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Dedicated to Mrs. W.S.S. van Benthem Jutting

Deep-sea Pycnogonida collected by the "Cirrus" in the Northern Atlantic

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Two Pycnogonida only have been collected during the cruises of the meteorological vessel "Cirrus" in deep plankton tows, but both specimens, each belonging to a different species, proved to be of considerable interest. I am indebted to Mr. C. L. Bekkering and Mr. S. D. Koning, who presented this precious material to the Zoölogisch Museum, Amsterdam.

The one specimen belongs to a relatively well-known species, *Callipallene acus* (Meinert, 1898). On the basis of this material, our knowledge on the external morphology of this species, more particularly on the polymorphism in the legs, could be extended.

The plankton-net touched the bottom during the haul in which this *Callipallene* had been caught; it is not certain, therefore, whether the specimen was pelagic or benthonic.

The other specimen represents a new species of *Pallenopsis*; it is a truly bathypelagic form, obviously related to the only other bathypelagic pycnogonid known, *Pallenopsis calcanea* Stephensen, 1933. HEDGPETH summarized recently (1962) our — limited — knowledge about the latter species; apparently only females and juveniles of it have been caught hitherto. The specimen from the "Cirrus" is a full-grown male and is entirely intact. It shows in the structure of the oviger and in the cement gland distinct affinities to the subgenus *Pallenopsodon*. With great pleasure I have named the new species *Pallenopsis* (*Pallenopsodon*) *juttingae*, in honour of Mrs. W. S. S. van der Feen-Van Benthem Jutting, to whom this note is dedicated on the occasion of her 65th birthday.

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Callipallene acus (Meinert, 1898)

Lit.: *Pallene acus* MEINERT, 1898 : 45—46, pl. IV figs. 8—13; MEINERT, 1899 : 48—49, pl. IV figs. 8—13; MÖBIUS, 1901 : 50; BOUVIER, 1917 : 26, pl. III fig. 7 (literature; synonymy); STEPHENSEN, 1933 : 20.
Callipallene acus, CORRÊA, 1948 : 5 (in key); HEDGPETH, 1948 : 204—205, fig. 18 c-e.
Pallene hasata MEINERT, 1898 : 46—47, pl. IV figs. 14—19; MEINERT, 1899 : 49, pl. IV figs. 14—19; MÖBIUS, 1901 : 50.

Material examined: 1 ♀ — Between Iceland and Greenland : 62° 00′ N — 33° 00′ W. In planktonhaul, depth 3800 m (net touched bottom). 14 : 00 GMT. Feb. 28, 1964. (Meteorological Vessel "Cirrus", Exp. V, no. 4). The specimen is in the Zoölogisch Museum, Amsterdam, cat. no. Pa. 1545.

Remarks: BOUVIER's conclusion (1917) that *Callipallene acus* and *C. hasata* are synonymous, has been supported by HEDGPETH's (1948) observations. Both authors find that the form and size of propodus and claws are intermediate between Meinert's figures for *acus* and *hasata.*

The present specimen shows a remarkable polymorphism in the legs: the first leg (fig. 1d) is of the *hasata*-type (i.e., with short auxiliary claws and short spines on the propodal sole), the fourth leg (fig. 1e) of the *acus*-type (i.e., with longer auxiliary claws and longer spines on the propodal sole). The legs 2 and 3 show a regular transgression of the one type into the other. At any rate, it is quite evident that *hasata* and *acus* are synonymous, the former being based on a study of the anterior legs, the latter on that of the posterior legs.

Similar variations in the length of the auxiliary claws are described in *Callipallene phantoma* (Dohrn, 1881) by STOCK, 1952, and in *C. pectinata* (Calman, 1923) by CALMAN, 1938.

Callipallene acus shows two most remarkable morphological structures: (1) The propodus (figs. 1d, 1e) of all legs is provided with a cutting lamella on the distal part of the sole, just as in certain *Anoplodactylus* species. The presence of this lamella is clearly shown in Meinert's figures, but not in Hedgpeth's illustration. (2) The oviger is provided with a spiniform projection near the end of the distal segment (fig. 1b). This projection is possibly homologous with a rudimentary terminal claw. The special oviger spines (never illustrated for this species) are of the normal callipallenid type, with the exception of the 3 distalmost spines of segment 10, which are of a more elongate structure. The formula of the special spines in the present specimen, a female, is 14 : 11 : 11 : 15.

The present specimen shows a considerable swelling (fig. 1c) of the basal two-thirds of the femur of all legs. A single large egg is contained in these swellings.

Finally, I may point out a small difference in the structure of the chela, between my specimen and those previously figured by Meinert and Hedgpeth. Instead of rather long, spiniform teeth on the fingers, the present material has short triangular teeth (fig. 1a).

Pallenopsis (Pallenopsodon) juttingae n.sp.

Material examined: 1 ♂ (holotype) — Atlantic Ocean off Bay of Biscay: 45° 00′ N— 16° 06′ W. In planktonhaul, 1813-0 m. 17 00 GMT. Oct. 12, 1963. (Meteorological

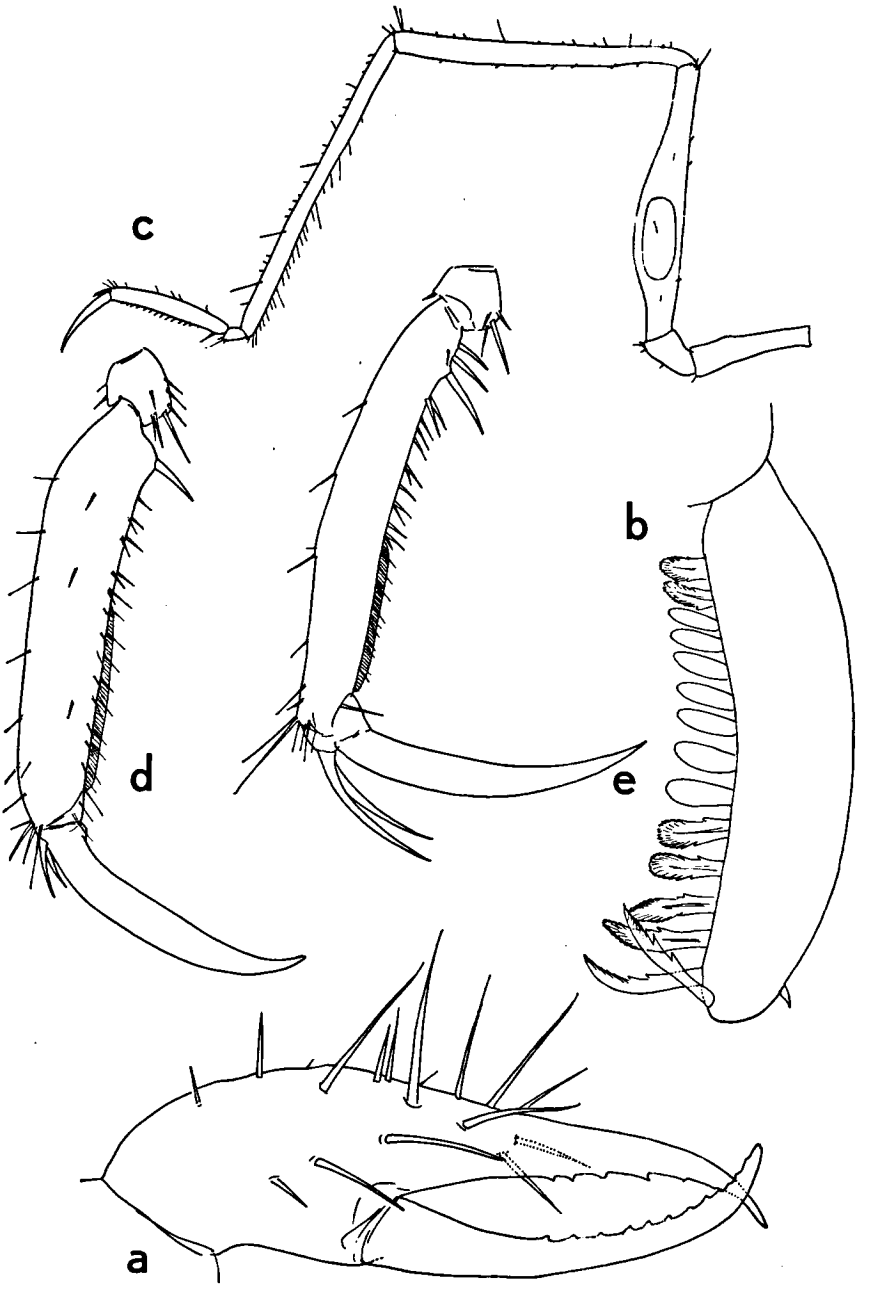

FIG. 1. *Callipallene acus* (MEINERT, 1898), ♀. a, chela; b, tenth oviger segment; c, first leg; d, distal segments of first leg; e, distal segments of fourth leg.

Vessel "Cirrus", Exp. II, no. 2b). The type is in the Zoölogisch Museum, Amsterdam, cat. no. Pa. 1544.

In the same catch were some deep-sea fishes, 1 ctenophore, several Scyphozoa and many smaller animals, chiefly Copepoda.

Description: ♂ Trunk completely segmented, smooth. Lateral processes smooth, separated by their own diameter or less. Ocular tubercle low, in front view truncated, as tall as wide. Eyes large, but poorly pigmented, the anterior two eyes slightly larger than the posterior two. The eyes are separated by a more darkly pigmented area; in dorsal view, this area gives a more or less cross-shaped aspect to the ocular tubercle. Lateral sense organs conspicuous.

Proboscis not very long, nor slender, reaching to $^1/_3$ of the 2nd scape segment; it is slightly retracted at its base and carries a crown of hairs at its widest part.

Abdomen smooth, erected at an angle of about 30°, reaching beyond the distal end of the first coxa of the fourth leg.

Chelifore scape composed of 2 segments; segment 1 smooth; segment 2 armed with a few short scattered spinules. Chela only slightly shorter than the 2nd scape segment; palm short, fingers long and heavy, crossing at the tip. The immovable finger bears a row of setae in its basal third. Both fingers have smooth inner margins, but the recurved fingertips are set off markedly from the rest of the finger (in related species, the inner margin of the finger merges gradually into the fingertips).

Palp reduced to an unimerous lobe on the ventral surface of the neck, on the level of the ocular tubercle.

Oviger implantation in contact with the 1st lateral process. The oviger is 10-segmented; segments 2, 4 and 5 are elongated; segment 5 bears some setae; segment 6 is swollen; segments 7 to 10 diminish slightly but regularly in length; segments 7 and 8 carry a few setae; segment 9 bears 1 spinule only; segment 10 is provided with 3 spines placed in a row.

Legs slender. Coxae and femur nearly smooth, tibiae armed with numerous long and short hairs. Coxa 2 more than twice as long as coxa 1, armed dorsally with a low rounded projection. Femur and tibiae about equal; femoral cement gland opening through a simple pore situated ventrally on a swelling at about $^1/_3$ of the length of the segment. Tarsus short, not very conspicuously armed. Propodus nearly straight, without heel; sole armed with about 7 short spinules of a length. Claw thin, curved, more than half as long as the propodus; no auxiliary claws.

MEASUREMENTS OF THE HOLOTYPE (♂) IN MM

Total length of body (frontal margin cephalic segment to tip abdomen)	3.66
Length cephalic segment	1.56
Width across the 2nd lateral processes	2.02
Tip proboscis to frontal margin cephalic segment	1.24
Greatest diameter proboscis	0.82
Scape segment 1	0.82
Scape segment 2	1.09
Chela	0.93

First leg:	coxa 1	0.66
	coxa 2	1.44
	coxa 3	1.01
	femur	3.93
	tibia 1	3.97
	tibia 2	4.01
	tarsus	0.29
	propodus	1.24
	claw	0.70

Discussion: HELFER & SCHLOTTKE, 1935, list the names of 35 species ascribed at that time to the genus *Pallenopsis*. Although some of these species have been considered synonymous by later authors, while certain others are species inquirenda, the total number of taxa in this genus increased rapidly in recent years. After Helfer & Schlottke's treatment, 22 additional species were described. Moreover, DE MELLO-LEITÃO (1955) created the genus *Melloleitanianus,* for what appears to be a juvenile *Pallenopsis,* so that the glory of this name will not stand. The type-species of *Melloleitanianus, M. candidoi* DE MELLO-LEITÃO, 1955, becomes when transferred to *Pallenopsis,* a junior homonym of *P. candidoi* DE MELLO-LEITÃO, 1949. There is very little need indeed to substitute a new name for this junior homonym.

The new species belongs to the subgenus *Pallenopsodon* STOCK, 1956 of the genus *Pallenopsis* Wilson, 1881. The subgenus is characterized by some sexual characters of the male: the armature of the 10th oviger segment and the structure of the cement gland. In *Pallenopsodon*, the 10th oviger segment carries a number of spines in a longitudinal row, in *Pallenopsis* s.str. the spini- and setiform elements are scattered over the surface of the segment. The femoral cement gland opens through a duct in *Pallenopsis* s.str., through a simple pore in *Pallenopsodon.*

Although these characters are clear-cut, a good number of *Pallenopsis*-species cannot be classified with either of the two subgenera, simply because they are known only in the female sex. So, instead of comparing the new species with the other *Pallenopsis* (*Pallenopsodon*) species, which would be a logic procedure, I am obliged to follow a far less natural classification for the present moment.

Among the 58 described taxa in the genus *Pallenopsis* s.l., only 4 agree with the new species in the absence of auxiliary claws. These 4 species are: *P. macronyx* Bouvier, 1911; *P. spicata* Hodgson, 1914; *P. calcanea* Stephensen, 1933; and *P. scoparia* Fage, 1956. A fifth species, *P. brevidigitata* Möbius, 1902 has long been considered (on the basis of the original illustrations) devoid of auxiliary claws, but FLYNN, 1928, fig. 9, has shown the presence of minute auxiliaries in this species, whereas subsequent re-examination of the type-material (cf. CALMAN, 1938: 160) has confirmed Flynn's observation.

P. macronyx (clearly belonging to the subgenus *Pallenopsodon*) differs from the new species by its hairy body and by the very long claw on the legs (as long as tarsus and propodus together).

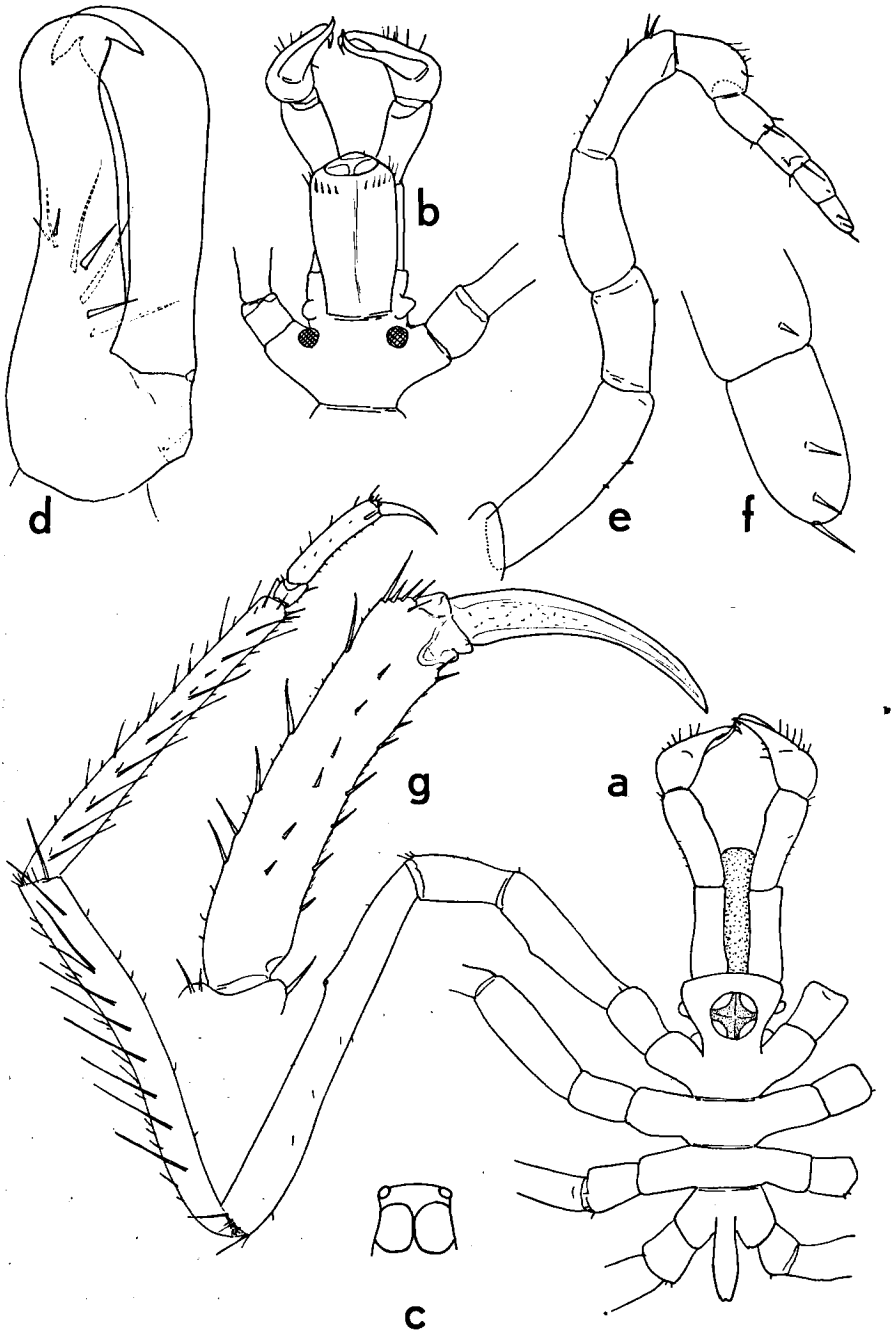

FIG. 2. *Pallenopsis (Pallenopsodon) juttingae* n.sp., ♂, holotype. a, dorsal view; b, ventral view of the anterior part of the body; c, ocular tubercle in front view; d, chela (under a coverglass); e, oviger; f, distal oviger segment; g, distal segments of first leg.

P. spicata is intermediate between *Pallenopsodon* and *Anoplodactylus*, with distinct affinities to the former; the ♂ oviger shows a reduction in the number of segments, to the 7-segmented condition found in *Anoplodactylus*, but the ♀ still possesses (4-segmented, cf. GORDON, 1938, fig. 6b) ovigers, whereas the females of *Anoplodactylus* have lost them entirely. The new species is clearly distinct from *P. spicata* in having conserved the original number of ten oviger segments.

The two remaining uniunguiculate species, *P. calcanea* and *P. scoparia* are known in the female sex only (of *calcanea* also juveniles are known). Both species are very similar to *P. juttingae* n.sp., whereas *P. calcanea* is, like the new species, bathypelagic.

P. scoparia resembles *P. juttingae* in the hairy tibiae, but differs from it in the armature of the tarsus and of the propodal sole, in the lack of setae on the proboscis and in the structure of the chelae. According to FAGE's illustration (1956, fig. 1) of the entire animal, the length of the body of *P. scoparia* is 6.6 mm (as compared to 3.66 mm in *P. juttingae*), but in his text he mentions 3.8 mm.

The following characters separate *P. calcanea* readily from the new species: the legs are smooth, the propodus is provided with a distinct heel on which 2 large spines are borne; the proboscis is more slender and not setose; and the chelae have smooth fingers.

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