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Pseudomesochra T. SCOTT 1902 as a Member of the Paranannopidae POR 1986 (Copepoda, Harpacticoida) with a Description of Three New Species.

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With 20 Text-Figures

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Abstract

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Three new species of the genus *Pseudomesochra* T. SCOTT 1902 from the Antarctic Weddell Sea and the Arctic Laptev Sea are described. The male CV stage specimen of *Pseudomesochra meridianensis* s.n. found in the Weddell Sea is regarded as the first true record of a male of *Pseudomesochra*. It is shown that the genus has to be removed from the family Diosaccidae SARS 1906 and instead has affinities with the Paranannopidae POR 1986. The Paranannopidae including *Pseudomesochra* share a Mxp with only 2 syncoxal and 1 basal seta, a deeply incised anal somite with a pseudoperculum instead of a well developed anal operculum, a lost or vestigial caudal seta I, a similar structure of the female genital field and a segmental apophysis on the male P3 enp2, a non-prehensile and 2-segmented P1enp, only 4 endopodal setae and a spine-like pinnate seta on the proximal syncoxal endite of the Mx. The latter 3 characters seem to separate the Parannopidae from closely related taxa of the thalestrid subfamilies Pseudotachidiinae sensu LANG 1936 and Donsiellinae HICKS 1988. Showing several autapomorphies, *Pseudomesochra* has an isolated position within the Paranannopidae, therefore a new subfamily Pseudomesochrinae is proposed containing only the type genus *Pseudomesochra*. An amended key to the species is given.

Introduction

Since almost 50 years the outstanding "Monographie der Harpacticiden" of K. LANG (1948) has been the relevant and authorative publication on harpacticoid taxonomy and systematics. LANG (1948) established the family system that still is the base for all phylogenetic considerations on Harpacticoida today. It has been erected before HENNIG's (1966) theory of phylogenetic systematics became the acknowledged scientific basis of all phylogenetic research, at a time when taxa had been classified according to similarities rather than because of clear synapomorphic characters which alone indicate real phylogenetic relationships. Since then HENNIG (1966) has not only introduced his new methodology for phylogenetic reconstruction, but also new character complexes have become available for phylogenetic analyses due to new scientific techniques (e.g. morphological ultrastructure, molecular data). For harpac-

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ticoids, as for copepods in general, systematic analysis still relies on morphological characters because they provide the broadest base for comparison. A shift towards a much higher standard of taxa descriptions and illustrations in recent time (cf. e.g. HUYS & BOXSHALL 1991), considering morphological details which have been overlooked before or not taken into account as important, makes the homologization and evaluation of characters just possible. This refined morphological analysis and the use of HENNIG's (1982) methodology have shown LANG's (1948) system to be no longer tenable in its present form. Partial revisions of LANG's (1948) system have already been proposed e.g. by HICKS (1988), POR (1986), HUYS (1990a, b) and MARTINEZ & MOURA (1994).

Discussing a small section of the system this paper shall also contribute to a needed throughout revision of LANG's (1948) system.

Sixteen species of the genus *Pseudomesochra* T. SCOTT 1902 have been described so far, but a lot more can presumably be expected to be still unknown. For the present investigation samples have been studied from the Laptev Sea (Arctic Ocean), the Peru trench and the Antarctic Weddell Sea, yielding alone 8 new species, 3 of which are described in the following. These 3 species have been collected during 2 expeditions of the *"POLARSTERN"* in the Antarctic Weddell Sea in 1986 and the Laptev Sea (Arctic Ocean) in 1993.

Material and Methods

Holotypes and allotypes were preserved in 5% buffered formalin and subsequently transferred to Zeiss W15 embedding medium or glycerine. Drawings were made with the aid of a camera lucida on Leitz Diaplan microscopes equipped with a phase contrast 100× objective and with an interference contrast 100× objective, respectively. Before dissection, in each case the whole specimen was drawn from the dorsal side. The dissected parts are mounted on several slides. All specimens are in the collection of the AG Zoomorphologie, C.v.O. University Oldenburg. The terminology is adopted from LANG (1948, 1965) except for the segmental composition of mandible, maxilliped and the numbering of the furcal setae, in which cases HUYS & BOXSHALL (1991), have been followed.

Material Examined

Pseudomesochra spec. 1, 1 female; *Pseudomesochra* spec. 2, 1 female: *"SONNE"*-cruise 64, Peru Basin of South Pacific, 02.09.–02.10. 1989, Discol2.

Pseudomesochra meridianensis sp. nov.; *Pseudomesochra gertwilleni* sp. nov.; *Pseudomesochra* spec., 1 female: *"POLARSTERN"*-cruise AntV/3 1986, Weddell Sea (Antarctic).

Pseudomesochra laptevensis sp. nov.; *Pseudomesochra* spec. 1, 1 female; *Pseudomesochra* spec. 2, 1 female; *"Pseudomesochra gemina"*, 1 male: *"POLARSTERN"*-cruise in 1993, Laptev Sea (Arctic).

Abbreviations used in the text: F.R.: furcal rami, Aes: aesthetasc, exp: exopodite, enp: endopodite, "enp1": first segment of endopodite, Md: mandible, Mxl: maxillula, Mx: maxilla, Mxp: maxilliped, P1–P6: swimming legs 1–6. Ro: rostrum, Ceph: Cephalothorax. The term groundpattern is used in the sense of "Grundmuster" (Ax 1984: 156 f.).

Descriptions and Remarks on the Species

Pseudomesochra meridianensis sp. nov.

Figs. 1–7A; Tab. 1

Material examined: Female holotype [UNIOL Coll. No. 1996. 28/1–8] collected during Ant V/3, 20.10.1986, several specimens from various sites of the Weddell Sea. Location: 72°52.3'S 19°34.7'W; Station 10/520; 470 m depth.

Description of female holotype: Body length (incl. F.R. and Ro) 0.807 mm; rostrum 0.086 mm; cephalothorax 0.205 mm; furcal rami 0.079 mm; maximal body width (posterior margin of cephalothorax) 0.247 mm.

Body (Figs. 1–2). Distinct separation between broad prosome and smaller urosome. Furcal rami divergent, furcal setae IV and V curved outwards. Cephalothorax clearly broader than long, dorsally regularly covered with setules. Posterior margin of each body somite (excl. anal- and penultimate somite) with setules, somites dorsally without spinules, hyaline frills smooth. Free somites 5 and 6 fused to genital double somite. Anal operculum present (?) consisting only of a flat, delicate and smooth membrane, flanked by 2 tiny setules. Furcal rami almost 3 times longer than broad, seta I vestigial, located in proximal half at outer margin; II located in distal half of outer margin; III subterminally at outer margin; IV + V well developed and modified: fused at base, distal half throughout geniculate, trimmed with hairs and flexible ("rat-tail setae"); VI long and slender; VII triarticulated, on dorsal surface.

Rostrum (Figs. 1, 3) very large, broad, apically rounded and bifid at tip; subapically 2 setules, pore on dorsal surface.

Antennule (Figs. 1, 3) short, with 6 segments. Setal ornamentation: I–1; II–8; III–7; IV–4 + aes; V–3; VI–11 + aes.