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Pycnogonides

I. *Pycnosomia asterophila*, a sea spider associated with the starfish *Calliaster* from the Philippines

Jan H. STOCK*

ABSTRACT

A new pycnogonid attributed to the genus Pycnosomia *although it tends to bridge the gap between that genus and* Anoplodactylus, *was found on the oral side of the starfish* Calliaster corynetes *dredged in 379-407 m W. of Luzon (Philippines). It represents the first recorded case of a sea spider associated with Asteroidea.*

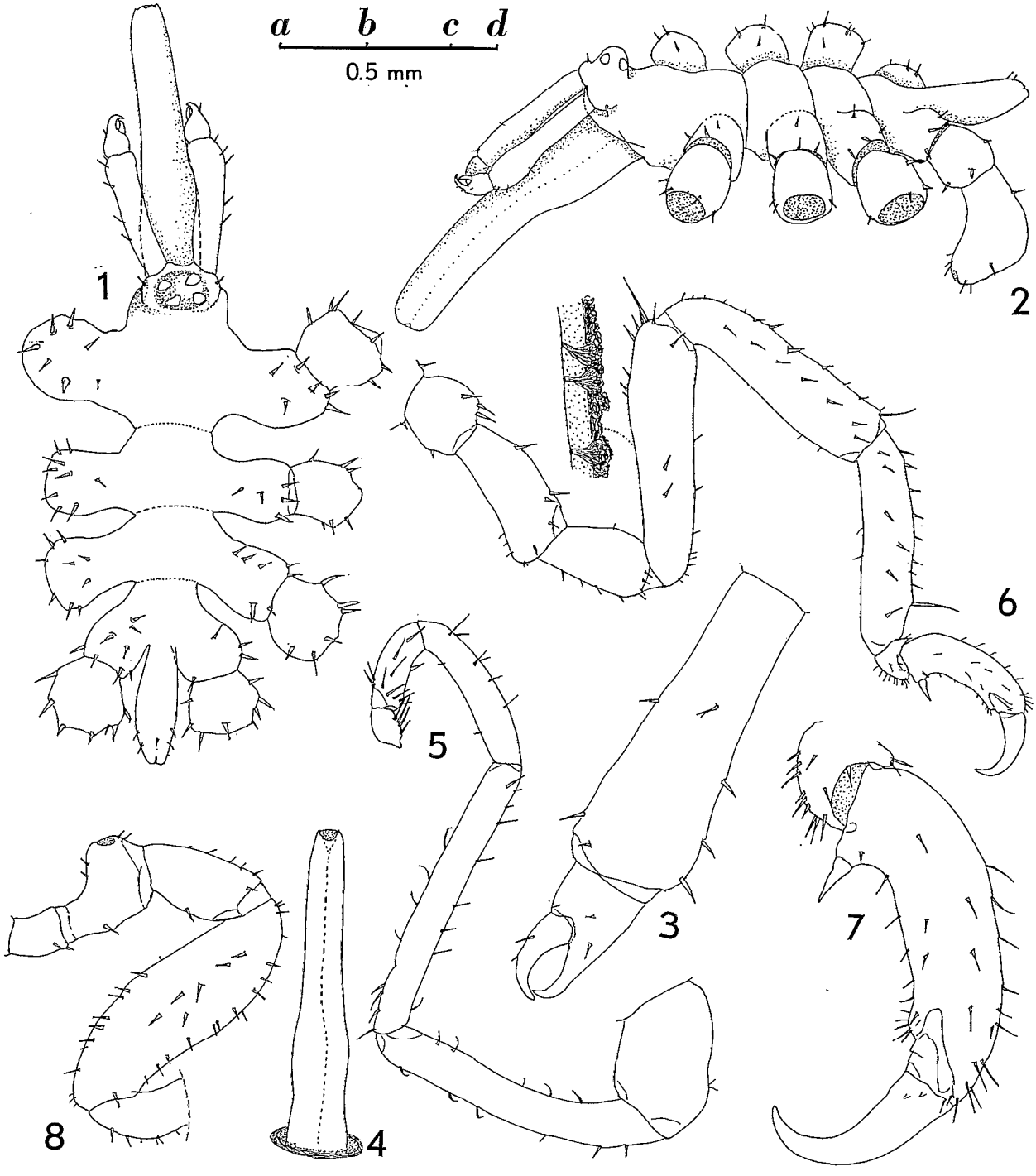
RÉSUMÉ

Un Pycnogonide nouveau, attribué au genre Pycnosomia *malgré des caractères intermédiaires entre ce genre et* Anoplodactylus, *a été trouvé sur la face orale de l'étoile de mer* Calliaster corynetes *draguée entre 379 et 407 m à l'Ouest de Luzon (Philippines). Il représente le premier cas connu d'un Pycnogonide associé à des Asteroidea.*

Introduction

In a recent paper (STOCK, 1979), I have shown the first case of a pycnogonid associated with brittle stars: a species of *Anoplodactylus* was found on members of the genus *Ophiocoma* in the Seychelles (Indian Ocean). There are also records of sea spiders living on sea urchins (LOSINA-LOSINSKY, 1933) and sea cucumbers (PRELL, 1910: 22; OHSHIMA, 1927). Through the courtesy of Dr. J. FOREST, Muséum National d'Histoire Naturelle, Paris, I received a sample of Pycnogonida found parasitic on the oral side of a starfish, *Calliaster corynetes* Fisher from the Philippine Islands. The animals represent a new species of the family Phoxichilidiidae, which is described in the sequel. No starfish was known as a pycnogonid host before.

* *Institute of Taxonomic Zoology, University of Amsterdam, Plantage Middenlaan 53, Amsterdam, Netherlands.*



Figs. 1-8. — *Pycnosomia asterophila* n. sp.

1, trunk of male, dorsal (scale *ab*); **2**, trunk of female, from the left (scale *ab*); **3**, chelifore, male (scale *ad*); **4**, proboscis, male, ventral (scale *ab*); **5**, oviger, male (scale *ac*); **6**, third leg, male (scale *ab*), with detail of cement glands more strongly magnified; **7**, distal segments of third leg, male (scale *ad*); **8**, proximal segments of third leg, female (scale *ab*).

Genus ***Pycnosomia*** Losina-Losinsky, 1961

The name *Pycnosomia* has been proposed by LOSINA-LOSINSKY (1961: 86) as a replacement of *Pycnosoma* Losina-Losinsky, 1933, which was preoccupied for a genus of Diptera (BRAUER & BERGENSTAMM, 1895) and Lepidoptera (HAMPSON, 1897). To my surprise, I noticed that the replacement name, *Pycnosomia*, was not recorded in Neave's Nomenclator Zoologicus (vol. 7). The type-species of *Pycnosomia*, *P. strongylocentroti* (Los.-Los., 1933) has been found, as the name lets suppose, in close association with an Echinoid in Strait Tatar (=W. of Sakhalin, Pacific Ocean). The species has also been recorded from the Aleutian Islands (as *Pigrogromitus robustus* Hilton, 1942; see CHILD, 1975, for additional information). LOSINA-LOSINSKY (1961) described an additional species, *Pycnosomia tuberculata*, from the Sea of Okhotsk, but in this case the eventual host remained unknown.

A third species attributed to the genus *Pycnosomia*, as *Pycnosoma batangense* Helfer, 1938, from Cameroon, has been transferred to *Anoplodactylus* by STOCK, 1953. It resembles the two *Pycnosomia* species from the Pacific in having a styliform proboscis. In its other characters (the cephalon which is strongly projecting over the basal part of the proboscis, the long chelifores, the chelae which are situated in front of the oral aperture, the great elongation of the 3rd oviger segment, the "normal" armature—with paired and unpaired spines—of the propodal heel, the "normal" armature—with shark-tooth-shaped spines—of the propodal sole, the tubiform cement gland aperture) it is clearly an *Anoplodactylus*. It is customary in pycnogonid systematics to attribute species with a styliform proboscis to the same genus as species with cylindrical, conical or barrel-shaped proboscis. Up to now, *A. batangensis* is the only *Anoplodactylus* known with a styliform proboscis.

The new species from the Philippines tends to bridge the gap between *Pycnosomia* and *Anoplodactylus*. It has a hardly projecting cephalon, short chelifores (the chelae do not reach the oral aperture), pore-like cement gland apertures, reduced propodal armature, and it resembles in these characters the genus *Pycnosomia*. It is true, the propodal heel is armed in *P. strongylocentroti* and *P. tuberculata* with transformed, shovel-shaped spines, while it carries a single unmodified spine in the present species. On the other hand, paired spines are lacking on the propodal heel of the Philippine species, and so are shark-tooth-shaped spines on the propodal sole.

The two species of *Pycnosomia* described by LOSINA-LOSINSKY agree in the relative length of the oviger segments: segment 3 being the shortest. In all other members of the closely related genera *Anoplodactylus* and *Phoxichilidium*, segment 3 is the longest one. I suspect strongly, however, that this difference is more apparent than real: in all members of the *Anoplodactylus-Phoxichilidium* complex, the (long) third oviger segment is provided with a constriction near its base, sometimes looking like a articulation but never being a functional one. It is supposed that this constriction is taken for an articulation in the two species described by LOSINA-LOSINSKY. If this supposition is true, both species have a 5-segmented oviger (the *Phoxichilidium*-type of oviger in LEBOUR's, 1945, conception), instead of a 6-segmented one. The new species from the Philippines does not shed any new light on this question, since it has a normally 6-segmented oviger of the *Anoplodactylus*-type.

Considering these morphological outfits, that seem to be randomly scattered over the *Phoxichilidium-Pycnosomia-Anoplodactylus* cloud, I feel that the only character that is really unique for *Pycnosomia* is the shortness of the chelifores. In all other taxa of the cloud, the chelae are positioned in front of the oral aperture, in the three species now attributed to *Pycnosomia*, the chelae do not reach at all the end of the proboscis. If not for these short chelifores, the new species from the Philippines could have been an *Anoplodactylus*.

Pycnosomia asterophila n. sp. (figs. 1-8)

MATERIAL

1 ♂ ovig. (holotype), 1 ♀ ad. (allotype) (MHNP); 2 ♂ ovig., 2 ♀ ad., 4 postlarval ♂ juveniles, 6 postlarval ♀ juveniles, 10 larvae in the latest stages (paratypes, of which 20 in MHNP and 5 in ZMA).

Mission MUSORSTOM-Philippines 1976, St. 42: 13° 55.1′ N, 120° 28.6′ E, depth 379-407 m, 24 March 1976. On oral side of *Calliaster corynetes* Fisher.

DESCRIPTION

Segmentation lines of trunk varying from not very distinct to well-developed. Lateral processes well-separated by intervals that are narrower than their own diameter. Dorsal surface of lateral processes with several heavy, short spines (less numerous in ♀ than in ♂). The cephalon is short; an inconspicuous projection of it carries the (medial) chelifores and one (lateral) spine on each side. The rounded ocular tubercle is low and rather wide; the four small eyes are—in preserved state—poorly pigmented. The abdomen is horizontal and reaches beyond coxa 1 of leg 4.

The proboscis is slightly downcurved; it is slightly swollen at 1/3 of its length; the distal two-thirds is tubiform.

Chelifores are reaching to half to two-thirds of the proboscis. The scape bears some spines, in particular in male. The chela is small, armed with a few spinules; the fingers are curved, untoothed.

No palps.

Ovigers are only present in male. Segment 1 is short and heavy ; segment 2 is elongated, armed with several (partly recurved) spines; segment 3 is the longest, having a rather indistinct subbasal constriction; segment 4 is elongate; segment 5 bears 1 reversed subbasal spine and several reversed setae; segment 6 is slightly longer than wide, bears 4 reversed setae and a small distal knob. Eggs are numerous, very small (diameter about 0.07 mm).

The legs are fairly slender and spinose. Coxa 1 of male is armed with several strong spines, of female with fewer and smaller spines. Coxa 2 of male is elongated, without sexual spur; genital openings have been observed on legs 2 to 4. Coxa 2 of female is shorter, with a large ventrodistal sexual swelling, carrying (on all legs) the genital aperture. Femur of female swollen; that of male with a row of minute, dorsal cement gland pores (at least 17 on leg 3). The femur is the longest of the three longer leg segments. The tarsus is normal, armed with small spines only. The propodus has a strong heel which is accentuated by a single, large heel spine. The heel bears moreover a single minute, lateral spinule. The sole carries some scattered setules but nos spines. The claw is strongly curved; auxiliary claws are absent, but one or two small, scale-like denticles found near the base of the claw can be compared with similar structures observed in *Anoplodactylus batangensis* (vide LEBOUR, 1949, sub nomen *A. tenuirostris*).

Measurements (in mm) of an ovigerous male (paratype).—

Cephalic somite, length	0.88
Second trunk somite, length	0.49
Second trunk somite, width across lateral processes	1.43
Third trunk somite, length	0.36
Fourth trunk somite, length to tip lateral process	0.60
Abdomen, length	0.71
Proboscis, length in ventral view	1.88
Proboscis, greatest diameter	0.31
Scape, length	0.76
Chela, length	0.28

Oviger, 1st segment 0.49; 2nd segm. 0.92; 3rd segm. 1.04; 4th segm. 0.56; 5th segm. 0.49; 6th segm. 0.15.

Third leg, 1st coxa 0.39; 2nd coxa 0.79; 3rd coxa 0.58; femur 1.32; 1st tibia 1.24; 2nd tibia 1.14; tarsus 0.13; propodus 0.70; claw 0.36.

REMARKS

The new species differs from *P. strongylocentroti* and *P. tuberculata* in numerous details, such as the length and armature of the distal oviger segment, the armature of the propodal heel, the armature of the first coxae, etc. The proposed specific name alludes to the, so far unique, biology of the species, living at least from the last larval stages to the adult phase on a starfish.

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