

Some Sipunculans and Echiurans, Chiefly from Guam (Sipuncula and Echiura)

S. J. EDMONDS¹

Most of the animals reported in this paper came from Guam, a few from the Palau Islands. They were kindly sent to me for identification by Dr. L. G. Eldredge of the University of Guam, Agana. The species are:

SIPUNCULA

Sipunculus indicus Peters
Siphonosoma novaepommeraniae Fischer
Siphonosoma rotumanum (Shiple) y
Siphonosoma vastum (Selenka and de Man)
Paraspidosiphon formosanum (Sato)
Cloeosiphon aspergillum (Quatrefages)
Phascolosoma pacificum Keferstein
Phascolosoma nigrescens Keferstein

ECHIURA

Ochetostoma erythrogrammon Leuckart and Rüppell
Thalassema sp.

A list of some of the sipunculans previously recorded from nearby Pacific islands is also given. The numbers at the head of each column refer to the author of the records in that column, except where stated otherwise.

SIPUNCULA

Sipunculus indicus Peters

Sipunculus indicus Peters, 1850:382-385; Sato, 1939:367-8, pl. 19. fig. 4.

Sipunculus discrepans Sluiter, 1898:445; Sato, 1935:302-303.

Locality

Two specimens from Guam; other details not stated.

Description

The specimens are 460 and 550 mm long and cylindrical (about 10-15 mm in diameter) and have a short introvert about 25-30 mm long, that is well demarcated from the trunk. The introvert bears a number of small posteriorly directed scale-like papillae. A tentacular membrane is present. Both specimens had been damag-

¹ Department of Zoology, University of Adelaide, South Australia.

LIST OF SIPUNCULANS

	West Carolines ¹	Guam ²	Solomons ³	Rotuma & Funafuti ⁴	New Britain ⁵	Other nearby Islands
<i>Sipunculus indicus</i> Peters (= <i>S. discrepans</i> Sluiter)	+	+				
<i>Sipunculus nudus</i> Linnaeus	+				+	
<i>Sipunculus robustus</i> Keferstein	+		+ ⁶			Wallis Is. ⁷
<i>Siphonosoma carolinense</i> Fischer	+ ⁸					
<i>Siphonosoma cumanense</i> (Selenka and de Man)	+				+	
<i>Siphonosoma eniwetoki</i> Fisher						Eniwetok ⁹
<i>Siphonosoma funafuti</i> (Shiple)				+		
<i>Siphonosoma hataii</i> Sato	+					
<i>Siphonosoma novaepommeraniae</i> Fischer		+				
<i>Siphonosoma rotumanum</i> (Shiple) (= <i>S. hawaiense</i> Edmonds)		+		+		
<i>Siphonosoma vastum</i> (Selenka and de Man)		+	+	+	+	Marshall ¹⁰
<i>Siphonosoma parvum</i> (Fischer)						Marshall ⁸
<i>Siphonosoma takatsukii</i> Sato	+					
<i>Themiste tropica</i> (Sato)	+					
<i>Aspidosiphon carolinum</i> Sato	+					
<i>Aspidosiphon elegans</i> (Chamisso and Eysenhardt)	+		+	+		
<i>Aspidosiphon spinale</i> Ikeda						Marshall ¹¹
<i>Paraspidosiphon cumingii</i> (Baird)			+			
<i>Paraspidosiphon formosanum</i> (Sato)		+				
<i>Paraspidosiphon klunzingerii</i> (Selenka and de Man)				+		

<i>Paraspidosiphon steenstrupii</i> (Diesing)	+				
<i>Paraspidosiphon angulatum</i> Ikeda	+ ¹¹				
<i>Phascolion manceps</i> (Selenka and de Man)					+
<i>Cloeosiphon aspergillum</i> (Quatrefages)	+	+	+	+	+
<i>Phascolosoma albolineatum</i> Baird	+		+		
<i>Phascolosoma funafutiense</i> Shipley					+
<i>Phascolosoma granulatum</i> Leuckart	+				
<i>Phascolosoma microdontoton</i> Sluiter					+
<i>Phascolosoma nigrescens</i> Keferstein	+	+			+
<i>Phascolosoma pacificum</i> Keferstein	+	+			+
<i>Phascolosoma perlucens</i> Baird (= <i>P. dentigerum</i> Selenka and de Man)					+
<i>Phascolosoma pelma</i> (Selenka and de Man)	+				+
<i>Phascolosoma scolops</i> (Selenka and de Man)	+				+
<i>Phascolosoma varians</i> Keferstein					+

Records: 1=Sato, 1935; 2=Edmonds in present paper; 3=Edmonds previously unreported (specimens collected by Expedition of Royal Society to Solomon Island); 4=Shipley, 1898; 5=Shipley, 1899; 6=Leroy, 1936; 7=Keferstein, 1865; 8=Fischer, 1928; 9=Fisher 1950; 10=Selenka and de Man, 1883; 11=Ikeda, 1924.

ed to some extent during collection. The posterior extremity of the trunk of each of the specimens is slightly swollen and rounded and in one the posterior tip is slightly invaginated (a terminal organ?). The surface of the trunk is ribbed longitudinally and ringed circularly because the longitudinal and circular muscles are thickened into bands. One dissected specimen shows 38–42 longitudinal bands. Four retractor muscles arise at about the same level in the anterior 40–50 mm of the trunk. The rectum is very long and is fixed to the body wall. The anal aperture is clearly anterior to the nephridiopores. The intestines of both specimens were considerably damaged and protruded through holes in the body wall.

Systematics

In species of the genus *Sipunculus*, (1) the body wall is divided into rectangular areas by the longitudinal and circular muscles, (2) the introvert is usually short and bears posteriorly directed, scale-like papillae, and (3) there is an extra or post-oesophageal loop in the intestine. *S. indicus* is one of the best defined species of the genus. It possesses 39–43 longitudinal muscles, four short retractors and a long rectum and its anus is placed anteriorly to the nephridiopores. The type locality is Mozambique. The species, however, has been described from a number of places in the Indian and Pacific Oceans, e.g. Billiton (Sluiter, 1891,1902; Fischer, 1913, 1914), China Sea (Leroy, 1942; Murina, 1964) and Formosa and Palau (Sato, 1935, 1939). Sato (1939) gives a photograph of a smaller specimen in plate 19, fig. 4. Culter (1965) reports that the species is used as bait by fishermen in Madagascar; Sato (1935) states that the natives of Palau eat the animal.

Siphonosoma novaepommeraniae Fischer, 1926

Siphonosoma novaepommeraniae Fischer, 1926:104–106, pl. 3, figs. 2, 3, 4, 6;
Wesenberg-Lund, 1959:55–58, text figures 1–3.

Locality

Eight specimens: Paseo de Susana, Guam; raked from under rocks: coll. D. M. Aderkroi.

Description

The length of the trunk of the specimens varies from 50–190 mm and the width of the cylindrical body from 5–13 mm. Two specimens were constricted in several places. The color of the preserved specimens is pink, but the anteriormost region of the trunk and the introvert are brown. The introvert is about 20–50 mm long and not sharply demarcated from the trunk, as in the genus *Sipunculus*. The introvert bears prominent hemispherical papillae which lie almost in circular rows. The papillae on the anterior and posterior regions of the trunk are largest and very prominent. No hooks or hook-like papillae are present on the introvert. Fifteen to twenty longitudinal muscles are visible through the skin. The circular musculature tends to be grouped into fascicles but not the well defined bands as in *Sipunculus*. The longitudinal muscles in two dissected specimens extend well into the introvert. Extensions of the coelom are present in the body wall. No transverse dissepiments

were found in the body cavity. Four retractors arise at about the same height in the anterior half of the trunk, the ventral retractors from muscles 2-3 (2-4) and the dorsals from 6-9 (8). The intestine consists of numerous coils and was filled with fragments of coral; it bears a well developed and pointed caecum. The contractile vessel possesses numerous very small villi. The spindle muscle arises anteriorly from a point well in front of the anus and there are two lateral roots which join the body wall just anterior to the point of attachment of the dorsal retractor. The spindle muscle is fixed posteriorly near the extremity of the trunk. Two fine, paired fasteners, arising from muscle 1 on each side of the nerve cord are fixed to the last whorl of the intestine. Two short, yellow nephridia arise just in front of the anus and extend posteriorly to the point of attachment of the retractors; the nephrostome of each is fan shaped and prominent. Coelomic papillae lie on the body wall in front of the nephrostome. A well-developed brain (without processes) and a wing muscle are present. Keferstein bodies are present in one species. No fusiform bodies, like those found in *S. ingens* Fisher or *S. arcassonense* Cuenot are present at the posterior extremity of the body cavity.

Systematics

These specimens fall into the subgenus *Siphonosoma* (*sensu stricto*) and in the group of species which lack introvert spines. They resemble in almost all respects *S. novaepommeraniae* Fischer, 1926 described from New Britain. Fischer says that the rectum is fastened to the dorsal retractor by a mesentery. This does not appear to be so in the present specimens. The species is distinguished (1) from *S. vastum* (Selenka and de Man) because the rectum of the latter bears numerous caeca and the introvert spines or hooks and (2) from *S. rotumanum* Shipley because the latter also bears introvert hooks or spines. The species is also reported from Mauritius (Wesenberg-Lund, 1959).

Siphonosoma vastum vastum (Selenka, Bülow, and de Man)

Figs. 1-3

Sipunculus vastus Selenka and de Man, 1883:103-104, pl. 12, fig. 171, pl. 13, fig. 179; Shipley, 1898:469; 1899:158; Augener, 1903:315-317.

Siphonosoma vastum Fischer, 1927:199; Wesenberg-Lund, 1937:2-5, figs. 1-2. Edmonds, 1955:92-95, figs. 8-9.

Locality

One specimen: Agat, offshore near firehouse, in shallow water under rocks. coll. F. R. Miller, 16/10/66.

Description

The specimen is stout and curved ventrally to some extent. The trunk is about 80 mm long and 13-15 mm in diameter. The introvert is partly invaginated, the free part being about 30 mm long and the invaginated part 5 mm. The introvert bears numerous rings of brown-black, blunt hooks (Fig. 3) between which lie rings of very small papillae. On the anterior and posterior surfaces of the trunk are pro-

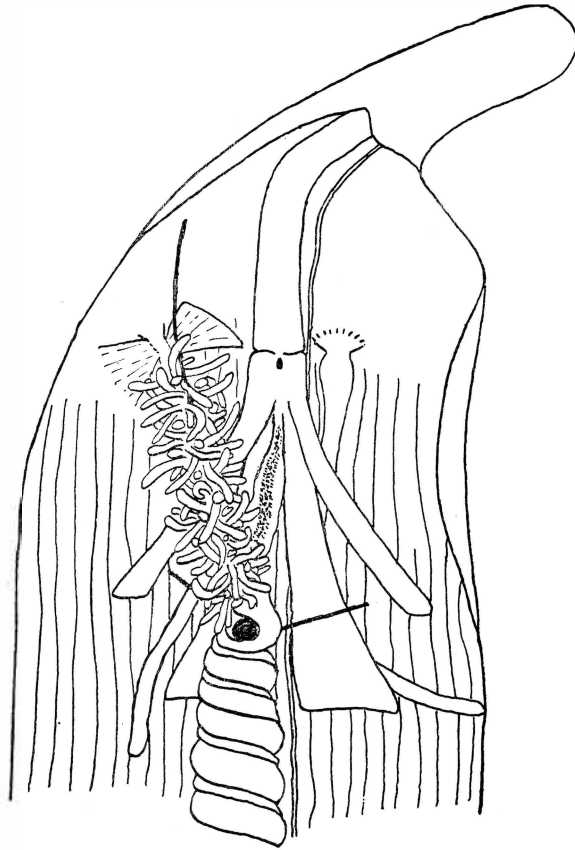


Fig. 1. *Siphonosoma vastum*—anterior region of dissected specimen.

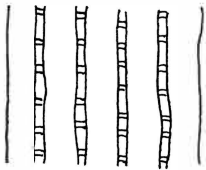


Fig. 2. *Siphonosoma vastum*—circular muscles of body wall grouped in fascicles.

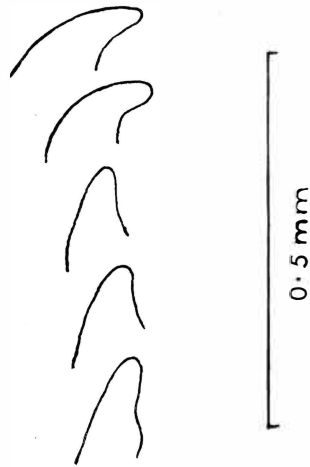


Fig. 3. *Siphonosoma vastum*—hooks from the introvert.

minent circular to oval shaped papillae. The longitudinal musculature of the body is thickened into 25–27 bands which anastomose only rarely. Integumental spaces (extensions of the coelom) are present in the body wall. Four retractors arise in the anterior half to third of the trunk, a stout ventral pair which arise from muscles 1–7, and a dorsal pair move anteriorly from muscles 7–8 (8–9) (Figs. 1–2). A spindle muscle is fixed anteriorly in front of the anus and posteriorly at the extremity of the trunk. Anteriorly it gives off two thin lateral roots. Two nephridia arise at about the same level as the anus and have prominent, fan-shaped nephrostomes. They extend to the point of attachment of the ventral retractors and are almost free. The intestine is long and coiled and a contractile vessel bearing minute villi runs along the oesophagus. A single, globular pre-rectal caecum is present. A feature of the specimen, however, is that the rectum bears numerous, tubular caeca (up to 5 mm long). No transverse dissepiments are present in the coelom. A well developed wing muscle is found attached to the rectum near the anus.

Systematics

This specimen falls in the subgenus *Hesperosiphon* Fisher, 1950. It is close to both *S. vastum* (Selenka and de Man) and *S. parvum* (Fischer, 1928). *S. vastum* was described as lacking hooks. Stephen and Edmonds (in press), however, has examined the holotype and found that it possesses small claw like hooks on the introvert. The hooks and the numerous rectal caeca of the specimen from Guam, however, resemble those of *S. vastum* much more closely than those of *S. parvum*. For these reasons the specimen is being identified as *S. vastum*. The type locality of the species is Jaluit (Marshall Is.). It is an Indo-Pacific species. In the Indian Ocean it has been reported from Mauritius, Laccadive Is., Indonesia, and Western Australia. In the Pacific it has been reported from Amboina, Funafuti, Rotuma, New Britain, Loyalty Is., New Caledonia, and Queensland. The species is distinguished from the other two species of *Siphonosoma* reported in this paper by the presence of numerous, prominent rectal caeca.

Siphonosoma rotumanum (Shipley)

Fig. 4

Sipunculus rotumanus Shipley, 1898: 469–470 pl. 37, fig. 1–3.

Siphonosoma hawaiiense Edmonds, 1966:368–388, figs. 1–4.

Siphonosoma rotumanum Stephen and Edmonds (in press).

Locality

One specimen in Pirate's Cove, in sand at low tide; coll. M. Evans, 2/10/65.

Description

The specimen in the preserved state is cylindrical in shape and grey in color. The trunk is about 100 mm long and the introvert about 45 mm. The animal is curved ventrally, and the anus is prominent. The anterior region of the introvert is armed with rows of dark yellow, rounded or blunt hooks (Fig. 4), each of which is associated with a small papilla. The structures correspond with those described for *S. hawaiiense* Edmonds and which have since been found by Stephen and Edmonds

(in press) to be present on the holotype of *S. rotumanum*. There are two types of papillae on the trunk, one large (dark and black in color), scattered, and sparse and the other smaller and more numerous. There are 17–19 bands of longitudinal muscles. Coelomic spaces are present in the body wall. Four retractors arise at different levels, two stout ventrals from muscles 2–3 (3–4) and two dorsals move anteriorly from muscles 4–5. The four fuse anteriorly. The wing muscle is very strong. A very stout spindle muscle is fixed anteriorly well in front of the anus,

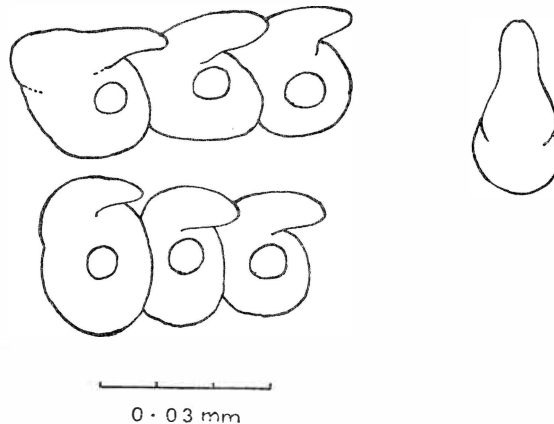


Fig. 4. *Siphonosoma rotumanum*—hooks or spines from the introvert.

and gives off two very strong, wing-like, lateral roots like those described for *S. hawaiiense* and like those now known to be present in *S. rotumanum*. The nephridiopore is near muscle 2, and the nephrostome is prominent and fan-shaped. Coelomic papillae are present. Paired intestinal fasteners arise from muscle 1 on each side of the nerve cord and extend to the last spiral of the intestine.

Systematics

A re-examination of *S. rotumanum* Shipley in the British Museum has shown that the species possess small, blunted hooks, a fact not stated by Shipley. This was not known to me when I described *S. hawaiiense* in 1966. It is now clear that *S. hawaiiense* is a junior synonym of *S. rotumanum*.

Unlike *S. novaepommeraniae* the species possess blunt introvert hooks and very prominent, fan-like lateral roots to the spindle. Unlike *S. vastum* it lacks numerous rectal caeca. The type locality is Rotuma. It is also described from Hawaii. The species is figured by Edmonds (1966).

Paraspidosiphon formosanum (Sato)

Paraspidosiphon Stephen, 1965: 459.

Aspidosiphon formosanum Sato, 1939: 421–424, text figs. 55–57.

pl. 21, fig. 23.

Localities:

- | | |
|--|---------------|
| (1) Pago Bay; low tide, coll. P. Jacobs, 24/4/66. | 3 specimens. |
| (2) Pago Bay; in dead coral, coll. L. Eldredge, 23/4/66. | 15 specimens. |
| (3) Pago Bay; in dead coral, coll. L. Eldredge, 21/6/66. | 2 specimens. |
| (4) Pago Bay, coll. C. Otto, 16/3/66. | 12 specimens. |
| (5) Pago Bay, coll. D. Aderkroi, 15/3/66. | 9 specimens. |
| (6) Pelelui Bay, Palau Island, coll. C. Otto, 14/8/66. | 3 specimens. |

Five specimens dissected.

Description

The specimens are slender, generally cylindrical, pink to yellow-brown in color with prominent, dark brown anal and caudal shields. The trunk is 10–25 mm long and its maximum width 1.5–2.5 mm. The introvert, not completely extended in any specimen, would be about half as long as the trunk and about 1 mm wide. The anal and caudal shields bear prominent, hard, wartlike protuberances; the caudal shield is marked with about 18 almost complete radial furrows and about the same number of inter-radial grooves. The longitudinal musculature is thickened into about 18–22 bands which are usually visible externally. The bands in all specimens anastomose and in some considerably, especially in the posterior half of the trunk. The introvert bears numerous rings of dark, bidentate hooks. Some of the hooks in the posteriormost rows seem to have lost the second or minor tooth. The introvert also bears posteriorly a large number of scattered, sharp spines, which are a little longer than the hooks. Scattered between the spines are a number of short truncated papillae. Two introvert retractors arise posteriorly from about six muscle bands on either side of the nerve cord and close to it. The retractors arise from the body wall some distance in front of the caudal shield; they remain separate for about one to two thirds of their length before fusing. The spindle muscle is fixed posteriorly to the caudal shield. A small caecum is present on the rectum of three of the five dissected specimens. Two yellow nephridia arise on about the same level as the anus and are about half as long as the trunk; they are fixed for about a quarter to half their length. No fixing muscles were found.

Systematics.

These specimens fall in the group of species of *Paraspidosiphon* Stephen, 1965 which possess both hooks and spines. They resemble to some extent *P. ambonense* (Augener), *P. formosanum* (Sato), *P. leve* (Sluiter), *P. makoense* (Sato), and *P. steenstrupii* (Diesing). The shape of the clear area of the hook is different from that of *P. steenstrupii* which, according to Selenka and de Man (1883, fig. 192), possesses an anteriorly directed tongue, lacking in the specimens from Guam. The specimens are very near *P. makoense* (Sato) and *P. formosanum* (Sato) both from Formosa. They differ from the former in that (1) they possess very numerous, well-developed introvert spines, (2) the nephridia are not attached to the body wall for most of their length, and (3) the retractor muscles remain separate for a considerable part of their length. They resemble most clearly *P. formosanum* in the shape and size of the introvert hooks, spines, and papillae and in general anatomy. The

specimens from Guam differ in that (1) they possess a rectal caecum, (2) the retractor muscles do not remain separate for most of their length, and (3) the nephridia are usually attached for about a third or quarter of their length. In spite of these differences we have assigned the specimens to *P. formosanum*. The type locality is Ginko, Formosa.

Cloeosiphon aspergillum (Quatrefages)

Loxosiphon aspergillum Quatrefages, 1865: 605, pl. 20, fig. 20.

Cloeosiphon aspergillum Selenka and deMan, 1883: 126, pl. 2, figs. 23–24, pl. 14, figs. 214–216; Sato, 1935: 321–324, pl. 4, fig. 20; 1939: 430; Edmonds, 1956: 309–310, fig. 21, pl. 3, fig. 2.

Localities:

- | | |
|--|--------------|
| (1) Pago Bay; in dead coral, coll. P. Jacobs, 3/4/66. | 7 specimens. |
| (2) Pago Bay; in dead coral, coll. L. Eldredge, 23/4/66. | 3 specimens. |
| (3) Pago Bay; in burrows in coral, coll. F. B. Recksid,
7/5/66. | 3 specimens. |
| (4) Asinite Bay; from broken coral, coll. L. Eldredge,
5/2/66. | 2 specimens. |

Description

All the specimens are large, the trunk of the largest being about 70 mm long and 2–3.5 mm wide. The species is readily identified because at its anterior extremity there is a sub-spherical, calcareous cap or knob, consisting of a large number of plates that are arranged in regular spiral rows, the whole structure resembling a flattened pineapple. The introvert arises from the center of the cap. The longitudinal musculature of the body wall is continuous so that no longitudinal bands are absent. The introvert bears hooks the shape of which is shown by Selenka and de Man (1883, fig. 266) and Edmonds (1956, fig. 21). A photograph of the species is given in Sato, 1935 and Edmonds, 1956. The anterior knob is of one specimen is flattened and about 6 mm in width.

The species is well known in coral reefs of the Indo-Pacific region. In the Pacific it has been reported from Japan (Sato, 1939), West Caroline Is. (Sato, 1935), Palau and Jaluit Is. (Ikeda, 1924), Loyalty Is. (Shiple, 1899), Christmas Is. (Shiple, 1898), Samoa (Fischer, 1895), New Guinea (Fischer, 1926), Australia (Monro, 1931; Edmonds, 1956).

Phascolosoma pacificum Keferstein

Fig. 5

Phascolosoma pacificum Keferstein, 1867: 49–50, pl. 7, figs. 1–2; Sato, 1935: 310–311, pl. 3, fig. 9; 1939: 390.

Localities:

- | | |
|---|-------------|
| (1) Adelup Bay; in dead coral, coll. F. B. Recksid,
23/4/66. | 1 specimen. |
| (2) N.C.S. Beach; coll. H. Sabini and G. Dryden, | |

- | | | |
|-----|---|--------------|
| | 12/5/66. | 1 specimen. |
| (3) | Koror, Palau Is.; from baffier reef, coll. W. Bunyan,
16/6/66. | 2 specimens. |
| (4) | Bloody Beach, Palau Is., coll. C. Otto, 14/4/66. | 2 specimens. |

Description

The specimens are relatively long and slender, twisted to some extent and pointed posteriorly. The trunk of most of the specimens is brown and made bristly by numerous, sharply pointed, conical papillae. The trunk of the largest specimen is about 90 mm long and about 2.5–5 mm wide. The introvert, fully extended, would be about three quarters as long as the trunk. The skin of the trunk

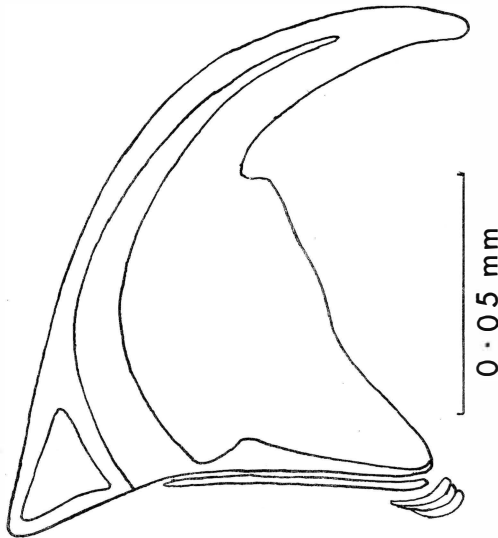


Fig. 5. *Phascolosoma pacificum*—hook from introvert.

of most specimens is mottled brown and some dark brown bands are present on the dorsal side of the introvert. The body wall is thick, and the longitudinal muscles are not visible externally. The introvert is armed with numerous complete and partially complete rows of very dark brown hooks, the shape and size of which is shown in Fig. 5. The longitudinal muscle is thickened into 25–32 anastomosing bands. The two nephridia reach almost to the posterior extremity of the trunk and are fixed almost for their whole length. There are four retractor muscles which arise in the middle of the body, the ventral pair from muscles 1–6 and the dorsal pair more anteriorly from muscles 2–6 (3–8). A spindle muscle is fixed anteriorly near the anus and posteriorly near the extreme tip. No intestinal caecum was found in two dissected specimens.

Systematics and distribution

The tentacles of phascolosomatids lie in a near circle which does not surround

the mouth but lies dorsal to it. *P. pacificum* is identified by the shape and size of its hooks and the size and method of attachment of the nephridia. Specimens are often mottled in appearance. It is found in the Indian and Pacific Oceans. The type locality is in the Gilbert and Tarawa Is. (Kingsmill Group). It has been reported from the Red Sea, Indonesia, West Caroline Is., Japan, and the Great Barrier Reef (Australia).

Phascolosoma nigrescens Keferstein

Fig. 6

Phascolosoma nigrescens Keferstein, 1865:424, pl. 31, fig. 2, pl. 32, figs. 14-15;
Sato, 1935: 311, pl. 4, fig. 10; 1939: 387-390, pl. 20, fig. 13, text figs. 3-32.

Localities:

- (1) Pago Bay; in dead coral at low tide, coll. F. B. Recksid, 7/4/66.
- (2) U.S.O. Bay; station 31, coll. F. B. Recksid, 26/11/66.

Description

Both specimens are coiled and constricted and the posterior region of the trunk gradually tapers to a point. The length of the trunk of both would be about 25-30 mm and of the introvert about 15 mm. In both specimens there are a number of pigmented bands on the dorsal side of the introvert. The bands of longitudinal muscles are not visible externally but are very prominent internally when the specimens are dissected. The identification is based on the size and shape of the introvert hooks (Fig. 6).

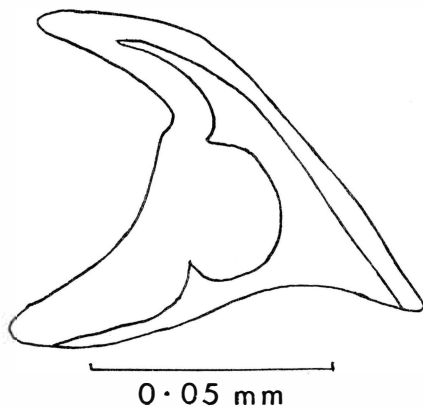


Fig. 6. *Phascolosoma nigrescens*—hook from the introvert.

Systematics and distribution

The species has been widely reported from the West Indies, Ascension Is., Cape Verde, West Africa, South Africa, Madagascar, Zanzibar, Mauritius, Red Sea, Maldives, Malaysia, Indonesia, Indo-China, Japan, Philippines, West Caroline Is., Funafuti, New Britain, Fiji, New Caledonia, and the Great Barrier Reef (Aust-

ralia). The type locality is Fiji. Sato (1939: 389) lists some individual differences in some Japanese specimens.

ECHIURA

Ochetostoma erythrogrammon Leuckart and Rüppell

Ochetostoma erythrogrammon Leuckart and Rüppell, 1828:7-8; Sato, 1935:324; 1939: 357-359, text figs. 8-9, pl. 29, figs. 1-2.

Localities:

Three specimens, one from each of the following;

- (1) Pago Bay; below low tide, coll. L. Eldredge, 22/2/66.
- (2) Paseo de Susana; in sand under rocks, coll. D. Aderkroi.
- (3) Ritidian Point; coll. P. Jacobs and D. Aderkroi, 28/4/66.

Description

All three specimens are sausage-shaped and purplish pink in the fixed condition. The trunk of the largest is about 160 mm long and its width about 40-50 mm. The proboscis (detached in the largest specimen) is about 90 mm long. The body wall of the anterior and posterior regions of the trunk is thicker and covered with prominent, soft, wartlike papillae 1.0-1.3 mm in diameter. The longitudinal musculature of the body wall is thickened into 14-16 bands which are most noticeable when the animal is dissected. The oblique muscles between the longitudinal bands are also thickened into fascicles. The proboscis is not bifid and is rolled so as to resemble a tube. Two setae lie ventrally just posterior to the mouth. In spite of the fact that the gut was full of coral fragments and that the preserving fluid had apparently taken a considerable time to enter the body cavity something of the internal anatomy could be made out. The gut is extremely long, thin walled and convoluted. Three pairs of nephridia with spirally coiled lips are present, the first pair being placed in front of the setae. No interbasal muscle was found in a dissected specimen. There is a very thin walled dorsal vessel, a ring vessel, two neuro-intestinal vessels and a neural vessel. The anal vesicles are very thin walled, slender and bear very few funnels. An intestinal caecum is present in the largest specimen.

Systematics

The identification depends on the presence of 14-16 bands of longitudinal muscle, the banding of the oblique musculature, and the presence of three pairs of nephridia (with spirally coiled lips), the first pair being placed in front of the setae.

Excellent figures which show how the longitudinal and oblique muscles are arranged in *Ochetostoma* are given in Fisher, 1946, pl. 24. Sato (1939) gives a drawing (text fig. 9) of the internal anatomy and in pl. 19 a photograph of the species.

The type locality is Jubal Is. in the Red Sea. The species is widely distributed in the Indian and Pacific Oceans. Sato (1935, 1939) described the species from Palau Is., Yap, Formosa, Ruikiu, and Amami-Ogime.

Thalassema sp.

Thalassema Lamarck, 1801:328; Fisher, 1946:230.

A single specimen was collected at Ritidium Pt., by P. Jacobs, 3/4/66.

The trunk of the specimen was 28 mm long and the proboscis (still attached) was 10 mm. The body was almost transparent and no longitudinal muscles were visible. The body cavity was full of coral fragments which had ruptured the gut wall and damaged most of the internal structures. Two pairs (?) of small and transparent nephridia were present posterior to the setae. No processes were attached to the nephrostomal lips and no interbasal muscle was apparent. No other details about the structure of the animal can be given with certainty. From the nature of the longitudinal musculature and the nephrostome it appears that the specimen belongs to the genus *Thalassema*.

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