

CONSEIL INTERNATIONAL POUR L'EXPLORATION DE LA MER

Zooplankton.

Sheet 35.

COPEPODA

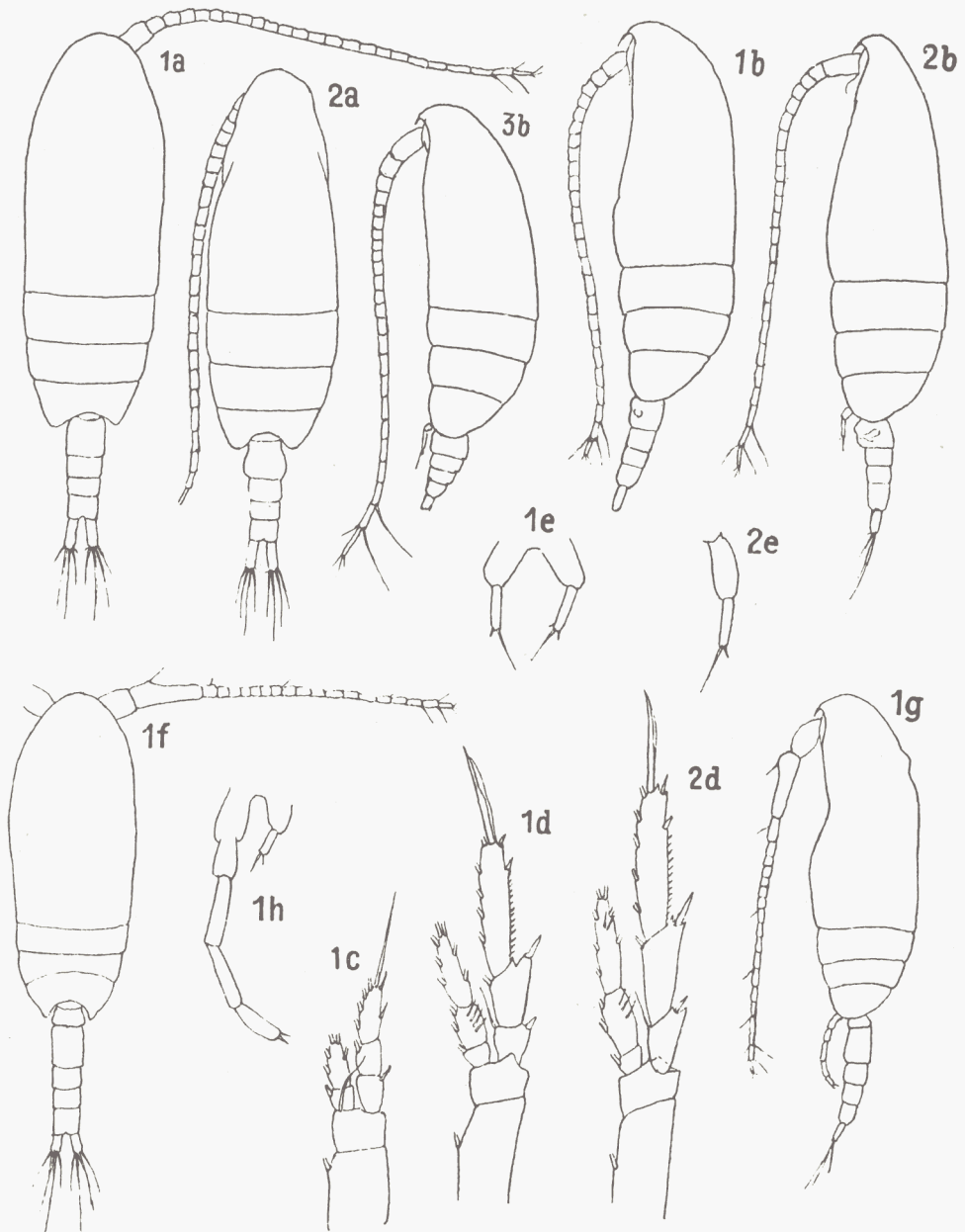
SUB-ORDER: CALANOIDA

Family: Paracalanidae

GENUS: PARACALANUS

(By G. P. Farran†,
revised by W. Vervoort)

1951.



1, *Paracalanus parvus*; 2, *Paracalanus pygmaeus*; 3, *Paracalanus aculeatus*.
a, ♀ dorsal; b, ♀ lateral; c, ♀ 1st foot; d, ♀ 3rd foot; e, ♀ 5th foot; f, ♂ dorsal; g, ♂ lateral; h, ♂ 5th foot.
(Fig. 3b original; remainder after Sars).

Family PARACALANIDAE

Copepods of general appearance as *Calanus*, but much smaller and less slender. Cephalon fused with 1st thoracic somite, 4th and 5th thoracic somites fused. Female with broadly rounded cephalon, with two slender, filiform rostral appendages. Abdomen 2—4-segmented, anal segment and furca separate. 1st antennae 25-jointed. Exopods of 1st—4th feet 3-jointed; endopods of 1st foot 2-jointed, of 2nd—4th feet 3-jointed. Endopodal joints occasionally with small spinules on posterior surface. 3rd exopodal joints of 2nd—4th feet each with 2 spines on outer edge and 5 setae on inner edge. 5th feet uniramous, symmetrical on both sides, not natatory and composed of a small number of short joints.

Male with dorsal hump on back. Oral parts reduced. 1st antennae with reduced number of joints, basal parts thickened and clothed with club-shaped, sensory appendages. 5th feet not natatory, uniramous on both sides, asymmetrical. Left 5th foot longer than on right side.

Genus PARACALANUS Boeck, 1864

Small copepods; cephalon and 1st thoracic somite, as well as the 4th and 5th thoracic somites fused. Rostrum composed of two fine filaments. 1st antennae 25-jointed in female, 19-jointed in male. Exopods of the 1st to 4th feet 3-jointed; endopods of the 1st feet 2-, of the 2nd to 4th feet 3-jointed. 3rd exopodal joints of the 2nd to 4th feet each with 2 spines on outer edge and 5 setae on inner edge; proximal part of outer edge of that joint denticulate. 5th feet symmetrical in female, not natatory, composed of two short joints, the distal carrying a short and a long terminal spine. 5th feet asymmetrical in the male; right 2-jointed as in the female, left much longer, 5-jointed, with 2 minute, terminal spines.

1. *P. parvus* (Claus, 1863). ♀ 0.75—1.0 mm., ♂ 0.9—1.0 mm. Female with 1st antennae reaching to the middle of the abdomen. Inner edge seta of the furca very short. Some of the endopodal joints carry spinules.

Cosmopolitan, mainly in epiplankton, coastal form.

2. *P. pygmaeus* Claus, 1863. ♀ 0.75 mm. More slender than

P. parvus. Cephalon more vaulted and tapered, but otherwise resembling it. It is doubtful whether the species described and figured by Sars is identical with that very briefly described by Claus. Sars' description and figures are followed here. Many others consider both forms as identical. Wolfenden (1905) described three varieties of *P. parvus*.

P. aculeatus Giesbrecht, 1888, a common form in subtropical parts of the Atlantic, has not yet been recorded from the Atlantic coast of Europe. ♀ 0.75—1.75 mm., ♂ 0.90—1.00 mm. It can easily be recognized by its much longer 1st antennae and its short and stout abdomen, with longer setae on inner edge of furcal rami. A figure is given here (Fig. 3).

References to Descriptions and Figures.

1. *P. parvus*: Claus, 1863, Pl. 26, Figs. 10—14, Pl. 27, Figs. 1—14 (as *Calanus parvus*); 1881, Pl. 3, Figs. 1—16. Bourne, 1889, Pl. 9, Figs. 1—3. Canu, 1892, Pl. 1, Figs. 1—12. Giesbrecht, 1892, Pl. 1, Fig. 5, Pl. 6, Figs. 28—30, Pl. 9, Figs. 5, 9, 11, 17, 23, 25, 27, 31—34. Giesbrecht & Schmeil, 1898. Sars, 1901—03, Pls. 8, 9. Esterly, 1905, Fig. 12. Wolfenden, 1905, Pl. 96, Figs. 7—11, 16. Norman & Scott, 1906, Pl. 12, Figs. 1, 2, Pl. 13, Fig. 1, Pl. 14, Fig. 1 (as *P. parvus* var. *perplexus*). Oberg, 1906, Pl. 1, Fig. 2. Van Breemen, 1908, Fig. 17. Pesta, 1920, Fig. A12. Bigelow, 1926, Figs. 80, 81. Candéias, 1926, Pl. 2, Figs. 7, 8. Gurney, 1927, Fig. 16a. Pesta, 1928, Fig. 11. Sewell, 1929, Figs. 24, 25. Wilson, 1932, Fig. 21. Rose, 1933, Fig. 25. Vervoort, 1946.
2. *P. pygmaeus*: Claus, 1863. Sars, 1924—25, Pl. 6, Figs. 1—9.

Distribution

Species

Gulf of Bothnia	—
Gulf of Finland	—
Baltic proper	1
Belt Sea	1
Kattegat	1
Skagerak	1
Northern North Sea	1
Southern North Sea	1
English Channel (eastern)	1
English Channel (western)	1
Bristol Channel and Irish Sea	1
South and West Ireland	1
North-eastern Atlantic	1, 2
Faroe Shetland Area	1
Faroe Shetland Area	1
Norwegian Sea	1
Barents Sea	—

References to Work on Biology.

Apstein (1906) 1. Bigelow (1926) 1. Bigelow & Sears (1939) 1. Candéias (1926) 1. Catalogue, etc. (1906, 1909, 1916) 1. Cleve (1900) 1. Delsman (1911) 1. Farran (1910, 1920) 1; (1926) 1. Gough (1905) 1. Jensen, Johansen & Levinsen (1903) 1. Jespersen (1934) 1; (1940) 1. Kraeffft (1910) 1. Otten (1913) 1. Rae & Rees (1947) 1. Rose (1929) 1. Runnström (1931) 1. Sars (1901—03) 1; (1924—25) 1, 2. Sewell (1929) 1. Wiborg (1940) 1; (1944) 1. With (1915) 1. Vervoort (1946) 1. Wolfenden (1905) 1.

References.

- | | |
|--|---|
| Apstein, C., 1906. Wiss. Meeresunters., Abt. Kiel, N.S., Vol. 9. | Bourne, G. C., 1889, 1890. J. Mar. Biol. Ass. U.K., N.S., Vol. 1. |
| Bigelow, H. B., 1926. Bull. U.S. Fish. Comm., Vol. 40, Pt. 2. | Candéias, A., 1926. Bull. Soc. Portug. Sci. Nat., Vol. 10, No. 3. |
| Bigelow, H. B. & M. Sears, 1939. Mem. Mus. Comp. Zool. Harv. Coll. Vol. 54, No. 4. | Breemen, P. J. van, 1908. Nordisches Plankton, Vol. 4, Pt. 8. |

- Canu, E., 1892. Trav. Lab. Zool. Mar. Wimereux, Vol. 6.
Claus, C., 1863. Die freilebenden Copepoden, etc.
— 1881. Arb. Zool. Inst. Univ. Wien, Vol. 3.
Cleve, P. T., 1900. The Seasonal Distribution of Atlantic Plankton Organisms.
— 1902. Additional Notes on the Seasonal Distribution of Atlantic Plankton Organisms.
Catalogue des espèces, etc. Publ. Circ., Cons. Perm. Internat. Explor. Mer, No. 33 (1906), No. 48 (1909), No. 70 (1916).
Delsman, H. C., 1911. Jb. Rijksinst. Onderzoek Zee, 1911.
Esterly, C. O., 1905. Univ. Calif. Publ. Zool., Vol. 2, No. 4.
Farran, G. P., 1910. Bull. Trimestriel, 1902—08. Cons. Perm. Internat. Explor. Mer, Résumé, etc., Vol. 1.
— 1920. Publ. Circ., Cons. Perm. Internat. Explor. Mer, No. 73.
— 1926. J. Linn. Soc., London., Zool., Vol. 36.
Giesbrecht, W., 1892. Fauna u. Flora Golf. Neapel, Vol. 19.
Giesbrecht, W. & O. Schmeil, 1898. Das Tierreich, Vol. 6, Copepoda, I, Gymnoplea.
Gough, L. H., 1905. Rep. Fish. Invest. North Sea (No. 2, Southern Area), 1905.
Gurney, R., 1927. Trans. Zool. Soc., Lond., Vol. 22.
Jensen, S., A. C. Johansen & J. C. L. Levinsen, 1903. Kgl. Danske Vidensk. Selsk. Skr. (6), Vol. 12, No. 3.
Jespersen, P., 1934. Medd. Grønland, Vol. 79, No. 10.
— 1940. The Zoology of Iceland, Vol. 3, Pt. 33.
Kraefft, F., 1910. Wiss. Meeresunters., Abt. Kiel, N.S., Vol. 11.
Norman, A. M. & T. Scott, 1906. The Crustacea of Devon and Cornwall.
Obergh, M., 1906. Wiss. Meeresunters., Abt. Kiel, N.S., Vol. 9.
Ottens, P., 1913. Wiss. Meeresunters., Abt. Kiel, N.S., Vol. 15.
Pesta, O., 1920. Zool. Jahrb., Syst., Vol. 43.
— 1928. Die Tierwelt Deutschlands, etc., Vol. 9.
Rae, K. M. & C. B. Rees, 1947. Hull Bull. Mar. Ecol., Vol. 2, No. 11.
Rose, M., 1929. Rés. Camp. Sci. Monaco, Vol. 78.
— 1933. Faune de France, Vol. 26.
Runnström, S., 1932. Bergens Mus. Aarb., 1931, No. 7.
Sars, G. O., 1901—03. An Account of the Crustacea of Norway, etc., Vol. 4.
— 1924—25. Rés. Camp. Sci. Monaco, Vol. 69, Plates (1924) and Text (1925).
Sewell, R. B. S., 1929. Mem. Indian Mus., Vol. 10, Pt. 1.
Vervoort, W., 1946. Temminckia, Vol. 8 (1949, issued separately 1946).
Wiborg, K. F., 1940. Hvalrådets Skr., No. 21.
— 1944. Fiskeridirekt. Skr., Ser. Havunders., Vol. 8, No. 7.
With, C., 1915. Danish Ingolf Exped., Vol. 3, Pt. 4.
Wolfenden, R. N., 1905. Fauna Geogr. Maldive and Laccadive Archip., Vol. 2, Suppl. 1.