

Sipunculoidea and Echiuroidea : Sipunculans and Echiurans from the Philippines and New Caledonia (ESTASE 2, BIOCAL, MUSORSTOM 3 and 4)

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ABSTRACT

Ten species of Sipunculans collected during a survey of the bathyal fauna of seas off the coast of the Philippines (cruises ESTASE 2 and MUSORSTOM 3) and near New Caledonia (cruises BIOCAL and MUSORSTOM 4) are described and identified. The commonest species in the Philippine collection was *Sipunculus robustus* and in the New Caledonian *Nephasoma*

diaphanes and *Onchnesoma magnibathum*. No new species are recorded.

Only two species of Echiurians were collected; the specimens were unfortunately in too poor a state for precise identification.

RÉSUMÉ

Sipunculoidea et Echiuroidea : Sipunculien et Echiuriens récoltés aux Philippines et en Nouvelle-Calédonie (campagne ESTASE 2, BIOCAL, MUSORSTOM 3 et 4).

Dix espèces de sipunculien, dont aucune n'est nouvelle, ont été récoltées lors des campagnes consacrées à l'étude de la faune bathyale au large des Philippines (campagnes ESTASE 2 et MUSORSTOM 3) et près de la Nouvelle-Calédonie (cam-

pagnes BIOCAL et MUSORSTOM 4). Elles sont décrites et identifiées. Dans les récoltes, les espèces les plus communes sont, aux Philippines, *Sipunculus robustus*, en Nouvelle-Calédonie, *Nephasoma diaphanes* et *Onchnesoma magnibathum*.

Seules deux espèces d'Echiuriens ont été récoltées; les spécimens sont malheureusement en trop mauvais état pour une identification précise.

EDMONDS, S. J. — Sipunculoidea and Echiuroidea : Sipunculans and Echiurans from the Philippines and New Caledonia (ESTASE 2, BIOCAL, MUSORSTOM 3 and 4). In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, Volume 8. *Mém. Mus. natn. Hist. nat.*, (A), 151 : 83-90. Paris ISBN : 2-85653-186-5.

Publié le 8 novembre 1991.

INTRODUCTION

The species examined were collected during a survey of the bathyal fauna of seas off the coast of the Philippines (mission ESTASE 2 and MUSORSTOM 3) and near New Caledonia (mission BIOCAL and MUSORSTOM 4). The ESTASE and BIOCAL cruises, conducted aboard the "*Jean Charcot*", were organized by the Pirocean, CNRS. The first was under the leadership of Pr Laurent LABEYRIE and the second of Pr Claude LEVI. The MUSORSTOM cruises were conducted on the "*Coriolis*" and were organized by the Muséum national d'Histoire naturelle (Paris) and the Institut de Recherche scientifique en Coopération (ORSTOM). MUSORSTOM 3 was under the leadership of Pr Jacques FOREST and MUSORSTOM 4 of Dr Bertrand RICHER de FORGES. The specimens were sorted and sent for identification by the Centre national de Tri d'Océanographie biologique (CENTOB) at Brest.

The few sipunculans of the ESTASE cruise were collected at depths of over 2000 m from waters off the west coast of Luzon (Philippines). About 40 sipunculans were obtained during the MUSORSTOM 3 cruise from seas also near the Philippines, all from depths less than 1000 m. The commonest species in the two lots of material was *Sipunculus robustus* Keferstein. The BIOCAL and MUSORSTOM 4 collections were made from off the west coast of New Caledonia, that of the BIOCAL usually from depths of over 1000 m and that of MUSORSTOM 4 from less than 500 m. The largest collection was that of BIOCAL and the commonest species *Nephasoma diaphanes* (Gerould) and *Onchnesoma magnibathum* Cutler. Many of the BIOCAL specimens were small, some very small. They were obtained with the aid of a binocular microscope from sand and mud collected during dredging. The MUSORSTOM 4 specimens, on the other hand, were larger and consisted mainly of *Sipunculus robustus* Keferstein.

No new species were found. The collection contained only two echiurans, both damaged.

The letters CP, DW, etc., that appear in the Station lists in the following account refer to the type of gear used to collect the specimens: SP = Beam Trawl, DW = Waren Dredge, DS = Sanders epibenthic Dredge, KG = Usnel Core Sampler.

The material is deposited in the collection of

the Muséum national d'Histoire naturelle, in Paris, and is registered under the numbers UC 98 to UC 159, except for one specimen of *Nephasoma flagiferum* (Selenka, 1885) which has been deposited in the South Australian Museum as E 1852.

DESCRIPTION OF SPECIES

Nephasoma diaphanes (Gerould), 1913

Phascolosoma diaphanes Gerould, 1913 : 395.

Golfingia minuta (in part) of several authors (listed in CUTLER & CUTLER, 1986 : 557).

Golfingia improvisa - EDMONDS, 1976 : 222. Non Théel, 1905.

Nephasoma diaphanes - CUTLER & CUTLER, 1986 : 557.

MATERIAL EXAMINED. — **Philippines.** ESTASE 2 : stn DW 01, 14.11.1984, 14°05.16' N-120°01.46' E, 2 200 m : 2 spms.

MUSORSTOM 3 : stn DR 94, 01.06.1985, 13°47' N-120°03' E, 842 m : 1 spm. — Stn DR 102, 01.06.1985, 14°00' N-120°18' E, 192 m : 1 spm. — Stn CP 125, 04.06.1985, 11°57' N - 121°45' E, 388-404 m : 1 spm. — Stn CP 139, 06.06.1985, 11°52.9' N-122°14.7' E, 240-267 m : 2 spms.

New Caledonia. BIOCAL : stn CP 13, 12.08.1985, 20°18.55' S-167°17.65' E, 3 690 m : 2 spms. — Stn CP 17, 14.08.1985, 20°34.54' S - 167°24.68' E, 3 680 m : 2 spms. — Stn CP 57, 01.09.1985, 23°43.26' S-166°58.06' E, 1 490 m : 2 spms. — Stn CP 72, 04.09.1985, 22°09.02' S-167°33.18' E, 2 100 m : 2 spms. — Stn KG 85, 06.09.1985, 20°59.24' S-167°00.18' E, 1 639 m : 1 spm. — Stn KG 92, 07.09.1985, 21°14.20' S-166°40.75' E, 2 320 m : 1 spm.

MUSORSTOM 4 : stn DW 149, 14.09.1985, 19°07.6' S-163°22.7' E, 165 m : 8 spms. — Stn DW 150, 14.09.1985, 19°07.5' S-163°22.1' E, 110 m : 6 spms.

DESCRIPTION. — Most specimens small and slender, a few contracted and twisted. Length of trunk 3-7 mm, maximum width 0.6-1.3. Body wall thin and almost transparent, especially of specimens removed from shells or tubes. Introvert about as long as trunk, slender, swollen near its extremity and bearing a number of very small, single-pointed, clear hooks. Tentacles reduced to a few, small, protuberances. Musculature of trunk wall continuous. Two retractor muscles attached to the coelomic wall in posterior half of trunk. Spindle muscle not fixed posteriorly. Two free nephridia. Posterior surface of trunk bears a

number of almost cylindrical papillae which often arise from an hemispherical base.

DISCUSSION. — There seems little doubt that the specimens from New Caledonia and the Philippines are the same species as those dredged at 600-660 m off Otago Peninsula, New Zealand and described by EDMONDS (1976) as *Golfingia improvisa* (Théel, 1905), a species eventually absorbed in the synonymy of *Nephasoma minutum* (Keferstein, 1863). GIBBS (1985) and CUTLER & CUTLER (1986) now hold that there are two closely allied species, one a shallow water, hermaphroditic species *Nephasoma minutum* (Keferstein, 1863) and the other an almost transparent, deep water species *Nephasoma diaphanes* (Gerould, 1913). The specimens from New Caledonia and the Philippines are consequently considered to be *N. diaphanes*. CUTLER & CUTLER (1986) also placed MURINA's 1972 record of *Colfingia minuta* collected off the coast of New South Wales, Australia, in the synonymy of *N. diaphanes*.

DISTRIBUTION. — Widely distributed, especially in bathyal regions.

Nephasoma flagiferum (Selenka, 1885)

Phascolosoma flagiferum Selenka, 1885 : 13-16.

Golfingia flagifera - MURINA, 1968 : 196.

Nephasoma flagiferum - CUTLER & CUTLER, 1986 : 561.

MATERIAL EXAMINED. — **New Caledonia.** BIOCAL : stn DS 98, 07.09.1985, 21°24.10' S-166°29.76' E, 2 365 m : 1 spm.

DESCRIPTION. — Specimen slender. Length of trunk 10 mm, width 0.7-1.0. Introvert about as long as trunk but only about 0.7 extended. Body wall so thin that most of the internal structures visible when viewed with transmitted light. Posterior region of trunk (1) bears numerous large, swollen papillae with the tips of most directed anteriorly and (2) tapers to a slender tail which is without papillae. Trunk papillae otherwise small, flat and almost inconspicuous. No hooks are present on the introvert and no information about the tentacles can be given. Two retractor muscles arise in the middle of the trunk. Two nephridia are fixed slightly anterior to the anus.

Contractile vessel inconspicuous and no villi apparent.

DISCUSSION. — This specimen with two retractors and lacking contractile villi is a *Nephasoma*. The nature of its caudal appendage and the distribution of its papillae indicate that it is *N. flagiferum* (Selenka), a species first recorded from very deep water off Japan.

DISTRIBUTION. — CUTLER & CUTLER (1986) say that it is "an abyssal species (few bathyal records) common in the North Atlantic, present in the South Atlantic and Pacific".

Nephasoma sp.

MATERIAL EXAMINED. — **Philippines.** MUSORSTOM 3 : stn DR 94, 01.06.1985, 13°47' N-120°03' E, 842 m : 2 spms. — Stn CP 143, 07.06.1985, 11°28.3' N-124°11.6' E, 205-214 m : 2 spms.

DESCRIPTION. — Specimens small to very small. Trunk 2-7 mm, long, 1.5-2.5 wide, cylindrical to plump and pyriform, off-white in colour but darker on anterior and posterior surfaces ; opaque. Posterior extremity rounded. Introvert not fully extended but estimated to be about as long as the trunk. A dissected introvert shows the presence of some short tentacles and blunt hooks. The latter do not lie in rows and possess a dark yellow-brown, perhaps 'chitinised', surface layer. They are noticeably larger, stronger, more robust and claw-like than those of *N. diaphanes*. The largest is 0.05-0.06 mm long; measured in a straight line from the tip to the most distant point on its base. Papillae on the introvert and anterior trunk are flat and inconspicuous but those on the posterior surface are larger, taller, hemispherical to mamillate, as much as 0.10 mm in diameter and in height. Their surface layer consists of numerous very small granules and at their tip there is a small opening surrounded by a narrow, clear area. Longitudinal musculature continuous. Two retractors arise from the middle third of the trunk. Two nephridia present and the contractile vessel lacks villi.

DISCUSSION. — There is some uncertainty about the identity of these specimens of *Nephasoma*. In possessing 2 retractors, short stubby

tentacles, blunt 'chitinised' hooks and inconspicuous papillae on the introvert and anterior trunk, they resemble *N. confusum* (Sluiter, 1902 : 38), a species collected at two Siboga Stations at 173 and 567 m. The papillae on the posterior surface of the MUSORSTOM specimens, however, are larger than those on the rest of the animal and are covered with fine granules. DITADI & MIGOTTO (1981) redescribed *N. confusum* from a population of the worm living on the coast of northern Brazil. The MUSORSTOM specimens, although small, seem to lack the skin bodies described for *N. confusum* by DITADI & MIGOTTO. On account of the small number and size of the specimens in the MUSORSTOM collection it is probably best not to attempt a specific identification.

Golfingia margaritacea (Sars, 1851)

Sipunculus margaritaceus Sars, 1851 : 196.

Golfingia margaritacea - CUTLER & CUTLER, 1987 : 743.

MATERIAL EXAMINED. — **Philippine**. ESTASE 2 : stn CP 06, 05.12.1984, 14°05.10' N-119°49.20' E, 2 570 m : 1 spm.

New Caledonia. MUSORSTOM 4 : stn DW 227, 30.06.1985, 22°46.0' N-167°20.0' E, 300 m : 1 spm.

DESCRIPTION. — Both specimens contracted and introvert retracted. Trunk of larger 25 mm long, maximum width 3.8. Longitudinal musculature continuous. Dissection of the one introvert shows that the tentacles are finger-like and that no hooks are present. Four retractors arise in the middle third of the trunk, the dorsal pair being weaker and placed more anteriorly. Trunk papillae not quite uniformly distributed and are slightly larger at the posterior extremity of the specimens. No contractile villi. No caudal appendage.

DISCUSSION. — The specimens match THÉEL's (1905) description of the species. WESENBERG-LUND (1955 : 200) says that *G. margaritacea* is "is a widely distributed species, most probably cosmopolitan".

DISTRIBUTION. — Widely distributed and capable of living in deep water (WESENBERG-LUND, 1955 ; CUTLER & CUTLER, 1987).

Onchnesoma magnibathum Cutler, 1969

Onchnesoma magnibathum Cutler, 1969 : 71.

MATERIAL EXAMINED. — **New Caledonia**. BIOCAL : stn KG 86, 06.09.1985, 21°00.99' S-166°57.75' E, 1 860 m : 3 spms. — Stn KG 92, 07.09.1985, 21°14.20' S-166°40.75' E, 2 320 m : 1 spm. — Stn KG 96, 07.09.1985, 21°23.10' S-166°29.65' E, 2 377 m : 2 spm. — Stn DS 98, 07.09.1985, 21°24.10' S-166°29.76' E, 2 365 m : 1 spm. — Stn KG 101, 08.09.1985, 21°26.51' S-166°24.43' E, 1 790 m : Stn DS 04, 11.09.1985, 21°15.88' S-166°39.39' E, 2 340 m : 3 spms.

DESCRIPTION. — Specimens small, elongate-pyriform in shape, more cylindrical than *Onchnesoma squamatum* and golden yellow. Length of trunk 2.0-3.5 mm, maximum width 0.8-1.4. Introvert estimated to be about twice as long as trunk and not as sharply marked off from the trunk as that of *O. steenstrupi* or *O. squamatum*. Posterior of trunk bluntly pointed and its surface is marked by a number of longitudinal furrows or ridges radiating from the posterior tip of the trunk. Much of the body wall is thin and fragile (especially that of the mid-trunk) so that much of the intestine and retractor musculature is apparent through its almost transparent walls. Papillae on body wall and introvert not readily noticeable. Attempts to dissect two specimens were only partly successful on account of their small size and fragility. Only one retractor and small nephridium present. No anus observed on the trunk wall but where it is placed on the introvert was not able to be determined. No other details about the internal anatomy and tentacles can be given.

DISCUSSION. — These specimens with a single retractor muscle and single nephridium correspond very closely to *O. magnibathum* Cutler, 1969, a species collected at 3 750 m to 4 980 m in the Atlantic Ocean. I am indebted to Dr. E. B. CUTLER who kindly confirmed the identification of these small animals.

DISTRIBUTION. — Best known from Atlantic Ocean at depths of 3 000 to 4 980 m. Also collected from the Peru-Chile Trench in the Pacific. Now from the western Pacific.

Onchnesoma squamatum oligopapillosum
Cutler, Cutler & Nishikawa, 1984.

Onchnesoma squamatum oligopapillosum Cutler, Cutler & Nishikawa, 1984 : 281.

MATERIAL EXAMINED. — **New Caledonia.** BIOCAL : stn DW 51, 31.08.1985, 23°05.27' S-167°44.95' E, 700 m : 1 spm. — Stn KG 103, 08.09.1985, 21°29.15' S-166°19.97' E, 630 m : 4 spms.

DESCRIPTION. — Trunk small, pear, globular to oblate in shape and golden brown ; length 2.5 to 4 mm, maximum width 1.0 to 2.6 mm. Posterior region bluntly pointed or rounded but without longitudinal folds, ridges or furrows. Surface of trunk bears sparsely scattered, rather flat papillae. Introvert (extended in only one specimen) 8 mm long and very slender. Its anterior extremity, however, is damaged so that no tentacles were observed and the position of the anus not ascertained. One nephridium and one rather stout retractor muscle present. Intestine irregularly coiled and whether it is fixed to the retractor for the whole or only part of the latter was not able to be determined.

DISCUSSION. — The size and shape of the specimens and the presence of one retractor and one nephridium indicate that they are *Onchnesoma*. Two of their characters are (1) the absence of longitudinal keels or ridges on the posterior surface of the trunk and (2) the presence of only a few, scattered papillae, very much reduced in numbers on the mid and posterior trunk regions. Using the key to *Onchnesoma* drawn up by CUTLER & CUTLER (1985) the specimens are *O. squamatum oligopapillosum* Cutler, Cutler & Nishikawa, 1984, a species dredged from the East China Sea.

DISTRIBUTION. — Pacific side of Honshu, Japan. Now from New Caledonia.

Phascolion rectum Ikeda, 1904

Phascolion rectum Ikeda, 1904 : 15-18. — CUTLER, CUTLER & NISHIKAWA, 1984 : 278. — CUTLER & CUTLER, 1985 : 832.

MATERIAL EXAMINED. — **Philippines.** ESTASE 2 : stn CP 02, 14.11.1984, 14°05.10' N-120°02.46' E, 2 050 m : 1 spm.

MUSORSTOM 3 : stn DR 95, 01.06.1985, 13°56' N-119°59' E, 865 m : 2 spms.
(all specimens found in the shells of *Dentalium* sp.)

DESCRIPTION. — Specimens of moderate size, yellow-brown, greatest width anteriorly and minimum posteriorly. Length of trunk 18 to 22 mm, maximum width 2 to 2.4. Body wall thin except at base of introvert and at posterior of trunk. Introvert only partly extended but estimated to be about twice as long as the trunk. No hooks or spines on two introverts when dissected. Short tentacles present. The papillae or "holdefasts" in mid-region of trunk lack hardened or "chitinised" parts. One broad retractor arises without any splitting at the posterior extremity of the trunk. Nephridium single. Intestinal coils with two upward loops (fastened at both their highest and lowest points) and an irregularly wound spiral. Anus on anterior dorsal surface of trunk and not on introvert. Contractile vessel inconspicuous.

DISCUSSION. — These specimens of *Phascolion* fall in the subgenus *Lesenka* Gibbs, 1985, which, according to CUTLER & CUTLER, 1985, contains five species, namely *P. collare*, *P. cryptum*, *P. hupferi*, *P. rectum* and *P. valdiviae*. Of these they resemble most the last three. I am assigning them, with reservations, to *P. rectum*, not a well known species. The holotype was collected from a *Dentalium* shell at 650 m in Sagami Bay, Japan.

Aspidosiphon (Aspidosiphon) inquilinus
Sluiter, 1902

Aspidosiphon inquilinus Sluiter, 1902 : 29-30. — EDMONDS, 1980 : 47, 49.

MATERIAL EXAMINED. — **Philippines.** MUSORSTOM 3 : stn CP 106, 02.06.1985, 13°52' N-120°30' S, at 640-668 m : 2 spms.
(both specimens in shells of *Dentalium* sp.)

DESCRIPTION. — Specimens long and slender, tending to taper at posterior, pale yellow with dark brown shields. Length of trunk 10 and 16 mm, width 1.1 and 2.0 mm. Introvert completely invaginated. Longitudinal musculature continuous. Anal shield almost triangular, marked dorsally with short furrows surmounted by an area of wartlike papillae consisting of ran-

domly arranged plates. A few papillae are pointed but none to the extent shown in fig. 82 of EDMONDS (1980). The caudal shield is weaker, conical and slightly furrowed.

A dissected introvert revealed the presence of some very small single-pointed hooks, some single-pointed spines and some small conical papillae. Two nephridia present, free for about half of their length. Retractor muscle single for most of its length but actually arising from two short roots fastened near the posterior of the trunk. Spindle muscle attached posteriorly but no fixing muscles observed.

DISCUSSION. — *A. inquilinus* is not a well known species. SLUITER (1902) described it from the Timor Sea (8°25.2' S-137°18' E at 27-54 m) and EDMONDS (1980) from Moreton Bay, Queensland, Australia. CUTLER, CUTLER & NISHIKAWA (1984 : 307) consider that *A. inquilinus*, *A. jukesii* (Baird, 1873), *A. kowaleski* Murina, 1964 and *A. muelleri* Diesing, 1851 comprise a complex of morphologically similar species. There is, however, a good correspondence between these MUSORSTOM specimens and the holotype of *A. inquilinus* re-examined by EDMONDS (1980).

DISTRIBUTION. — From *Dentalium* shells. Timor Sea (Siboga Expedition). Moreton Bay (near Brisbane), Australia and now the Philippines.

Aspidosiphon (Paraspidosiphon) steenstrupi
Diesing, 1859

Aspidosiphon (Paraspidosiphon) steenstrupi Diesing, 1859.

MATERIAL EXAMINED. — **Philippines.** — MUSORSTOM 3 : stn CP 93, 01.06.1985, 13°48.6' N-120°02.4' E, 540 m : 2 spms.

DESCRIPTION. — Specimens small, rather stout, slightly brown with well-developed shields, the latter consisting of wartlike papillae with some furrowing, especially around the margins of the shields. Length of trunk 5-7 mm, maximum width 1.7-2.2. Introvert of both specimens completely invaginated. Dissection of introvert showed the presence of some double-pointed hooks and some single-pointed spines. The markings on the hooks show a reasonable correspondence with those of *A. steenstrupi*. Longitu-

dinal musculature of body wall forms bundles and shows some anastomosis. Retractor muscle single and stout but actually arising from two short but broad roots fastened posteriorly at the extremity of the trunk. Rectum long. Spindle muscle fixed posteriorly. Two brown, almost free nephridia about three quarters of the length of the trunk.

DISCUSSION. — *A. steenstrupi* is well known from warm shallow waters and is often found in coral. The present specimens were collected from 540 m. CUTLER (1977) in reporting the species from depths of 425 and 1 250 m remarked that such depths are unusual for the species.

DISTRIBUTION. — Known from most warm water regions of the world.

Sipunculus robustus Keferstein, 1865

Sipunculus robustus Keferstein, 1865. — EDMONDS, 1980 : 9.

MATERIAL EXAMINED. — **Philippines.** MUSORSTOM 3 : stn CP 99, 01.06.1985, 14°00' N-120°19' E, 196-204 m : 4 spms. — Stn CP 100, 01.06.1985, 14°00' N-120°18' E, 189-199 m : 4 spms. — Stn CP 101, 01.06.1985, 14°00' N-120°19' E, 194-196 m : 5 spms. — Stn CP 103, 01.06.1985, 14°00' N-120°18' E, 193-200 m : 2 spms. — Stn CP 105, 02.06.1985, 13°52' N-120°30' E, 398-417 m : 2 spms. — Stn CP 108, 02.06.1985, 14°00' N-120°18' E, 188-205 m : 3 spms. — Stn CP 111, 02.06.1985, 14°00' N-120°18' E, 193-205 m : 1 spm. — Stn CP 112, 02.06.1985, 14°00' N-120°18' E, 187-199 m : 1 spm. — Stn CP 143, 07.06.1985, 11°28.3' N-124°11.6' E, 205-214 m : 1 spm.

New Caledonia. MUSORSTOM 4 : stn 148, 14.9.1985, 19°23.4' S-163°31.9' E, 58 m : 1 spm. — Stn 194, 19.09.1985, 18°52.8' S-163°21.7' E, 545 m : 1 spm. — Stn 236, 02.10.1985, 22°11.3' S-167°15.0' E, 195-550 m : 1 spm. — Stn 239, 02.10.1985, 22°14.8' S-167°15.7' E, 470-475 m : 1 spm. — Stn 241, 03.10.1985, 22°09.0' S-167°12.2' E, 470-480 m : 1 spm. — Stn 246, 03.10.1985, 22°08.5' S-167°11.5' E, 410-420 m : 1 spm.

DESCRIPTION. — Specimens stout and cylindrical with almost uniform width. A few have a well developed glans at their posterior extremity. Trunk of largest measures 110 × 11 mm. Longitudinal muscles of trunk wall 27 (26) to 29 (30) with little anastomosing. Gut with a "sipunculus loop" anteriorly and fine, thread-like dorso-lateral processes arising from a bilobed brain.

DISTRIBUTION. — The species is well known in the western Pacific area, including all coasts of Australia. *S. robustus* is an Indo-Pacific species.

Note on the ECHIURA collected

Of the two echiurans present one a bonelliid (family Bonelliidae) was collected from New Caledonia (BIOCAL, Stn CP 30, 23°08.44' S, 166°40.83' E at 1 100 m). Trunk cylindrical, off-white in colour, 17 mm long and about 3 wide. Unbranched proboscis 7 mm long and 2 wide, surrounded basally with a collar. Setal muscles present but setae lost. Single nephridium still

present but most of the alimentary canal missing. Anus posterior but no sign of anal vesicles.

The other collected from the Philippines (MUSORSTOM 3, Stn CP 112, 14°00' N-120°18' E at 187-199 m) was an *Anelassorhynchus* sp. Trunk sac-like, 47 mm long and about 15 wide, split open with most of its contents spilled. Proboscis missing. Setae missing but setal muscles present. Three nephridia (two pairs ?) with weakly coiled nephrostomal lips. Longitudinal musculature of body wall continuous. Only one tubular anal vesicle found. The proboscis of some *Anelassorhynchus* possess gill or dendritic outgrowths along their margins while others do not. Because the proboscis of the MUSORSTOM specimen is missing no specific identification can be given.

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ADDENDA

Since this paper was written I received the sipunculids collected during the BIOGEOCAL cruise mainly in the Loyalty Basin (see RICHER de FORGES, 1990 : 21).

As would be expected the species of the new collection are mostly the same as those already studied but there are two exceptions. *Sipunculus robustus*, so common in the BIOCAL samples, is missing in the BIOGEOCAL collection although similar collecting methods seem to have been used. On the other hand, *Phascolion tuberosum* Théel, 1875, found in 5 samples, has not been recorded previously from the New Caledonian area. I comment on it here.

Phascolion tuberosum Théel, 1875

- Phascolion tuberosum* Théel, 1875 : 15.
Phascolion temporariae Edmonds, 1976 : 217. —
 CUTLER & CUTLER, 1985 : 835.

MATERIAL EXAMINED. — **New Caledonia**. BIOGEOCAL : stn CP 238, 21°27.64' S-166°23.41' E, 1 260 m, 13.04.87 : 1 spec. — Stn KG 262, 21°04.09' S, 167°00.04' E, 1 760-1 870 m, 18.04.1987 : 1 spec. — Stn CP 272, 21°00.04' E — 166°56.94' E, 1 615-1 710 m, 20.04.1987 : 1 spec. — Stn CP 317, 20°48.12' S-166°53.16' E, 1 630-1 620 m, 2.05.1987 : 1 spec. — Stn CP 321, 21°12.04' S-166°59.85' E, 2 190-2 205 m, 3.05.1987 : 1 spec.

REMARKS. — All of the specimens were found in the shells of *Dentalium* sp. EDMONDS (1976) identified some specimens found in the tubes of a serpulid worm collected off Otago, New Zealand, as *Phascolion temporariae*. He reported that the species was closely related to *P. tuberosum* but differed in that the trunk papillae were single pointed. CUTLER & CUTLER now consider that *P. temporariae* is a junior synonym of *P. tuberosum*. The latter is well known in the north Atlantic waters. The present record is the second from the Pacific.



Edmonds, Stanley Joe. 1991. "Sipunculoidea and Echiuroidea : Sipunculans and Echiurans from the Philippines and New Caledonia (Estase 2, Bioccal, Musorstom 3 and 4)." *Mémoires du Muséum national d'histoire naturelle* 151(1), 83–90.

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