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A New Record of the Axiid, *Ambiaxius alcocki* (MCARDLE, 1900)
(Crustacea, Anomura, Thalassinidea)
from Suruga Bay, Japan

By

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Abstract *Ambiaxius alcocki* (MCARDLE, 1900) is firstly recorded from Japan. *Callistocaris* cf. *alcocki* from the South-West Indian Ocean is identified as the same species with *A. alcocki*.

In a part of the fundamental researches on the deep-sea fauna and the conservation of marine ecosystem executed by the National Science Museum, Tokyo in 1993 a rare hermaphroditic specimen of the Axiidae, *Ambiaxius alcocki* (MCARDLE, 1900) is recorded for the first time in Japan. The single specimen from the southwest Indian Ocean determined by B. KENSLEY as *Callistocaris* cf. *alcocki* is also examined and regarded as the same species with *A. alcocki*.

I wish to express my sincere thanks to Dr. Masatsune TAKEDA of the National Science Museum, Tokyo, who kindly sent me the specimen brought from Suruga Bay, and also to Dr. Barbara COOK of the South African Museum, Cape Town, for her kindness to make it possible for me to examine the specimens determined by T. R. R. STEBBING and B. KENSLEY.

In this paper, the following abbreviations are used; CL, carapace length; R, rostrum length; AD, abdominal length; TL, total length in millimeters measuring by attaching a thread from the tip of the rostrum to the end of the telson; NSMT, National Science Museum, Tokyo; SAMC, South African Museum, Cape Town.

Systematics

Family A x i i d a e

Genus *Ambiaxius* K. SAKAI et DE SAINT LAURENT, 1989

Ambiaxius SAKAI & DE SAINT LAURENT, 1989: 54.

Callistocaris KENSLEY, 1989: 961.

Ambiaxius alcocki (MCARDLE, 1900)

[New Japanese name: Ōrukokku-ana-ebi]

(Figs. 1–5)

Calocaris Alcocki MCARDLE, 1900, p. 476.*Calocaris alcocki*: ALCOCK, 1901, p. 190. — ALCOCK & MCARDLE, 1901, pl. 50, figs. 4, 4a. — STEBBING, 1915, p. 59; 1917, p. 27, pl. 91.*Callistocaris* cf. *alcocki*: KENSLEY, 1989, p. 962.*Ambiaxius alcocki*: SAKAI & DE SAINT LAURENT, 1989, p. 54.

Material. NSMT-Cr. 11478, one hermaphroditic specimen, TL. 44 mm; CL. including rostrum, 16; R. 5, Suruga Bay, 34° 57.1'N, 138° 43.6E–34° 57.6'N, 138° 41.5'E, 380–1000 m, 26. Oct. 1993, Coll. Trawling Fishery Vessel, "Seishin-Maru", in Heta, Shizuoka prefecture.

SAMC-A 1550, one dry specimen, CL. 12; R. 3.5, Cape Natal, N. by E., 24 miles (44.4 km), 440 fathoms (805.2 m) depth, det. T. R. R. STEBBING, 1915.

SAMC-A15887, one alcohol specimen, damaged, R. 3.5; AD. 23, SW Indian Ocean, 30° 14'S, 31° 25'E, 1000 m, 17. May, 1977, Coll. "R. V. Meiring Naude", heavy dredge, det. B. KENSLEY as *Callistocaris* cf. *alcocki*.

Description. Hermaphroditic species in small size (Fig. 1). Carapace (Fig. 2 a, b) smooth. Dorsomedian region depressed anteriorly, median and submedian carinae smooth, lateral carina smooth, with an acute tooth anteriorly. Rostrum styliform, one third the length of carapace, largely upturned with an acute apex, with three small teeth laterally. Cervical groove located about at mid-length of

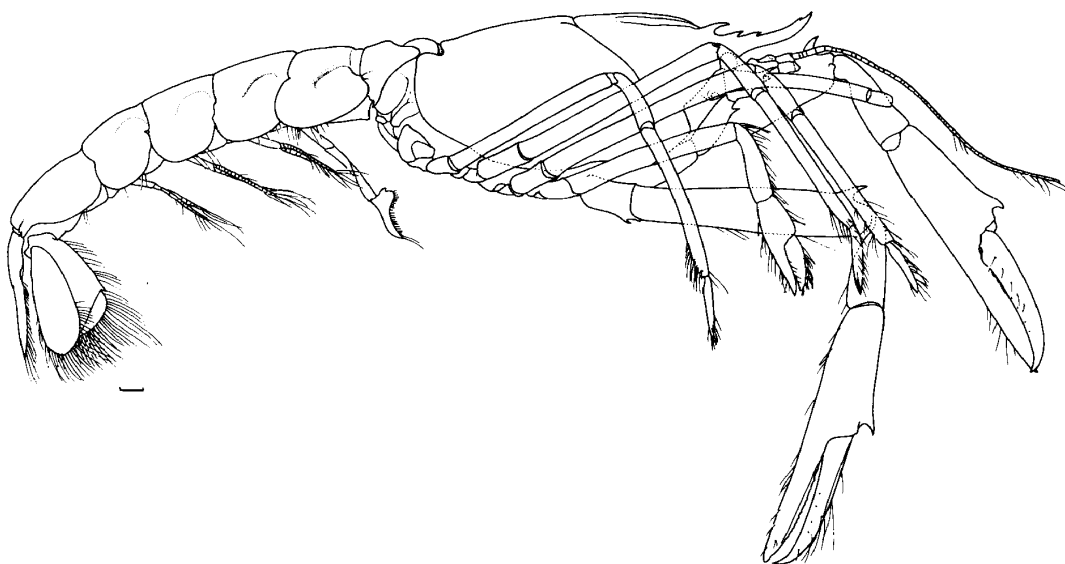


Fig. 1. *Ambiaxius alcocki* (MCARDLE, 1900), hermaphrodites from Suruga Bay, Japan, lateral view. (Scale: 1 mm)

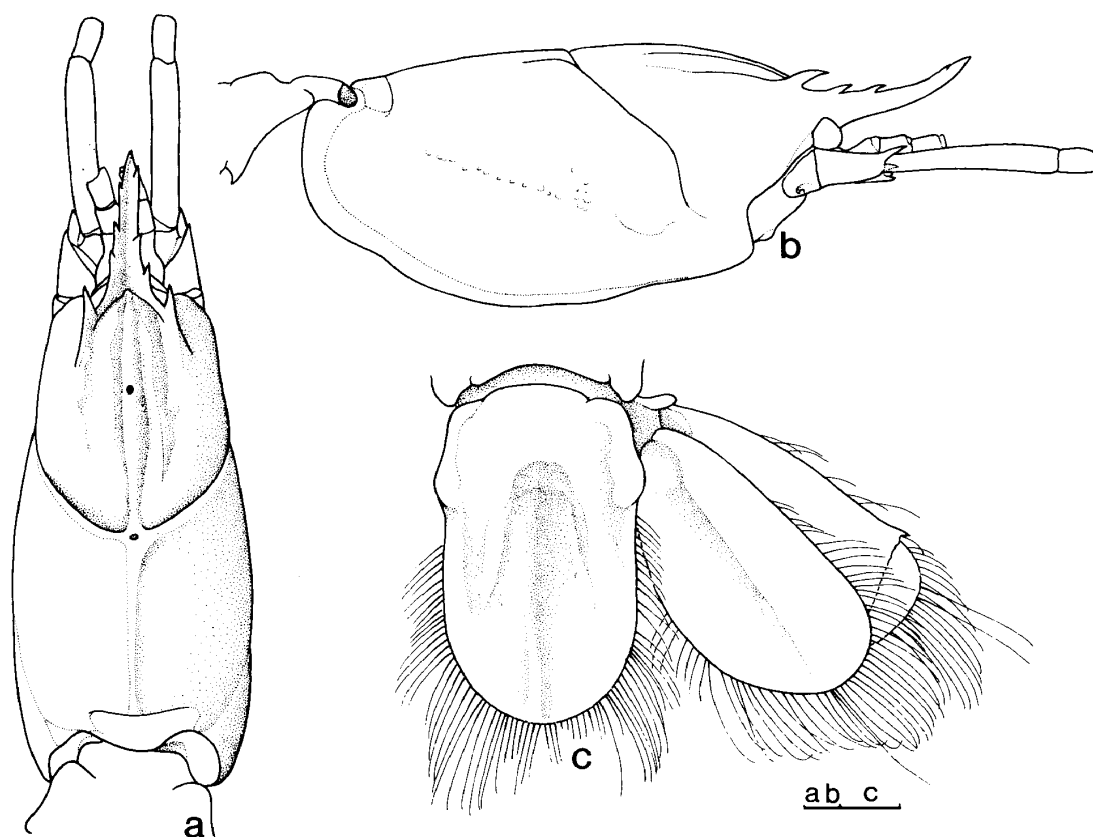


Fig. 2. *Ambiaxius alcocki* (MCARDLE, 1900). — a, Carapace, dorsal view; b, same, lateral view; c, tail fan. (Scale: 1 mm)

carapace, extending laterally to near anteroventral corner. Posterior thoracic region carinate medially on dorsal surface.

Abdomen smooth, relative lengths of abdominal somites 1–6 and telson 1; 1; 1.1; 1; 1; 1.2 and 1.8. Pleuron 1 short, deflexed posteroventrally; pleura 2–5 largely rounded ventrally. Telson (Fig. 2c) 1.8 times as long as broad, posterior to anterior fourth of length sulcate medially on dorsal surface; lateral margins unarmed, slightly expanded in proximal fourth length; posterior margin broadly rounded, without median tooth.

Eye rounded, devoid of pigment and corneal facets. Antennular peduncle reaching to proximal third of antennular peduncle, segment 1 about as long as segments 2 and 3 combined, produced proximally on lateral margin, and with small tooth. Antennal segment 2 with a pointed distodorsal tooth; scaphocerite slender, apically pointed, longer than distodorsal tooth of segment 2; segment 3 triangular, and with a minute distal tooth, segment 4 elongate, 2.3 times as long as segment 2; segment 5 short, a quarter length of segment 4, overreaching to rostral tip.

Mandible with smooth cutting edge; palp three-segmented. Maxilla 1 (Fig. 3a) with two-segmented palp, bearing a distinct seta distally. Maxilla 2 (Fig. 3b)

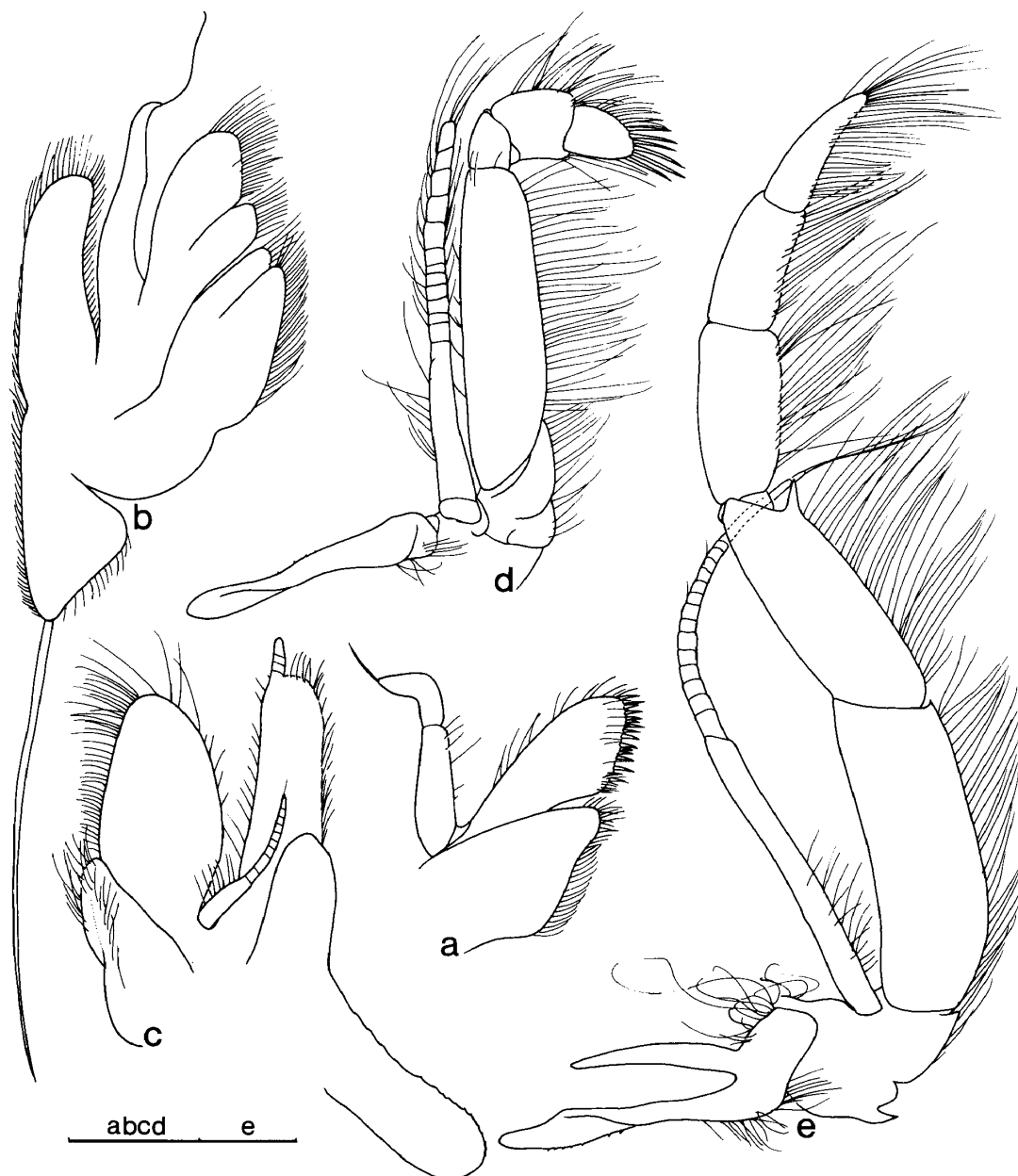


Fig. 3. *Ambiaxius alcocki* (MCARDLE, 1900). — a, Maxilla 1, right side, lateral view; b, maxilla 2, right side, lateral view; c, maxilliped 1, right side, mesial view; d, maxilliped 2, right side, lateral view; e, maxilliped 3, right side, lateral view. (Scale: 1 mm)

with endopod deflexed distally, with a single distal seta; scaphognathite with an elongated posterior seta. Maxilliped 1 (Fig. 3c) with endopod bearing a segmented flagellum; exopod with a slender segmented process. Maxilliped 2 (Fig. 3d) with epipod, but devoid of podobranch. Maxilliped 3 (Fig. 3e) pediform; coxa with medial tooth; basis unarmed; ischium three times as long as broad, with crista dentata; merus shorter than ischium, with a medial subterminal tooth; carpus three-quarters the length of merus; propodus three-quarters

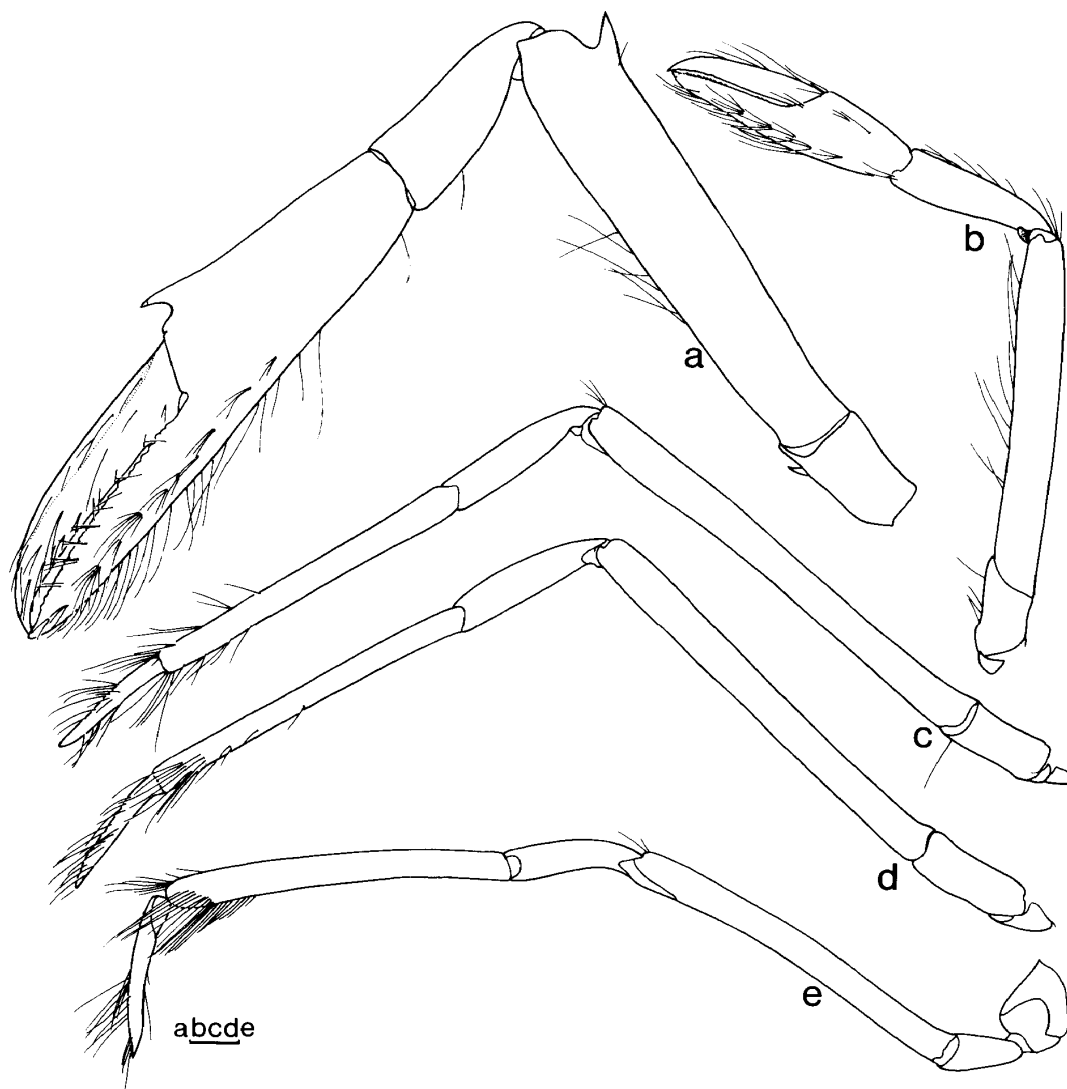


Fig. 4. *Ambiaxius alcocki* (MCARDLE, 1900). — a, Pereiopod 1, left side, lateral view; b, pereiopod 2, left side, lateral view; c, pereiopod 3, left side, lateral view; d, pereiopod 4, left side, lateral view; e, pereiopod 5, left side, lateral view. (Scale: 1 mm)

the length of carpus, subequal to dactylus. Exopod composed of proximal stem and segmented flagellum, overreaching to distal end of merus. Epipod with rudimentary podobranch, and dendrobrachial arthrobranchs.

Pereiopods 1 (Fig. 4a) almost subequal. Coxa with distal tooth on post-medial margin. Basis small, and unarmed. Ischium with subterminal tooth on ventral margin. Merus elongate, 4.8 times as long as broad, with subterminal tooth on dorsal margin. Carpus 2.5 times as long as broad, two-fifths the length of merus. Chela 2.8 times as long as carpus. Palm 2.4 times as long as broad, and with distal subterminal tooth on dorsal margin. Dactylus slender, about as long as palm, fixed finger minutely denticulate on cutting edge.

Pereiopod 2 (Fig. 4b) shorter than pereiopod 1. Coxa, basis and ischium

unarmed. Merus slender, unarmed; carpus less than half the length of merus; chela 1.7 times as long as carpus. Pereiopods 3–4 (Figs 4c, d) slender, unarmed; coxa of pereiopod 3 with genital pore; propodi without rows of spines laterally. Pereiopod 5 (Fig. 4e) slender, coxa with genital pore.

Branchial formula as follows:

	Maxillipeds			Pereiopods				
	1	2	3	1	2	3	4	5
Epipods	1	1	1	1	1	1	1	—
Podobranchs	—	—	r	r	r	r	—	—
Arthrobranchs	—	—	2	2	2	2	2	—
Pleurobranchs	—	—	—	—	—	—	—	—

(r=rudimentary)

Pleopod 1 (Fig. 5a) biarticulate, proximal segment flattened, and distal segment bilobed distally; medial part triangular distally and with medial patch of hooks proximally, and lateral part rounded distally. Pleopod 2 (Fig. 5b) bifurcate; endopod consisting of protpod, and foot-shaped appendix masculina (Fig. 5c) with double rows of spines on medial margin, and with small appendix interna proximally; exopod slender. Pleopods 3–5 (Fig. 5d) slender, consisting of articulated exopods and endopods, devoid of appendix internae. Uropodal exopod (Fig. 2c) elongate, twice as long as broad, and unarmed on lateral margin; distinct transverse suture present. Uropodal endopod also elongate, twice as long as broad, lateral margin unarmed.

Remarks. The species, *Ambiaxius alcocki* has been recorded from off Sri Lanka, 992 m depth (MCARDLE, 1900: 476), measuring 53 mm in total length, from NE Cape Natal, 805 m depth (STEBBING, 1915: 59), 33 mm in total length, from South Africa, SW Indian Ocean, 1,000 m depth (KENSLEY, 1989), and this time it is firstly recorded from Suruga Bay, Japan, 380–1000 m depth, measuring 44 mm in total length.

This species is closely related with *A. franklinae* SAKAI, 1994 from Coral Sea, NE Australia. However, in *A. franklinae* the rostrum is armed with one small tooth laterally on the right side, but unarmed on the left, and about half the length of carapace; the posterior thoracic region is smooth on dorsal surface; the arthrobranchs on maxilliped 3 and pereiopods 1–4 are foliaceous; pleopod 1 is provided with the distal segment consisting of two lobes fused longitudinally with each other, however in the present specimen of *A. alcocki* from Suruga Bay, the rostrum bears three teeth laterally, one third the length of carapace; the posterior thoracic region carinates medially on the dorsal surface; the arthrobranchs show poorly developed dendrobranchiae; and pleopod 1 is provided with an uniramous

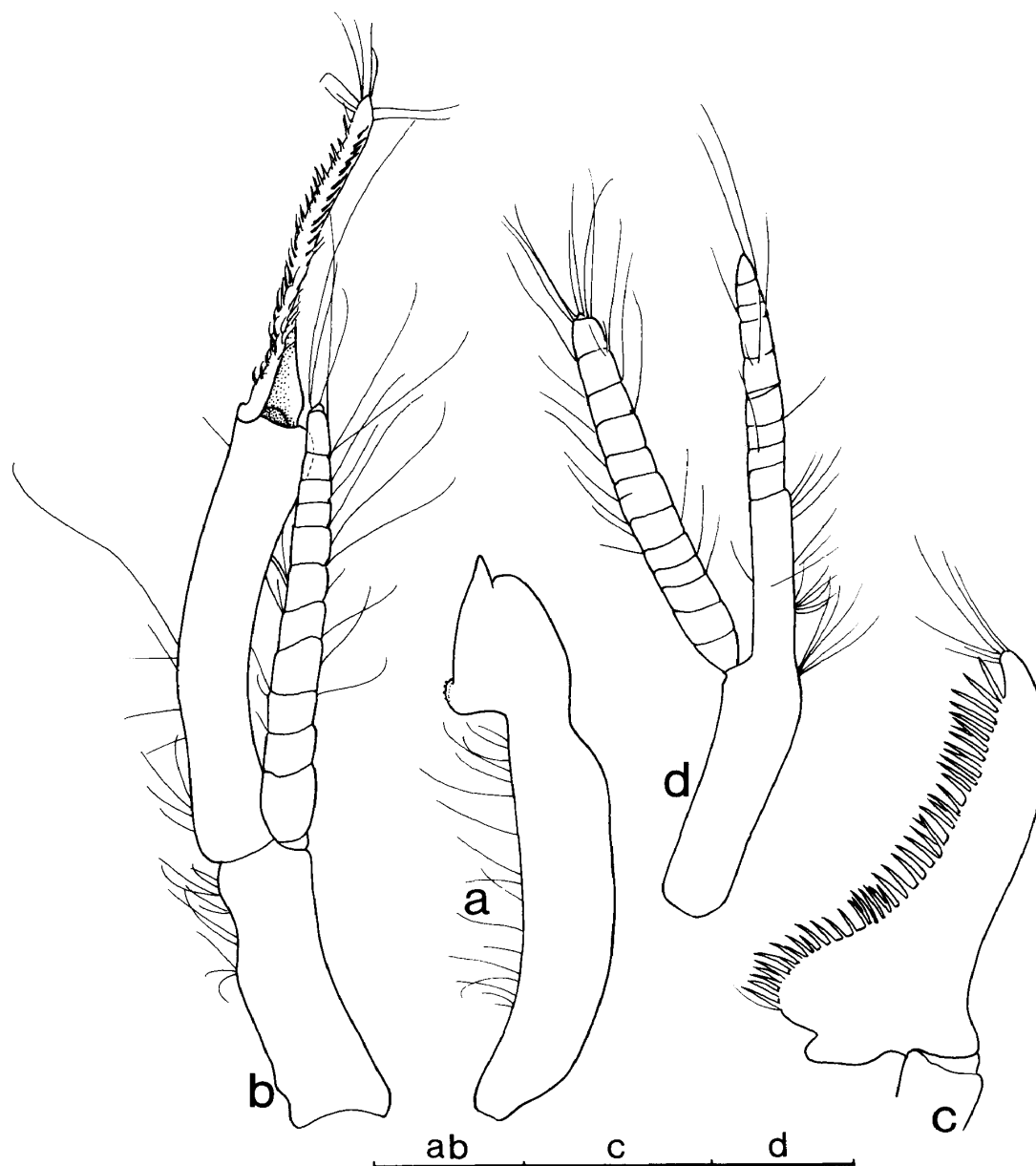


Fig. 5. *Ambiaxius alcocki* (MCARDLE, 1900). — a, Pleopod 1, right side, posterior view; b, pleopod 2, right side, posterior view; c, appendix masculina of pereopod 2, same, lateral view; d, pleopod 3, right side, posterior view. (Scale: 1 mm)

distal segment.

The dry-specimen from NE Cape Natal (STEBBING, 1915; 1917) and the damaged specimen from South Africa, SW Indian Ocean are the same with the present Japanese specimen in that the the rostrum is one third the length of the carapace, however in the specimen from NE Cape Natal the rostrum is armed with two spines on the left side, and with one spine on the right, and in the specimen from South Africa with one spine on the left side, and with two spines

on the right. The latter specimen, however, shows the foliaceous arthrobranchs as observed in *A. franklinae*.

Range. New Caledonia, 20° 48'–38° 22' S, 166° 53.16' E, 1630–1620 m; Off Sri Lanka, 8° 36.15' N, 81° 20.30' E, 992 m; NE Cape Natal, 805 m; South Africa, SW Indian Ocean, 1,000 m; Suruga Bay, Japan, 370–1000 m.

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