4 the length of 1st endopodite joint, 2nd endopodite joint with a long, slender bristle between the 2nd and 3rd large bristles. *P. muelleri* (Skogsberg) Figure 5,10; 10–18 long bristles between median ridge and posterior shell margin, about 15 plumose bristles along ventral margin of 6th limb. NE Atlantic. *P. aberrata* (Skogsberg), 30–40 longer bristles between median ridge and posterior shell margin, at the most 2–3 short, bare bristles along ventral margin of 6th limb. Off Ireland.

2. *Synasterope* Erik M. Poulsen

Shell rather elongate; 1st antenna with 6 filaments on sensory bristle; exopodite of mandible about 3/4 the length of 1st endopodite joint, no long slender bristle between the 2nd and 3rd large bristles on 2nd endopodite joint. *S. norvegica* (G. O. Sars) with well developed lateral eyes, off Scandinavian coasts, and *S. abyssicola* (G. O. Sars) without lateral eyes, deeper water off northern Norway and Bear Island.

3. *Asteropina* Erik M. Poulsen

Shell more elongate; 1st antenna with an additional 7th, shorter filament on sensory bristle; exopodite of mandible less than 1/2 the length of 1st endopodite joint, 2nd endopodite joint without a long, slender bristle between the 2nd and 3rd large bristles. The specimens reported from the N Atlantic under the name *Asterope mariae* (Baird), Figure 5,11, by G. O. Sars and others appear (the existing descriptions are often not complete) to belong to the genus *Asteropina*.

REFERENCES

Apstein, C., 1911. "Ostracoden". Bull. trimest. Résult. Crois. période. Cons. perm. int. Explor. Mer (1905–08), Pt. 2, 163–9 pp.

Brady, G. St. and Norman, A. M., 1896. "A monograph of the marine and freshwater Ostracoda of the North Atlantic and the north-western Europe II". Trans. R. Dublin Soc., 125 pp. 19 pls.

Elofson, O., 1941. "Zur Kenntnis der marinen Ostracoden Schwedens". Zool. Bidr. Upps., **19**: 215–534.

Müller, G. W., 1894. "Die Ostracoden des Golfes von Neapel". Fauna Flora Golf. Neapel, **21**: 440 pp. 40 pls.

Müller, G. W., 1906. "Ostracoda". Wiss. Ergebn. dt. Tiefsee-Exped. 'Valdivia' 1898–1899, **8**: 27–154.

Ostenfeld, C. H., 1931. "Concluding remarks on the plankton collected on the quarterly cruises in the years 1902 to 1908". Bull. trimest. Résult. Crois. période. Cons. perm. int. Explor. Mer (1905–08), Pt. 4, 601–72 pp.

Poulsen, E. M., 1962. "Ostracoda-Myodocopa I". Dana Rep., (57), 414 pp.

Poulsen, E. M., 1965. "Ostracoda-Myodocopa II". Dana Rep., (65), 484 pp.

Sars, G. O., 1928. "Ostracoda". Acc. Crust. Norw., **9**: 277 pp. 119 pls.

Skogsberg, T., 1920. "Studies on marine ostracods I". Zool. Bidr. Upps., Suppl. I. 784 pp.