

CONSEIL INTERNATIONAL POUR L'EXPLORATION DE LA MER

Zooplankton.

Sheet 47.

COPEPODA

SUB-ORDER: CALANOIDA

Family: Aetideidae

GENUS: EUCHIRELLA

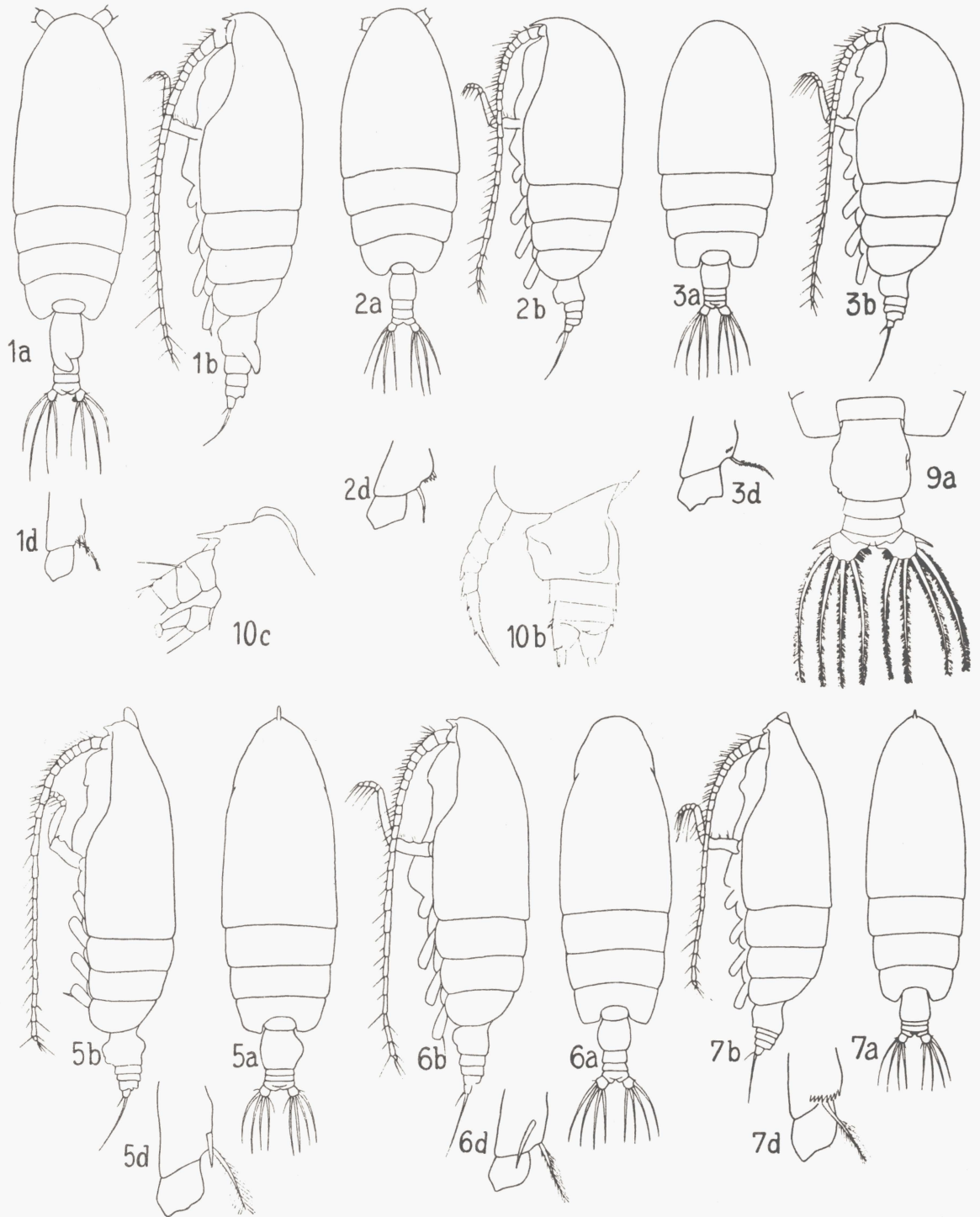
(By W. Vervoort)

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1, *Euchiarella messinensis*. 2, *Euchiarella rostrata*. 3, *Euchiarella brevis*. 5, *Euchiarella bitumida*. 6, *Euchiarella intermedia*. 7, *Euchiarella curticauda*. 9, *Euchiarella venusta*. 10, *Euchiarella galeata*.
a, ♀, dorsal view; b, ♀, lateral view; c, ♀, head, lateral view; d, ♀, basal joints of 4th feet.
(All figures, with the exception of 9 and 10, after Sars; 9 and 10 after Vervoort).

Genus EUCHIRELLA Giesbrecht, 1888

Big and strongly built copepods. Cephalon and 1st thoracic somite fused or separate; 4th and 5th thoracic somites fused. Cephalon broadly rounded, smooth or provided with a helmet-shaped or triangular cephalic crest. Postero-lateral thoracic border rounded. Rostrum strong, 1-pointed, occasionally absent. Females with 4-segmented abdomen; genital somite in dorsal aspect usually asymmetrical, ventral swelling distinct, occasionally big. Furcal setae asymmetrically developed. 1st antennae 25-jointed; 2nd antennae with very unequal endo- and exopods, endopods of reduced length. Maxillipeds comparatively short. Endopods of the 1st feet 1-jointed, exopods 2-jointed. Endopods of 2nd feet 1-jointed, exopods 3-jointed. 1st basal joints of 4th feet with distinct spines on posterior surfaces, reduced in some species (e.g., *E. curticauda*). Males with more slender bodies, crests usually small and low. 1st antennae with reduced number of joints, some of the setae strong. Oral parts reduced. 5th feet biramose on both sides; left foot with small, 1-jointed endopod; 2 proximal exopodal joints elongated, 3rd small, of characteristic shape; basal joints on right side much swollen, endopod strongly developed, exopod 2-jointed, distal joint with teeth or plates along internal margin.

The males of the present genus, which appear to be rare, usually present many difficulties in identification.

1. *Euchirella messinensis* (Claus, 1863). ♀ 4.75–6.20 mm., ♂ 3.95–5.45 mm.

♀. Head and 1st thoracic segment fused, cephalon rounded, without crest. Genital segment on left side with sack-shaped protuberance on dorsal wall, covering a portion of 2nd abdominal segment. Endopods of 2nd antennae $\frac{1}{4}$ the length of exopods, 2nd joints of endopods each with 5+4 setae. Posterior surfaces of 1st basal joints of 4th feet each with 2 spines of unequal length, the longest reaching the articulation with 2nd basal joint; one of these spines may be absent.

♂. Cephalon with a small, more or less triangular crest. No spines on 1st basal joints of 4th feet. Endopods of 1st feet 2-jointed, each with 2 spines on outer edge. Terminal spines on exopods of 2nd feet modified, as the number of spinules along external margin is greatly increased, although the spines are small. 5th feet as illustrated in Figure 1e; 2nd exopodal joint on right side with many small plates along internal border.

Deep and moderately deep water of temperate Atlantic, occasionally — during the night — in epipelagic.

2. *Euchirella rostrata* (Claus, 1866). ♀ 2.95–3.1 mm., ♂ 2.5–3.0 mm.

♀. Cephalon and 1st thoracic segment fused. Cephalon broadly rounded into strong rostrum that points downwards. No trace of a crest present. Lateral thoracic border rounded. Abdomen $\frac{1}{4}$ the length of cephalothorax, in dorsal aspect completely symmetrical, not dilated laterally and with a distinct, although not greatly prominent genital swelling. Endopods of 2nd antennae $\frac{1}{2}$ the length of exopods, 2nd joints of endopods each with 8+6 setae. 1st basal joints of 4th feet each with row of 6–7 triangular, leaflike teeth, gradually diminishing in size towards middle of joint.

♂. Cephalon more narrowly rounded, without crest, rostrum strong, downwardly directed. 5th feet as illustrated in Figure 2e. Asymmetry of 5th feet not so prominent as in the other males, left endopod well developed; both exopodal joints on right side with smooth internal margins.

Moderately deep water of the Atlantic, occasionally — during the night — at the surface.

3. *Euchirella brevis* G. O. Sars, 1905. ♀ 3.5–4.0 mm., ♂ unknown.

♀. Resembles preceding form, but body more compact, abdomen very short, $\frac{1}{4}$ – $\frac{1}{5}$ the length of cephalothorax. Cephalon in lateral aspect much arched and rounded into a small rostrum. Postero-lateral thoracic border rounded in lateral aspect, cut off straightly in dorsal aspect. Abdomen $\frac{1}{4}$ the length of cephalothorax. Genital segment in dorsal aspect symmetrical, about as long as broad. Endopods of 2nd antennae very small, $\frac{1}{7}$ the length of exopods. 2nd joints of endopods each with 3+1 setae. Mandibular palps each with curious,

strong spine on 2nd basal joint. 3 or 4 small spinules on each 1st basal joint of 4th feet, that may be completely absent.

Deep and moderately deep water of temperate Atlantic, occasionally — during the night — at the surface.

(*Euchirella amoena* Giesbrecht, 1888, a species of which the female has only recently been described, strikingly resembles *E. brevis*. The male is at once distinguished by the shape of the 5th feet, illustrated in Figure 11e. Length of male 3.35 mm. The species has been very sparingly recorded from the Pacific and Atlantic Oceans.)

4. *Euchirella pulchra* (Lubbock, 1856). ♀ 3.0–4.4 mm., ♂ 3.7 mm.

♀. Cephalon and 1st thoracic somite fused, cephalon rather narrowly rounded and provided with a very low, rounded crest. Rostrum small. Abdomen $\frac{1}{3}$ the length of cephalothorax, genital segment in dorsal aspect asymmetrical, left side produced beyond the middle of segment, right side with a shallow depression. Endopods of 2nd antennae $\frac{2}{5}$ the length of exopods, number of setae on each 2nd joint of endopods 6+5. 1st basal joints of 4th feet each with 2 (occasionally 1) spines of nearly equal length, which do not reach the articulation with the 2nd basal joint.

♂. Cephalon with a low, rounded crest. 5th feet as illustrated in Figure 4e. Exopods of 1st feet 2-jointed, each with 1 small and 1 much bigger spine on outer edge.

Moderately deep water of temperate Atlantic, occasionally near the surface.

5. *Euchirella bitumida* With, 1915. ♀ 6.1–6.7 mm., ♂ unknown. ♀. Body strongly developed; cephalon fused with 1st thoracic segment, carrying a high, helmet-shaped crest. Rostrum strong but not exceedingly big. Abdomen about $\frac{1}{5}$ the length of cephalothorax, genital segment asymmetrical, left side smoothly rounded, right side with a sack-shaped tubercle at about middle of segment. Endopods of 2nd antennae small, $\frac{1}{5}$ the length of exopods, 2nd joints of endopods each with 6+6 setae. Exopods of 1st feet 2-jointed, each proximal joint with 2, distal with 1 spine on outer edge. 1st basal joints of 4th feet each with 1 strong, slightly curved spine on posterior surface, which does not reach the articulation between the two basal joints.

Deep water of northern Atlantic.

(*Euchirella galeata* Giesbrecht, 1888, (Fig. 10) differs from *E. bitumida* by the more rounded cephalic crest and the shape of the genital segment, which is produced on left side; right side smoothly rounded. Length of female 5.2–5.9 mm. This species has occasionally been recorded from the Atlantic, but may have been confused with *E. bitumida*, as it is chiefly of Pacific origin).

6. *Euchirella intermedia* With, 1915. ♀ 5.2—6.2 mm., ♂ 5.1 mm.
♀. Body strongly built but comparatively slender. Head in lateral aspect rounded, without crest, in dorsal aspect broadly triangular. Rostrum distinct but not very strong, pointing downwards. Posterior thoracic margin in dorsal aspect cut off straightly, in lateral aspect rounded. Abdomen $\frac{1}{4}$ — $\frac{1}{5}$ the length of cephalothorax, genital segment asymmetrical, right side smoothly and evenly rounded, left side with two elevated ridges, genital tubercle distinct. Endopods of 2nd antennae $\frac{1}{3}$ the length of exopods, each 2nd endopodal joint with 7+7 setae. 1st basal joints of 4th feet each with 1 strong spine, reaching articulation between basal joints.
♂. Body much more slender. Head narrowly rounded, without a crest. 5th feet as illustrated in Figure 6e.

Deep water of northern Atlantic.

(This species may be identical with *E. truncata* Esterly, 1911 and *E. gracilis* Wolfenden, 1911, although slight differences in the descriptions are observed. If these species should all prove to be identical, Esterly's name must have priority. *Euchirella venusta* Giesbrecht, 1888, (Fig. 9) a species mainly of Pacific origin, resembles *E. intermedia*, but differs by the smaller length, the small endopod of 2nd antenna, the presence of 2 spines on each 1st basal joint of 4th feet and the slightly differently shaped genital somite. It has occasionally been recorded from the Atlantic, but may have been confused with *E. intermedia*).

7. *Euchirella curticauda* Giesbrecht, 1888. ♀ 3.5—4.4 mm., ♂ 4.3 mm.
♀. Body elongate, cephalon with a very characteristic, triangular crest. Rostrum almost absent. Posterior thoracic border in dorsal aspect with small, blunt points, in lateral aspect rounded. Abdomen very short, $\frac{1}{5}$ — $\frac{1}{6}$ the length of cephalothorax.

Genital segment as long as rest of abdomen, symmetrical, smoothly rounded on both sides. Endopods of 2nd antennae $\frac{1}{4}$ the length of exopods, 2nd joints each with 3+2 setae. 1st basal joints of 4th feet each with a row of 12—13 small, acute teeth along internal border.

♂. Body more slender, crest on cephalon lower, distinctly triangular. 5th feet slightly different from the usual type; right endopod with truncate apex, 2nd basal joint on right side much swollen; right distal exopodal joint at apex with strong, inwardly curved teeth along internal margin.

Moderately deep water of the Atlantic, occasionally, and mainly during the night, in epiplankton.

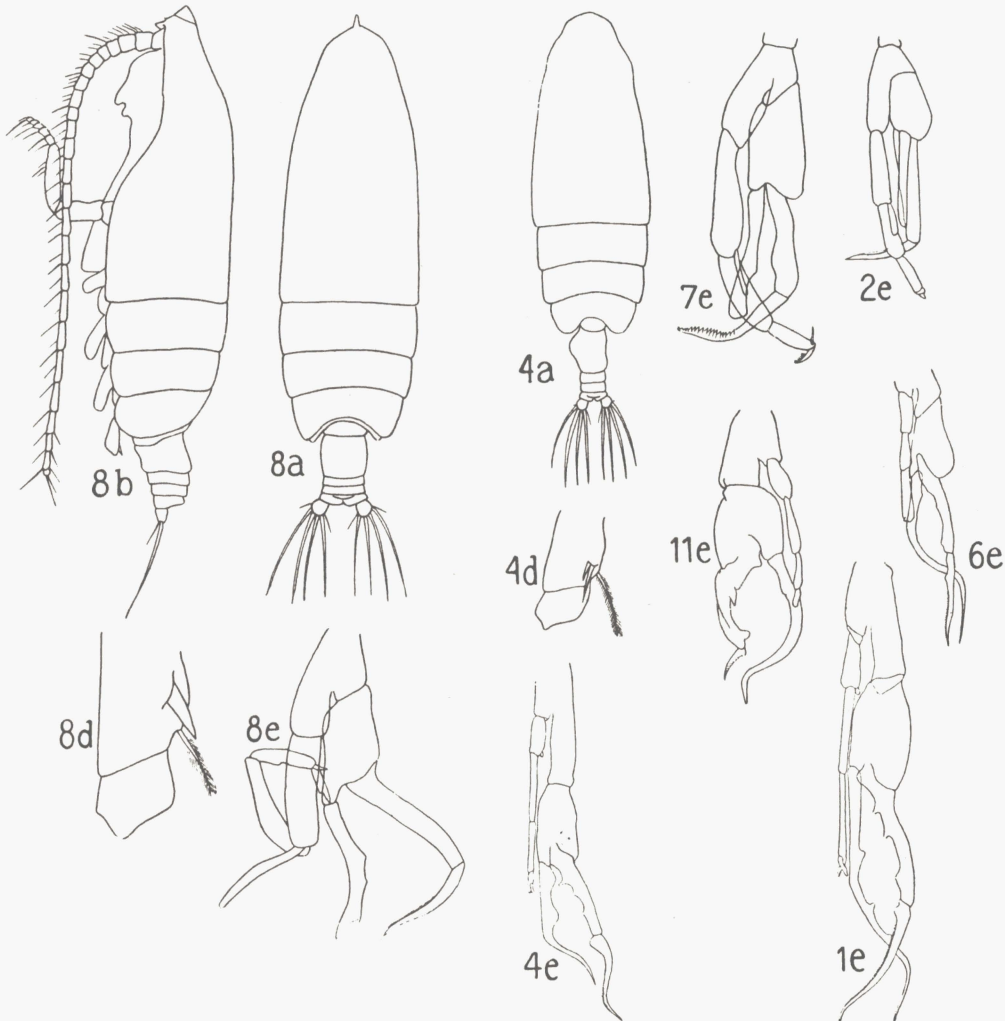
8. *Euchirella maxima* Wolfenden, 1905. ♀ 6.75—7.40 mm., ♂ 5.6—7.0 mm.

♀. Body big, elongate, 4th and 5th thoracic somites imperfectly separate. Cephalon with a high, triangular crest, gradually sloping backwards. Rostrum almost absent. Abdomen short, $\frac{1}{4}$ the length of cephalothorax. Genital segment almost as long as rest of abdomen, slightly asymmetrical, as the left side is a bit more produced. Genital tubercle not exceedingly strong. Postero-lateral thoracic border in lateral aspect cut off almost straightly. 1st antennae as long as body. Endopods of 2nd antennae $\frac{1}{3}$ the length of exopods, 2nd endopodal joints each with 5+5 setae. 1st basal joints of 4th feet each with a strong, dagger-shaped, short spine, which does not reach articulation between basal joints.

♂. Body more slender, crest on head lower, triangular. 5th feet with both endopods well developed; right 2nd basal joint strongly swollen, right endopod truncate at apex; 2nd exopodal joint on left side with small, teeth-shaped carinae along internal margin.

Deep water of northern and temperate Atlantic.

Species	Length in mm.	Head	Length of abdomen as part of cephalothorax	Genital somite	Length of endopod of 2nd antenna as part of exopod	Number of setae on 2nd joint endopod	Spines on 1st basal joints of 4th feet	Remarks
<i>E. messinensis</i>	♀ 4.75—6.20 ♂ 3.95—5.45	rounded, without crest	$\frac{1}{3}$	asymmetrical	$\frac{1}{4}$	5+4	2 unequal spines	
<i>E. rostrata</i>	♀ 2.95—3.40 ♂ 2.5—3.0	broadly rounded, without crest	$\frac{1}{4}$	symmetrical	$\frac{1}{2}$	8+6	6—7 triangular, leaflike spines	
<i>E. brevis</i>	♀ 3.5—4.0	broadly rounded, no crest	$\frac{1}{4}$	symmetrical	$\frac{1}{7}$	3+1	3—4 very small spines, occasionally absent	Mandibular palps with strong spine on 2nd basal joint. ♂ unknown
<i>E. pulchra</i>	♀ 3.0—4.4 ♂ 3.7	provided with low, rounded crest	$\frac{1}{3}$	asymmetrical	$\frac{2}{5}$	6+5	2 nearly equal spines, 1 may be absent	
<i>E. bitumida</i>	♀ 6.1—6.7	with high, helmet-shaped crest	$\frac{1}{5}$	asymmetrical	$\frac{1}{5}$	6+6	1 strong, slightly curved spine	♂ unknown
<i>E. intermedia</i>	♀ 5.2—6.2 ♂ 5.1	smooth, broadly rounded	$\frac{1}{4}$ — $\frac{1}{5}$	asymmetrical	$\frac{1}{3}$	7+7	1 strong, straight spine	
<i>E. curticauda</i>	♀ 3.5—4.4 ♂ 4.3	crest high, triangular	$\frac{1}{5}$ — $\frac{1}{6}$	symmetrical	$\frac{1}{4}$	3+2	12—13 small, acute teeth	
<i>E. maxima</i>	♀ 6.75—7.40 ♂ 5.6—7.0	crest high, triangular	$\frac{1}{4}$	nearly symmetrical	$\frac{1}{3}$	5+5	1 strong, dagger-shaped tooth	



1, *Euchirella messinensis*. 2, *Euchirella rostrata*. 4, *Euchirella pulchra*. 6, *Euchirella intermedia*.
7, *Euchirella curticauda*. 8, *Euchirella maxima*. 11, *Euchirella amoena*.
a, ♀, dorsal view; b, ♀, lateral view; d, ♀, basal joints of 4th foot; e, ♂, 5th feet.
(2, 4a, 4c, 7, 8, after Sars; 6, after With; 11, after Giesbrecht; 1, 4d, after Vervoort).

References to Descriptions and Figures.

- E. messinensis*: Claus, 1863, Pl. 31, Figs. 8—18 (as *Undina messinensis*); Giesbrecht, 1892, Pl. 5, Figs. 1, 2, 12, 14—17, 21, 24, Pl. 36, Figs. 14, 15, 18, 24, 25; Giesbrecht & Schmeil, 1898; Esterly, 1905, Fig. 18; With, 1915, Pl. 4, Fig. 2, Pl. 8, Fig. 1, Textfig. 31; Sars, 1924—25, Pl. 19, Figs. 6—13; Sewell, 1929; Wilson, 1932, Fig. 36; Rose, 1933, Fig. 76; Sewell, 1947, Fig. 15a; Vervoort, 1949, Figs. 9a, e, 12c.
- E. rostrata*: Claus, 1866, Pl. 1, Fig. 2 (as *Undina rostrata*); Brady, 1883, Pl. 20, Figs. 1—13, Pl. 23, Figs. 11—14 (as *Euchaeta hessei*); Giesbrecht, 1892, Pl. 2, Fig. 11, Pl. 15, Figs. 6, 27, 28, Pl. 36, Figs. 16, 17, 23; Giesbrecht & Schmeil, 1898; Cleve, 1900a, Pl. 2, Figs. 1—12; Esterly, 1905, Fig. 19; van Breemen, 1908, Fig. 52; Esterly, 1911, Pl. 29, Fig. 52, Pl. 30, Fig. 60, Pl. 32, Fig. 116; With, 1915, Pl. 4, Fig. 1, Textfig. 29; Sars, 1924—25, Pl. 20, Figs. 8—15; Sewell, 1929; Wilson, 1932, Fig. 35; Rose, 1933, Fig. 77; Davis, 1949, Figs. 33—37.
- E. brevis*: Sars, 1905; Wolfenden, 1905a, Pl. 6, Figs. 3—6; Wolfenden, 1911, Fig. 21; Sars, 1924—25, Pl. 21, Figs. 1—7; Rose, 1933, Fig. 80.

Distribution	Species
Gulf of Bothnia	—
Gulf of Finland	—
Baltic proper	—
Kattegat	—
Skagerak	—
Northern North Sea	(1), 2, (5), 7
Southern North Sea	—
English Channel (eastern)	—
English Channel (western)	—
Bristol Channel and Irish Sea	—
South and West Ireland	1, 2, 7, 8
North-eastern Atlantic	1, 2, 3, 4, 5, 6, 7, 8
Faroe Shetland Area	2, (4)
Faroe Iceland Area	1, 2, 5, 7, 8
Norwegian Sea	1, 2, (5)
Barents Sea	—

4. *E. pulchra*: Lubbock, 1856, Pl. 2, Fig. 12, Pl. 11, Figs. 8—11 (as *Calanus latus*), Pl. 4, Figs. 5—8, Pl. 7, Fig. 6 (as *Undina pulchra*); Brady, 1883, Pl. 14, Fig. 7, Pl. 20, Figs. 15, 17, 18, 19 (as *Euchaeta pulchra* ♂); Giesbrecht, 1892, Pl. 15, Figs. 22, 23, Pl. 36, Figs. 13, 27; Giesbrecht & Schmeil, 1898; Esterly, 1905, Fig. 20; van Breemen, 1908, Fig. 53; Sars, 1924—25, Pl. 20, Figs. 5—7; Sewell, 1929; Wilson, 1932, Fig. 37; Sewell, 1947, Fig. 16; Davis, 1949, Pl. 3, Figs. 42, 43, Pl. 4, Figs. 44—48; Vervoort, 1949, Figs. 9d, h.
5. *E. bitumida*: Sars, 1905 (as *E. galeata*); Farran, 1908 (as *E. galeata*); With, 1915, Pl. 5, Fig. 9, Pl. 8, Fig. 4, Textfig. 34; Sars, 1924—25, Pl. 21, Figs. 15—18; Sewell, 1929; Rose, 1933, Fig. 78; Vervoort, 1949, Fig. 17.
6. *E. intermedia*: With, 1915, Pl. 4, Fig. 4, Pl. 8, Fig. 3, Textfig. 32; Willey, 1919, Figs. 10—16 (as *E. acadiana*); Sars, 1924—25, Pl. 20, Figs. 1—4; Rose, 1933, Fig. 81; Sewell, 1947, Fig. 17a—c (as *E. truncata*); Vervoort, 1949, Fig. 13. Probably also: Esterly, 1911, Pl. 26, Fig. 5, Pl. 28, Fig. 35, Pl. 29, Fig. 63, Pl. 30, Fig. 71, Pl. 31, Fig. 104 (as *E. truncata*); Wolfenden, 1911, Pl. 27, Figs. 8—10, Textfig. 22 (as *E. gracilis*).
7. *E. curticauda*: Giesbrecht, 1892, Pl. 15, Figs. 3, 13, 25, Pl. 36, Figs. 19, 20; Giesbrecht & Schmeil, 1898; Thompson, 1903, Pl. 3, Figs. 1—15 (as *Scolecithrix cristata* ♂); Esterly, 1906, Pl. 9, Fig. 6, Pl. 10, Fig. 27, Pl. 12, Fig. 62, Pl. 13, Fig. 67; van Breemen, 1908, Fig. 54; With, 1915, Pl. 6, Fig. 3, Pl. 8, Fig. 2, Textfig. 30; Sars, 1924—25, Pl. 21, Figs. 8—14; Sewell, 1929; Wilson, 1932, Fig. 38; Rose, 1933, Fig. 79; Davis, 1949, Pl. 3; Figs. 38—41.
8. *E. maxima*: Wolfenden, 1905a, Pl. 6, Figs. 9—11; A. Scott, 1909, Pl. 12, Figs. 12—20; Esterly, 1911, Pl. 26, Fig. 10, Pl. 29, Figs. 50, 62 (as *E. simplex*); Wolfenden, 1911, Pl. 28, Figs. 3—5, Textfig. 24; With, 1915, Pl. 4, Fig. 5, Textfig. 33; Sars, 1924—25, Pl. 22, Figs. 1—7; Sewell, 1929, Figs. 42, 43; Rose, 1933, Fig. 82; Sewell, 1947, Fig. 19.

References to Work on Biology.

Bigelow (1914, 1915, 1922) 2; (1926) 2, 4, 7; Bigelow & Leslie (1930) 2, 4; Bigelow & Sears (1939) 2; Brady (1883) 2, 4; van Breemen (1908) 2, 4, 7; Campbell (1929) 2; Canu (1896) 2; Catalogue, etc. (1906, 1909, 1916) 1, 2, 5, 7, 8; Claus (1863) 1; (1866) 2; Cleve (1900a) 2 (1904) 1; Davis (1949) 2, 4, 7; Esterly (1905) 1, 2, 4; (1906) 7; (1911) 2, 8; (1912) 2, 4, 7; Farran (1905) 2, 7; (1908) 1, 2, 5, 7, 8; (1920) 1, 2, 7, 8; (1926) 1, 2, 5, 7; (1929) 2, 3; Giesbrecht (1892) 1, 2, 4, 7; Giesbrecht & Schmeil (1898) 1, 2, 4, 7; Jespersen (1934) 2, 7; (1939, 1939a) 2; (1940) 1, 2, 5, 7, 8; Leavitt (1938) 1, 2, 6; Lo Bianco (1903) 1; Lubbock (1856) 4; Lysholm & Nordgaard (1921) 1, 2, 7; Lysholm, Nordgaard & Wiborg (1945) 1, 3, 4, 6; Massutí Alzamora (1940) 1; (1942) 1, 2; Paulsen (1909) 2; Pesta (1909, 1912, 1920) 1; Rose (1924) 1, 2; (1926) 1; (1929) 1, 2, 3, 6; (1933) 1, 2, 3, 6, 7, 8; (1935) 1, 2; (1937b) 1, 2; Sars (1912) 1, 2, 3; (1924—25) 1, 2, 3, 4, 5, 6, 7, 8; A. Scott (1909) 7, 8; T. Scott (1894) 4; Sewell (1929) 1, 2, 3, 4, 5, 6, 7, 8; (1947) 1, 4, 6, 8; Thompson (1900) 4; (1903) 2, 4, 7; Thompson & Scott (1903) 1, 2; Willey (1919) 1, 2, 6; Wilson (1932) 1, 2, 4, 7; (1936) 3; (1942) 1, 2, 3, 4, 5, 6, 7; With (1915) 1, 2, 5, 6, 7, 8; Wolfenden (1904) 7; (1905a) 3, 7, 8; (1911) 1, 2, 3, 4, 7, 8.

References

see Sheet No. 41.