

STUDIES ON THE NATURAL HISTORY OF THE CARIBBEAN
REGION: Vol. 71, 1992

SHALLOW-WATER PYCNOGONIDA FROM BARBADOS, LESSER
ANTILLES WITH DESCRIPTION OF ANOPLODACTYLUS JUSTI
N. SP.

by

HANS-GEORG MÜLLER*

ABSTRACT

MÜLLER, HANS-GEORG. Shallow-water Pycnogonida from Barbados, Lesser Antilles with description of *Anoplodactylus Justi* N. Sp., *Studies Nat. Hist. Caribbean Region 71*, Amsterdam 1992: 42-52.

Eleven species of shallow-water Pycnogonida, one of which (*Anoplodactylus justi* n. sp.) new to science, are recorderd from Barbados, Lesser Antilles. *Endeis nodosa* HILTON, 1942, is new to the Atlantic Ocean. An additional description of this species and of *Anoplodactylus arcuatus* CHILD, 1977 is given.

Key words: *Anoplodactylus justi* n.sp., Pycnogonida, Sea spiders, Barbados.

INTRODUCTION

This paper reports on a small collection of Pycnogonids collected by Drs. J. JUST and T. WOLFF from the Copenhagen Zoological Museum, in Barbados in 1976-1979. No comprehensive work dealing with the Pycnogonid fauna of this eastermost island of the Caribbean was done in the past. The few species of Pycnogonida already known from Barbados and its vicinity were treated as parts of collections covering larger geographic areas. These are *Rhopalorhynchus claudus* STOCK, 1975 (Colossendeidae), *Anoplodactylus insignis* (HOEK 1881) and *Anoplodactylus massiliformis* STOCK 1975 (STOCK, 1975: 991, 1063; 1986: 437).

* Pfaffenmühlerweg 2, 6331 Waldsolms, F.R.G.

The collection of Pycnogonida treated herein comprises 11 species, of which one is new to science, belonging to the families Ammotheidae and Phoxichilidiidae (incl. Endeidae). All these species are new for Barbados.

I am very grateful to Dr. TORBEN WOLFF of the Copenhagen Zoological Museum for making the material available to the author. Mrs. TERRY MCLEARY kindly revised the English text. All specimens are deposited in the Zoological Museum, Copenhagen.

AMMOTHEIDAE

Achelia gracilis Verrill, 1900

(Fig. 1)

BOURDILLON, 1955: 597; FRY & HEDGPETH, 1969: 104, figs. 152, 153, 155, tabs. 13, 14; HEDGPETH, 1948: 244, fig. 38; STOCK, 1986: 416.

Material: 1 ♂, 2 juv., Carlisle Bay, Bridgetown off Bayville, shipwreck, 4-8 m (about 300 m offshore); hydroids, sponges and algae, 8 March 1978, J. JUST coll.

Remarks: The best character to recognize *A. gracilis* is the 7-segmented palp, the penultimate segment being about twice as long as the terminal one (Fig. 1). It is known from tropical and subtropical waters of the western Atlantic Ocean.

Achelia sawayai Marcus, 1940

CHILD, 1979: 7; 1982a: 356; STOCK, 1975: 982; 1986: 415.

Material: 1 ♀, Bridgetown, tidal flat at Grave's End; from algae, 16 March 1976, T. WOLFF coll.

Remarks: A circumtropical shallow-water species, frequently recorded before from the western Atlantic Ocean.

Ammothella spinifera Cole, 1904

(Figs. 2-3)

CHILD, 1979: 11, fig. 3 h-f.

Material: 1 ♂, Bellairs Res. Inst., Holetown, 0.5 m; tufted red algae on stones, 23 February 1978, J. JUST coll. 1 ov. ♂, same locality, 0.5 m; *Halimeda* on stones, 25 February 1978, J. JUST coll. 1 ov. ♂, 2 ♀, same locality, 0.5 m; washings of *Galaxaura*, 6 August 1979, J. JUST coll.

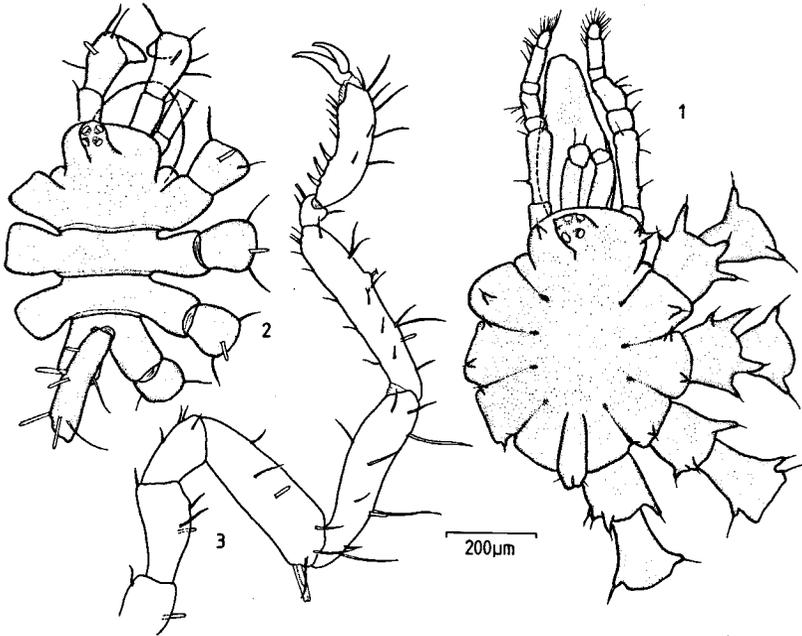


FIGURE 1. *Achelia gracilis* VERRILL, 1900, ♂, dorsal view.

FIGURES 2-3. *Annothella spinifera* COLE, 1904, ♂. 2, dorsal view; 3, third leg.

Remarks: A highly variable species. Specimens from Barbados lack the small tubular tubercles on the posterior margin of the second trunk segment, thought to be 'the single constant diagnostic character' of this species by CHILD (1979: 12).

However, it can be distinguished from the other species of the West Atlantic, through lacking narrow projections on the lateral processes, which are separated from each other not more than their diameter, in combination with the relatively robust legs bearing a cement gland tube not more than six times as long as wide.

Previously known from southern California to Middle America and both sides of the Isthmus of Panamá; this record extends its range to the eastern Caribbean Sea.

Ascorhynchus castellioides Stock, 1957

CHILD, 1979: 15; STOCK, 1957: 82, fig. 2; 1975: 968.

Material: 1 ♀, Bellairs Res. Inst., 0.5 m; red algae on raft over 3 m, 5 March 1976, J. JUST coll. 1 ♂, 1 juv., Bridgetown, 3-6 m; sponges, red algae and hydroids on wreck, 11 March 1976, J. JUST coll.

Remarks: A common West Indian shallow-water species.

Eurycyde raphiaster Loman, 1912

CHILD, 1979: 21, fig. 5 i, j; 1982: 360; STOCK, 1979: 3.

Material: 1 ♂, Bellairs Res. Inst. Holetown, 0.5 m; *Halimeda* on stones, 21 February 1978, J. JUST coll.

Remarks: A common tropical shallow-water species known from both sides of the Atlantic.

Tanystylum geminum Stock, 1954

CHILD, 1979: 28, fig. 9 h, i; STOCK, 1975: 983, fig. 10; 1979: 13, fig. 3 a.

Material: 1 ov. ♂, Grave's End; from red algae, 28 August 1977, J. JUST coll.

Remarks: Distributed all over the Caribbean Sea and Gulf of Mexico.

PHOXICHILIDIIDAE

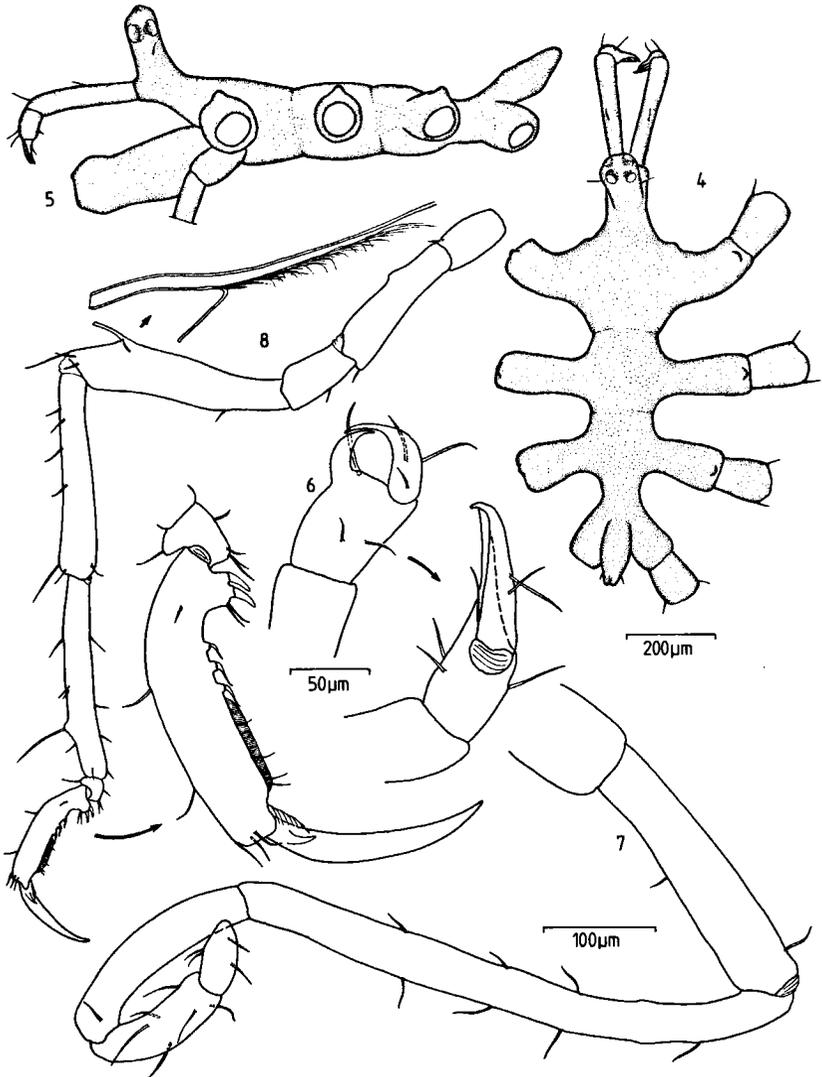
Anoplodactylus arcuatus Child, 1977

(Figs. 4-14)

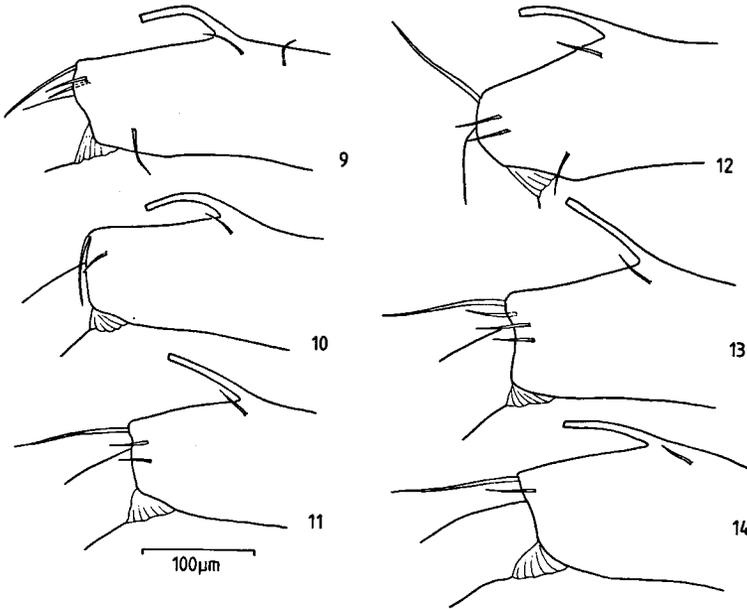
CHILD, 1977: 584, fig. 1.

Material: 2 ♂ (1 ov.), 4 juv., 1979, J. JUST coll. 1 ov. ♂, 1 juv., Bellairs Research Institute, Holetown, Barbados, West Indies, 2.5 m, sand with some detritus, at foot of coral reef, hand coll., 8 August 1979. J. JUST coll.

Remarks: Since its description from Curaçao and Florida this species was not found again. The specimens from Barbados agree well with the type material in its general habitus, but there are some remarkable differences:



FIGURES 4-8. *Anoplodactylus arcuatus* CHILD, 1977, ♂. 4, dorsal view; 5, lateral view; 6, cheliformes, distal, viewed from different angles; 7, oviger; 8, third leg with cement gland, tarsus and propodus enlarged.



FIGURES 9-14. *Anoplodactylus arcuatus* CHILD, 1977, ♂. Variability of the cement gland tube, figs. 9-11 and 12-14 belong to different specimens. 9, first leg; 10, second leg; 11, fourth leg; 12, first leg; 13, second leg; 14, third leg.

The first and second trunk segments are only faintly articulated. The lateral processes I-III bear shallow dorsal tubercles which are more strongly developed than in the type material. All lateral processes lack the simple anterolateral and posterolateral setae found in the male figured by CHILD. Beside the long lamina the propodal sole bears only 3 curved, strong ventral spines. The femoral cement gland tube was found to be highly variable in its shape, from being straight to strongly curved.

Anoplodactylus batangensis (Helfer, 1938)

CHILD, 1982a: 368; HEDGPETH, 1948: 232, fig. 33; STOCK, 1979: 27.

Material: 1 ♀, Bath East; on oxyrhynchus crab, *Thalassia*, 9 March 1976, T. WOLFF coll.

Remarks: A circumtropical species, common in shallow waters.

Anoplodactylus justii n. sp.

(Figs. 15-19)

Material: ♂ holotype, off Holetown, Barbados, West Indies, 800 m from the shore, 54 m, sand and fine coral rubble, low sponges, dredge, 24 March 1976. J. Just coll.

Diagnosis: The best character to distinguish this species from all others of the genus is the shape of the cement gland tube and its position on the femur.

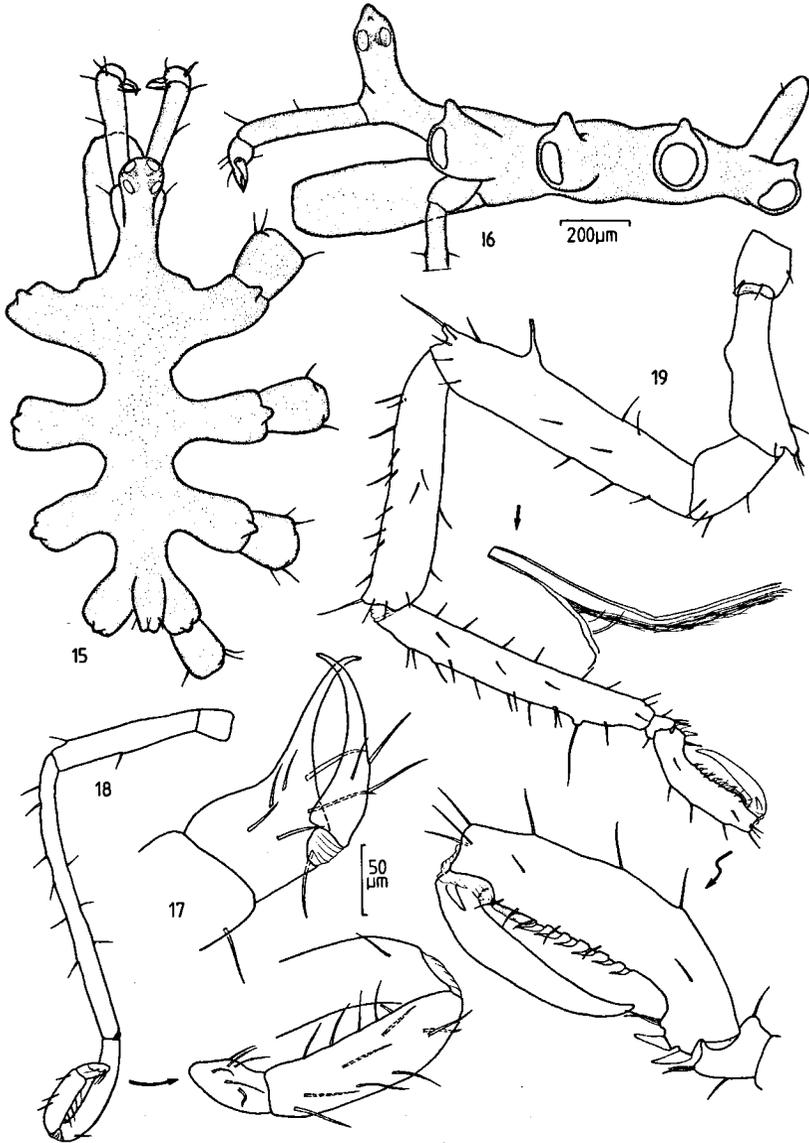
Description: Trunk without intersegmental lines marked. Lateral processes separated by slightly more than their diameter, each slightly longer than trunk diameter with moderately developed dorsodistal tubercles and without any setae. Ocular tubercle a tall cylinder, about 2.5 times longer than wide and capped by a triangular cone. Eyes large and darkly pigmented. Neck with single seta lateral to, and in front of, ocular tubercle. Abdomen 3 times longer than wide, erect, armed with 2 short setae. Proboscis straight, about 2.7 times longer than wide, cylindrical.

Chelifores thin, scape armed with few short setae. Fingers of chela long and slender, well curved and without teeth; moveable finger with 3 ectal setae.

Oviger with short basal segment, second about 4 times longer than first. Third segment longest, bearing 9 simple setae. Terminal 3 segments each shorter than last, moderately setose, with setae shorter than segment diameter.

Legs: First coxae armed with 2-4 anterolateral and posterolateral short setae, without tubercles. Second coxae of third and fourth legs with ventrodorsal genital spur, longest at fourth leg. Femur of the longest leg segment with first tibia shorter than second, all armed with several short setae; longest dorsodistal seta on femur and second tibia mounted on short tubercle. Cement gland situated at more than two-thirds of femur length; tube broadened at its base, apically long and thin. Propodus slender, heel armed with 2 strong spines and 2 short setae; sole armed with 6 strong curved spines and some short, lateral setae; distal lamina one-fourth sole length; claw robust, slightly curved, with short auxiliary claws.

Measurements (mm): Trunk length (chelifore insertion to tip of fourth lateral processes), 1.33; trunk width (across first lateral processes), 0.77; proboscis length 0.56; abdomen length 0.27; third leg, coxa 1, 0.19, coxa 2, 0.48,



FIGURES 15-19. *Anoplodactylus justus* n.sp., ♂ holotype. 15, dorsal view; 16, lateral view; 17, chelifore, distal; 18, oviger, penultimate and terminal segment enlarged; 19, third leg, cement gland, tarsus and propodus enlarged.

coxa 3, 0.31, femur 0.90, tibia 1, 0.78, tibia 2, 0.85, tarsus 0.07, propodus 0.40, claw 0.28, auxiliary claws 0.03.

Etymology: This species is named for Dr. J. JUST, who collected the material.

Distribution: Known only from the type locality.

Remarks: I hesitate to describe another species of this difficult and in some cases variable genus, based on a single specimen only, but the combination of characters of the male available to me are not shared by any other species of the genus. The shape of the cement gland tube is similar to that of *Anoplodactylus inswe* CHILD, 1982, described from Belize, which may be identical with *Anoplodactylus aragaoi* SAWAYA, 1950 from Brazil. The new species can be easily distinguished by its more slender appearance, the dorsodistal tubercles on the lateral processes, the position of the cement gland tube, situated at more than two thirds of the length of the femur. Other distinguishing characters are the shape of the propodus, its lamina and vertical spination, also the presence of auxiliary claws.

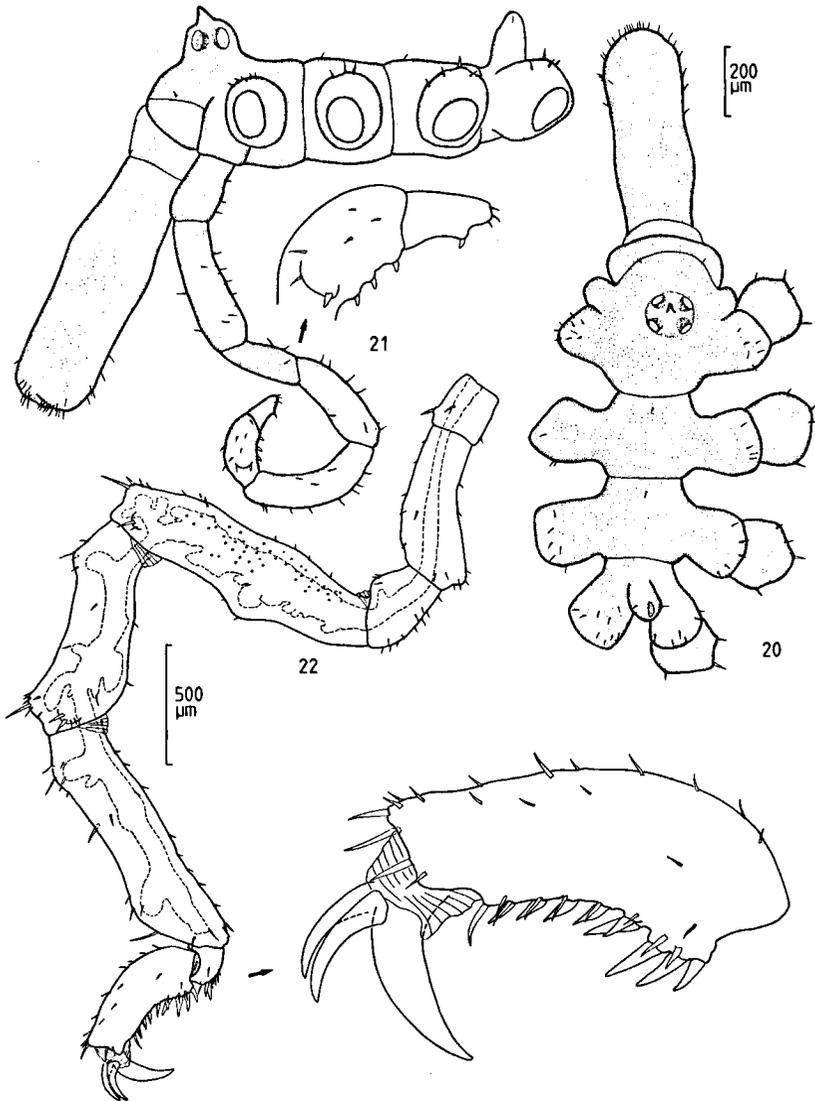
Endeis nodosa Hilton, 1942

(Figs. 20-22)

CHILD, 1982b: 275, fig. 2 g-i.

Material: 1 ♂, Bellairs Res. Inst., outside the station, 0.2 m, algae on metal buoy (bottom 2 m), 27 March 1976, J. JUST coll. 1 ov. ♂, same locality, 1.5 m; hydroids on anchor chain, 27 March 1976, J. JUST coll.

Remarks: This species was previously recorded from Hawaii and the Marshall Islands (Enewetak Atoll) and is now for the first time recorded from the Atlantic Ocean. The specimens found at Barbados agree well with the figures of the male specimen given by CHILD (1982: 275). Forty-nine small cement gland pores have been found scattered irregularly along the retrodorsal margin of the femur, which were not figured by CHILD. As in *Endeis flaccida* CALMAN, 1923 intestinal diverticula in the legs have many blind caeca. *E. nodosa* can be easily distinguished from this species through the presence of a distinct ventral femoral projection.



FIGURES 20-22. *Endeis nodosa* HILTON, 1942, ♂. 20, dorsal view; 21, lateral view with oviger, penultimate and terminal segments enlarged; 22, third leg, propodus enlarged.

REFERENCES

- BOURDILLON, A., 1955. Les Pycnogonides de la croisière 1951 du Président Théodore Tissier. *Rev. Trav. Inst. Pêch. marit.* 19 (4): 581-609, pl. I-III.
- CHILD, C. A., 1977. Four new species of *Anoplodactylus* (Pycnogonida) from the Western North Atlantic. *Proc. biol. Soc. Wash.* 90 (3): 584-596.
- CHILD, C. A., 1979. Shallow-water Pycnogonida of the Isthmus of Panama and the coasts of Middle America. *Smiths. Contr. Zool.* 293: 1-86.
- CHILD, C. A., 1982a. Pycnogonida from Carrie Bow Cay, Belize. *Smiths. Contr. mar. Sci.* 12: 355-380.
- CHILD, C. A., 1982b. Pycnogonida of the Western Pacific Islands I. The Marshall Islands. *Proc. biol. Soc. Wash.* 95 (2): 270-281.
- FRY, W.G. & J.W. HEDGPETH, 1969. Pycnogonida, 1. Colossendeidae, Pycnogonidae, Endeidae, Ammotheidae. Fauna of the Ross Sea, 7. *Mem. N. Z. oceanogr. Inst.* 49: 1-139.
- HEDGPETH, J.W., 1948. The Pycnogonida of the western North Atlantic and the Caribbean. *Proc. U. S. nat. Mus.* 97 (3216): 157-342.
- STOCK, J. H., 1957. Pantopoden aus dem Zoologischen Museum Hamburg IV. Atlantische Warmwasser-Pantopoden. *Mitt. Zool. Mus. Inst.* 55: 81-106.
- STOCK, J. H., 1975. Pycnogonida from the continental shelf, slope, and deep sea of the tropical Atlantic and East Pacific. Biological results of the University of Miami deep-sea expeditions, 108. *Bull. mar. Sci.* 24 (4): 957-1092.
- STOCK, J. H., 1979. Pycnogonida from the mediolittoral and infralittoral zones in the tropical Western Atlantic. *Stud. Fauna Curaçao* 59 (184): 1-32.
- STOCK, 1986. Pycnogonida from the Caribbean and the straits of Florida. *Bull. mar. Sci.* 38 (3): 399-441.