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NEW RECORDS OF SOME PELAGIC POLYCHAETES FROM THE ARABIAN SEA AND FROM KAVARATTI AND KALPENI ATOLLS (LACCADIVES)

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(With 3 Text-figs.)

INTRODUCTION

As a part of the oceanographic survey of the Laccadive Islands, plankton samples were collected in 1968 during two cruises to Kavaratti (10°33′N ; 72°36′E) and Kalpeni (10°04′N ; 73°38′E) Islands. These two islands are from the Laccadives which include a chain of atolls in the Arabian Sea, about 300-Km from the southwest coast of India. The polychaete fractions of the samples were sorted out from the collections and studied. Of the 74 samples, 50 were found to contain pelagic polychaetes. Fifteen species belonging to four different families were identified and their distribution was studied.

During the second cruise of 1968, 44 stations were sampled. These included 24 underway stations (Table 1a) and 20 atoll stations at Kavaratti (Table 1b). The underway sampling was done by using a "Plankton Pump" (IOBC Hand Book Vol. III) and the atoll stations were sampled by using a square mouthed version of the WP2 Net (Unesco, 1968) which was made of bolting nylon of 0.2 mm mesh width and had a mouth area of 0.25 m^2 (IOBC Hand Book Vol. III) During the fifth cruise (Table 2) the survey was further carried out at Kalpeni, both within the lagoon and around the atoll, using the same modified version of WP2-Net, but having a mesh width of 0.33 mm. The number of specimens mentioned in this report refers to only half of the samples, as these were halved with the Falsom Plankton Splitter. The other half was used for biomass estimation of total zooplankton.

SYSTEMATICS AND DISTRIBUTION

Much information exists on the systematics of pelagic polychaetes. Notable references are of Stop-Bowitz (1948), Dales (1957) and Tebble (1960, 1962).

Of the fifteen species found in the collections examined three species were new records from Indian Waters.

Family ALCIOPIDAE

Members of this family are exclusively pelagic, transparant and extremely fragile and hence only damaged specimens were frequently present in the samples. The family was represented in the collections by four species.

Torrea candida (Delle Chiaji)

1828. *Alciopa candida* Delle Chiaji, *Discrizione Sulla Storia e notornia degli animale senza vertebro del regno di Napali,* 3: 88.
Torrea candida Dales and Peter, *J. nat. Hist.* (in press).

Occurrence.—Station numbers 56, 81, 86, 87 and 88 of the cruise LA5/68.

All specimens were small head fragments, the largest measured 10 mm in length upto 15th segment, 1.1 mm in width excluding parapodia and 2.7 mm including parapodia and bristles.

This is not a widely distributed species in the area. All the 7 specimens obtained during night hauls, 6 were from the open ocean, and one from the lagoon at Kalpeni. Curiously enough none was obtained outside the atolls or from the subcontinental coast.

Distribution.—Mediterranean Sea, Atlantic, Pacific and Indian Oceans.

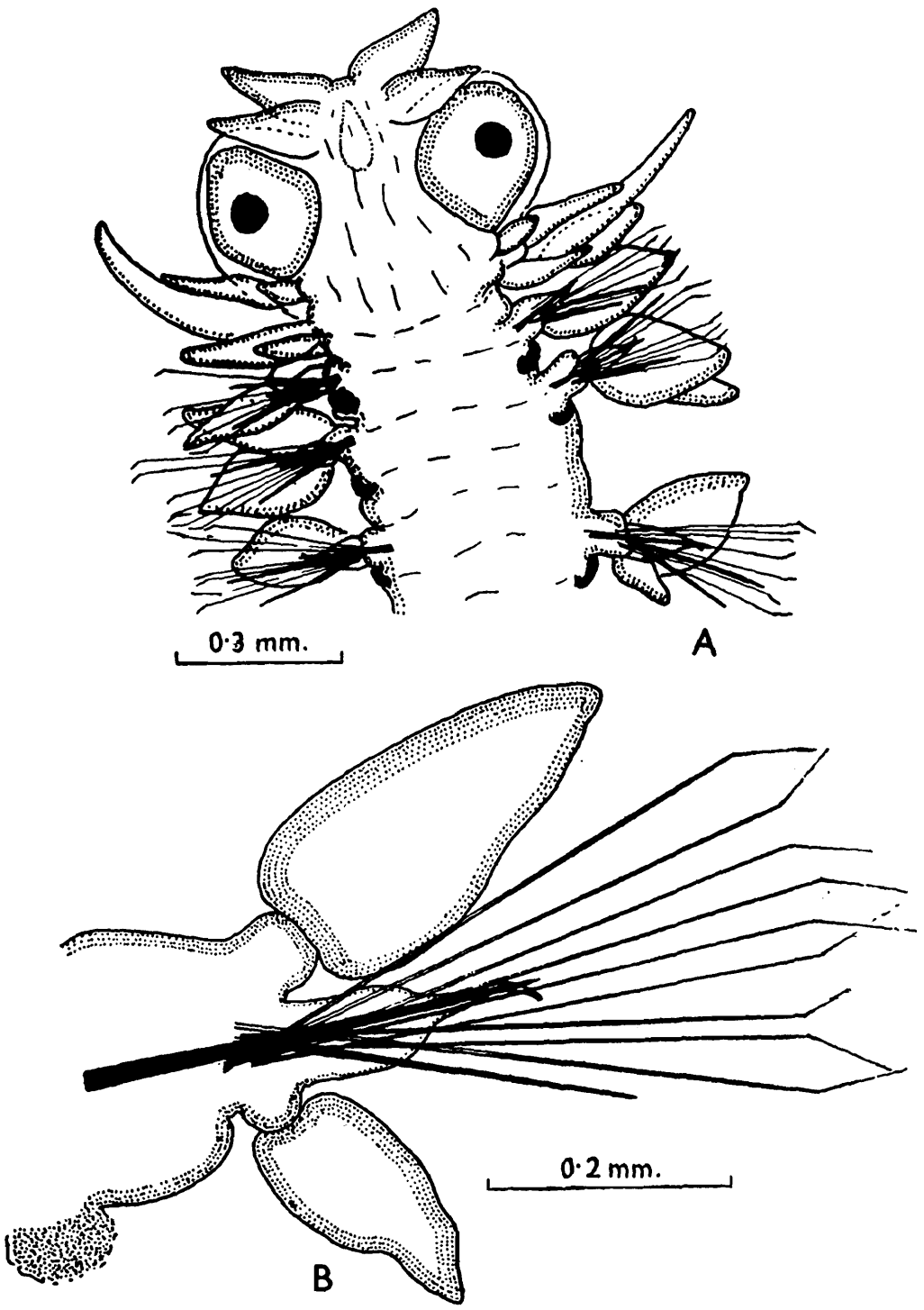
Rhynchonerella gracilis Costa

1862. *Rhynchonerella gracilis* Costa, *Anneli Mus. zool. Napoli,* 1: 168.
Rhynchonerella gracilis Dales and Peter, *J. nat. Hist.* (in press).

Three specimens from the open ocean near Kalpeni Island were collected. All were head fragments. The specimen described was 2.7 mm long upto 13th segment and 1.2 mm wide including parapodia and bristles.

Body long, slender, prostomium club shaped, extending beyond eyes, carrying 5 antennae; eyes large and globular

(Fig. 1a) ; 5 pairs of tentacular cirri ; all segments chaetigerous ; all parapodia carry foliaceous dorsal and ventral cirri ; pedal lobe ends in a cirriform appendage (Fig. 1b) ; two types of bristles : simple acicular—two each in anterior feet and one each in posterior ones, and long compound capillaries on all feet ; brownish segmental glands on all segments.



Text-fig. 1A. *Rhynchonerella gracilis* (ventral view of anterior region).
B. 5th parapodium.

This was originally recorded from the Gulf of Naples (Costa, 1862). Subsequently it was recorded from the Mediterranean Sea (Wesenberg Lund, 1939), North Atlantic Ocean (Stop-Bowitz, 1948), Pacific Ocean (Dales, 1957) and North Pacific (Tebble, 1962). The species is now reported for the first time from the Indian waters.

Plotohelmis capitata Greeff

1876. *Rhynchonerella capitata* Greeff, *Nova Acta Leopold-Carolin, Akad. Naturf Dresden*, **39**: 74.
Plotohelmis capitata Dales and Peter, *J. nat. Hist.* (in press).

Occurrence.—Station numbers 28, 37 and 41 of cruise LA2/'68 and 62, 72, 78, 80, 81, 82, 83, 85, 86, 87 and 88 of cruise LA5/'68.

All head fragments; varies from 5 mm for 13 segments to 11 mm for 44 segments in length; width 0.5 mm excluding parapodia and bristles and 2 mm including it.

This was the most abundant alciopid in the area investigated. The fact that the maximum number of this species occurred in the open sea indicates that this is an oceanic form.

Distribution.—North and South Atlantic, Northwest Pacific and Indian Oceans and Mediterranean Sea.

Alciopina parasitica Claparede and Panceri

1867. *Alciopina parasitica* Claparede and Panceri, *Atti. Soc. ital. Sci. nat.*, **10**: 8:
Alciopina parasitica Dales and Peter, *J. nat. Hist.* (in press).

Occurrence.—Station numbers 56, 69, 78, 80, 81, 82, 83 and 85 of cruise LA5/'68.

Biggest specimen 8.9 mm for 32 segments and 1 mm wide without parapodia and bristles. Out of the total of 13 specimens 11 were from oceanic waters north and south of Kalpeni, one from the lagoon and the other from outside the atoll. This was not present in the Kavaratti region.

Distribution.—Pacific Ocean, Atlantic Ocean and Indian Ocean.

Family TYPHLOSCOLECIDAE

All the three genera under this family were represented in the present material. The following five species were identified.

Travisiopsis coniceps (Chamberlin)

1919. *Plotobia coniceps* Chamberlin, *Mem. Mus. comp. Zool. Harvard,* **48**: 156.
Travisiopsis coniceps Dales and Peter, *J. nat. Hist.* (in press).

Occurrence.—Station number LA2/17/68.

The single specimen was collected from the open ocean between Kavaratti and Kalpeni Islands during night. The specimen was not in good condition, only the anterior region was well preserved. The head fragment was 2.3 mm long for 12 segments and 0.3 mm broad. This species closely resembled *Travisiopsis lobifera* and could be distinguished by the branched nuchal organs.

Distribution.—Pacific and South Atlantic Oceans.

Travisiopsis lobifera Levinsen

1885. *Travisiopsis lobifera* Levinsen, *Vidensk. selsk. Skr. Kbh.*, **3**: 336.
Travisiopsis lobifera Dales and Peter, *J. nat. Hist.* (in press).

Occurrence.—Station numbers 21, 28, 32, 37, 38, 39, 43, 44 and 46 of cruise LA2/68.

This was the most abundant species found in the Laccadive region. 38 specimens were collected from the area examined. All were small and juveniles. Largest specimen measured 5.1 mm for 21 segments with a width of 0.6 mm including parapodia. The species was characterized in the adults with segments varying from 18 to 21.

This species was represented both in open ocean and in the atoll waters of Kalpeni. Two specimens were recorded from the lagoons.

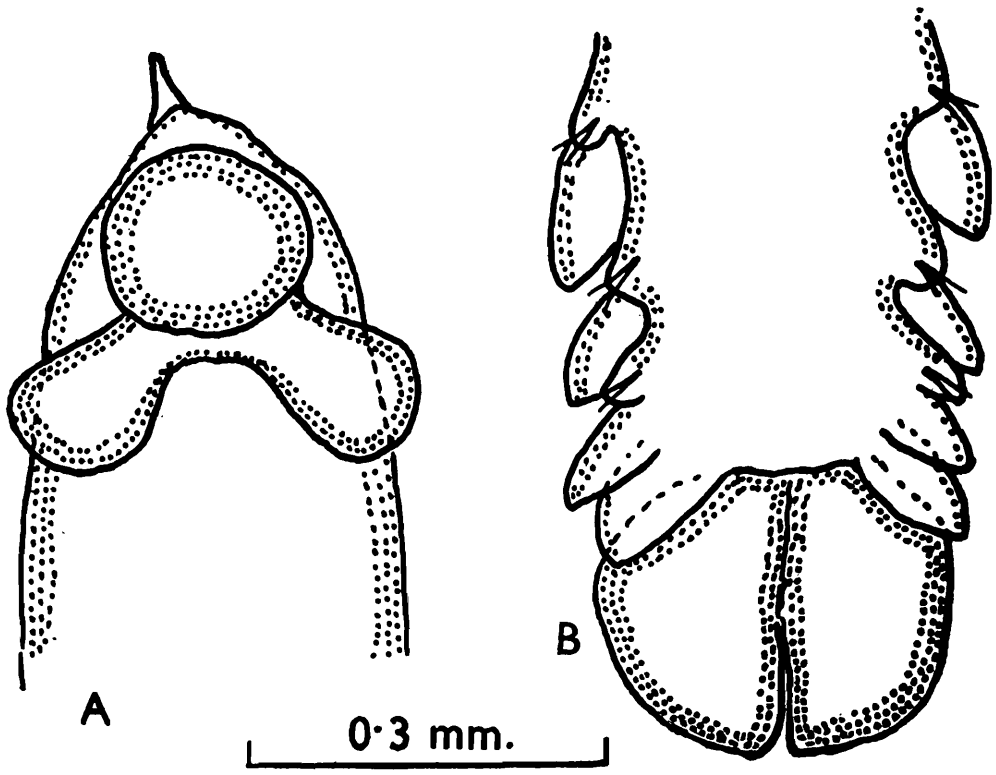
Distribution.—North Atlantic, Pacific and Indian Oceans.

Travisiopsis levinseni Southern

1910. *Travisiopsis levinseni* Southern, *Ann. Mag. nat. Hist.*, (8) **5**: 429.
Travisiopsis levinseni Dales and Peter, *J. nat. Hist.* (in press).

The single specimen was from the station number LA2/21/68. It was quite small and had a length of 4.9 mm for 24 segments, and a width of 0.6 mm including parapodial cirri.

Body fusiform, small and delicate ; prostomium conical ; caruncle almost rounded (Fig. 2a) surrounded by prominent nuchal organs projecting outward obliquely ; parapodial cirri large and cordiform ; 2-3 simple chaetae were found on every segment from 5th ; anal cirri long and oval (Fig. 2b).



Text-fig. 2A. *Travisiopsis levinseni* (dorsal view of anterior region).
B. Posterior region.

The original record of the species from North Atlantic by Southern (1910) was from 650-750 fathoms. Dales' (1957) record from the Pacific was also from deep hauls (1000 m). All of the Stop-Bowitz's specimens from New Foundland were from below 1000 m. But curiously enough the present record, for the first time made from the Arabian Sea, is from the surface waters.

Typhloscolex mulleri Busch

1851. *Typhloscolex mulleri* Busch, *Boebachtungen uber Anatomie und Entwichklung einiger wirbellosen seethiese. Berlin*: 115.
Typhloscolex mulleri Dales and Peter *J. nat. Hist.* (in press).

Occurrence.—Station numbers 21, 22, 28, 37, 39 and 41 of cruise LA2/68 and 67, 69, 73, 74, 75, 76, 79, 80, 81, 82, 83, 86 and 87 of cruise LA5/68.

Typhloscolex mulleri was quite abundant in the collections. Largest specimen was only 3.7 mm long for 24 segments and 0.5 mm wide. This species is well represented from Kavaratti and Kalpeni atolls, although most of the specimens come from oceanic waters off Kalpeni.

Distribution.—Cosmopolitan.

Sagitella kowalewskii Wagner

1872. *Sagitella kowalevskii* forme *A Wagner, Trav. nat. St. Petersburg (Trudy Obsch. estest. St. P.)* **3**: 342.
Sagitella kowalewskii Dales and Peter, *J. nat. Hist.* (in press).

Occurrence.—Station number LA5/74/68.

Occurs at Kalpeni Atoll. This species also enjoys a world wide distribution. The only specimen collected was 10 mm long for 32 segments and 1.1 mm wide.

Family PHYLLODOCIDAE

A number of worms belonging to this family are adapted to pelagic mode of life. In such forms the body is short and the total number of segments is few. This family was represented in the area under investigation by the following species.

Lopadorhynchus nationalis Reibisch

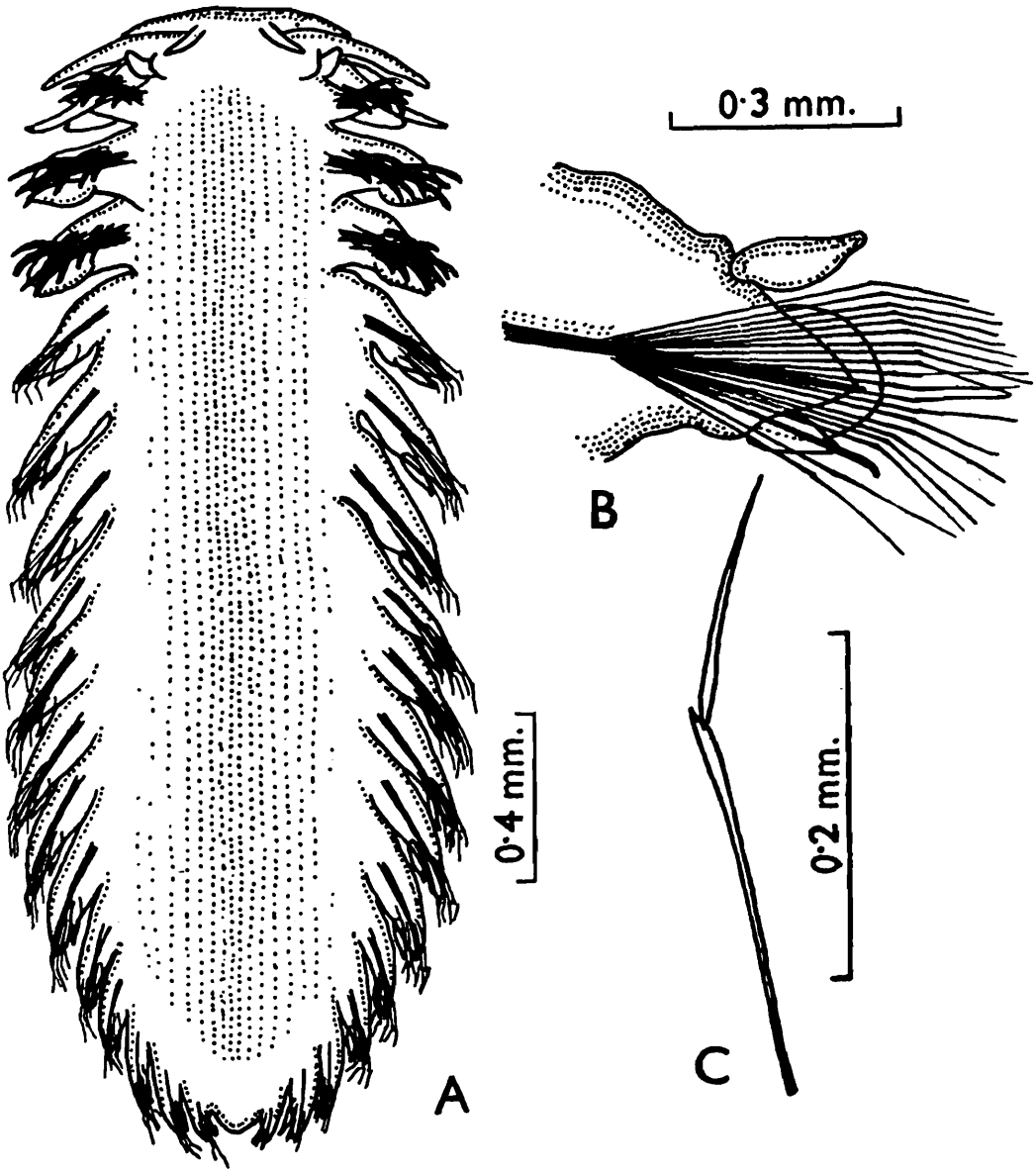
1895. *Lopadorhynchus nationalis* Reibisch *Ergebn. d. Plankton-Exped. Humboldt Stiftung,* II/c: 38.
Lopadorhynchus nationalis Dales and Peter, *J. nat. Hist.* (in press).

This single specimen taken from the surface haul at 0051 hours from Kalpeni Lagoon measured 2.8 mm in length for 16 segments and 1.0 mm in width.

This typical oceanic form did not show any variation from its counterparts which have been recorded from other regions of the world. Prostomium broad (Fig. 3a), carrying two long dorsal and two short ventral antennae ; eyes absent ; three pairs of tentacular cirri, first two pairs long and the third pair smaller, knob like ; parapodia uniramous ; anterior three pairs shorter and stouter, with dorsal and ventral cirri, carrying 6-8 simple, heavy acicular chaetae only ; other parapodia (Fig. 3b) carry only one or two simple chaetae embeded in a fan of compound chaetae in which the end pieces slightly flattened (Fig. 3c) ; parapodial cirri foliaceous and lanceolate.

This was first recorded from the equatorial part of the Atlantic Ocean by Reibisch (1895). Subsequently more specimens were recorded from Canary Islands and Azores (Fauvel, 1916) ; Peru (Chamberlin, 1919) ; Monaco (Fauvel, 1923) ; Mediterranean Sea (Wesenberg-Lund, 1939) ; North Atlantic Ocean (Stop-Bowitz, 1948) and Pacific Ocean (Dales, 1957).

This is the first record of the species from the Indian waters.



Text-fig. 3A. *Lopadorhynchus nationalis* (ventral view).
B. 5th parapodium enlarged.
C. Single compound bristle magnified.

Pelagobia longicirrata Greeff

1879. *Pelagobia longicirrata* Greeff, *Nova Acta Leopold—Carolin Akad. Naturf. Dresden,* **39**: 247.
Pelagobia longicirrata Dales and Peter, *J. nat. Hist.* (in press).

Occurrence.—Station number LA5/86/68.

The specimens were small, having a length of 3 mm for 13 segments and 0.8 mm in width including parapodia and

bristles. This widely distributed species occurs in oceanic waters south of Kalpeni Islands.

Distribution.—Pacific, Atlantic and Indian Oceans.

Phyllodoce castanea (Marenzellar)

1879. *Phyllodoce castanea* Marenzellar, *Denkschr. Akad. wissen., Wien,* **1**: 127.

1923. *Phyllodoce castanea* Fauvel, *Fauna de France,* **5**: 115.

Occurrence.—Station number LA2/'46/'68 and LA5/58/68.

This was not a truely pelagic form though very often it is found in the plankton collections. The larger of the two specimens collected, measured 17 mm for 118 segments and the other 12 mm for 52 segments, both being head fragments. The width was 1.6 mm including parapodia and bristles.

Distribution.—Cosmopolitan.

Family TOMOPTERIDAE

Like Alciopids and Typhloscolecids the members of this family are holopelagic. The representation of Tomopteridae in this area was poor, being represented by three species only.

Tomopteris (Johnstonella) nationalis Apstein

1900. *Tomopteris nationalis* Apstein, *Ergebn. d. Plankt. Exp.,* **11**(b): 41.
Tomopteris nationalis Dales and Peter, *J. nat. Hist.* (in press).

Occurrence.—Station number LA5/'85/'68.

Three specimens were recorded from this area. These were quite small, having a length upto 0.5 mm for 12 segments. All came from the night collections made in the open ocean, south of Kalpeni.

Distribution.—Mediterranean Sea, Atlantic and Pacific Oceans.

Tomopteris (Johnstonella) pacifica Izuka

1914. *Tomopteris pacifica* Izuka, *J. Coll. Sci. imp. Univ. Tokyo,* **36**: 11.
Tomopteris pacifica Dales and Peter, *J. nat. Hist.* (in press).

Occurrence.—Station number LA5/'88/'68.

The Single specimen was 6 mm long (7.5 mm including tail) and 2.2 mm wide having 11 segments. It was recorded off Kalpeni Island.

Distribution.—Though widely distributed it is abundant in colder waters of the North Pacific Ocean.

Tomopteris (Tomopteris) cavallii Rosa

1907. *Tomopteris cavallii* Rosa, *Monit. Zool. ital.*, **13**: 176.
Tomopteris cavallii Dales and Peter, *J. nat. Hist.* (in press)

Occurrence.—Station number LA5/78/68.

Collected from the open sea off Kalpeni, consisting of 13 segments with a length of 4 mm and a width of 1.9 mm including parapodia.

Distribution.—Widely distributed in the Pacific Ocean.

GENERAL REMARKS

Over 60% of the specimens of the present collection was from oceanic waters and only 33% from the atolls. This would indicate that the pelagic polychaetes are more confined to oceanic waters.

The occurrence of these worms showed that 80% of the specimens were collected at night. This may be because that these worms are capable of considerable vertical migratory movements. A detailed study of the vertical distribution of pelagic polychaetes should be very interesting.

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TABLE 1A—UNDERWAY SAMPLING STATIONS—CRUISE 2/68

STATION No.	Date	Time	POSITION Latitude	Longitude
LA 2/7/68	17.10.68	0452	10°57′N	75°40′E
LA 2/8/68	17.10.68	0610	11°13′N	75°35′E
LA 2/9/68	17.10.68	0835	11°15′N	75°46′E
LA 2/10/68	17.10.68	1100	11°15′N	75°46′E
LA 2/11/68	17.10.68	1400	11°15′N	75°46′E
LA 2/12/68	17.10.68	1800	11°14′N	75°35′E
LA 2/13/68	17.10.68	1910	11°11′N	75°23′E
LA 2/14/68	17.10.69	2000	11°08′N	75°15′E
LA 2/15/68	18.10.68	0435	10°55′N	74°00′E
LA 2/16/68	18.10.68	0530	10°53′N	73°45′E
LA 2/17/68	18.10.68	1925	10°08′N	73°20′E
LA 2/18/68	19.10.68	0445	10°35′N	72°33′E
LA 2/19/68	19.10.68	0540	10°35′N	72°37′E
LA 2/20/68	19.10.68	0645	10°33′N	72°37′E
LA 2/21/68	19.10.68	1800	10°24′N	72°39′E
LA 2/22/68	19.10.68	1925	10°09′N	72°42′E
LA 2/23/68	20.10.68	0450	08°43′N	72°56′E
LA 2/24/68	20.10.68	0645	08°24′N	73°04′E
LA 2/25/68	21.10.68	0515	10°05′N	74°40′E
LA 2/46/68	26.10.68	1700	10°20′N	74°02′E
LA 2/47/68	26.10.68	1900	10°16′N	74°23′E
LA 2/48/68	27.10.68	0440	10°06′N	75°23′E
LA 2/49/68	27.10.68	0550	10°03′N	75°41′E
LA 2/50/68	27.10.68	0710	10°00′N	76°00′E

TABLE 1B—ATOLL STATIONS AT KAVARATTI—CRUISE 2/68

STATION No.	Date	Time	POSITION Latitude	Longitude
LA 2/26 68	20.10.68	1742	10°33′N	72°36′E
LA 2/27/68	,,	1802	,,	,,
LA 2/28/68	,,	1828	,,	,,
LA 2/29/68	,,	1848	,,	,,
LA 2/30/68	,,	1918	,,	,,
LA 2/31/68	,,	1946	,,	,,
LA 2/32/68	,,	1956	,,	,,
LA 2/33/68	,,	2021	,,	,,
LA 2/34/68	,,	2102	,,	,,
LA 2/35/68	21.10.68	2251	,,	,,
LA 2/36/68	,,	2303	,,	,,
LA 2/37/68	,,	2329	,,	,,
LA 2/38/68	,,	2344	,,	,,
LA 2/39/68	22.10.68	0021	,,	,,
LA 2/40/68	22.10.68	0036	,,	,,
LA 2/41/68	,,	0109	,,	,,
LA 2/42/68	,,	0141	,,	,,
LA 2/43/68	,,	0151	,,	,,
LA 2/44/68	,,	0214	,,	,,
LA 2/45/68	,,	0238	,,	,,

TABLE 2—ATOLL STATIONS AT KALPENI—CRUISE 5/68

STATIONS			POSITION	
No.	Date	Time	Latitude	Longitude
LA 5/55/68	21.12.68	0010	10°04′S	73°36′E
LA 5/56/68	,,	0051	,,	,,
LA 5/57/68	,,	0121	,,	,,
LA 5/58/68	,,	0135	,,	,,
LA 5/59/68	,,	0209	,,	,,
LA 5/60/68	,,	0235	,,	,,
LA 5/61/68	,,	0254	,,	,,
LA 5/62/68	,,	0314	,,	,,
LA 5/66/68	24.12.68	0014	,,	,,
LA 5/67/68	,,	0040	,,	,,
LA 5/68/68	,,	0059	,,	,,
LA 5/69/68	,,	0127	,,	,,
LA 5/70/68	,,	0140	,,	,,
LA 5/71/68	,,	0214	,,	,,
LA 5/72/68	,,	0241	,,	,,
LA 5/73/68	,,	0300	,,	,,
LA 5/74/68	,,	0315	,,	,,
LA 5/75/68	,,	0337	,,	,,
LA 5/77/68	27.12.68	0020	,,	,,
LA 5/78/68	,,	0040	,,	,,
LA 5/79/68	,,	0057	,,	,,
LA 5/80/68	,,	0115	,,	,,
LA 5/81/68	,,	0137	,,	,,
LA 5/82/68	,,	0147	,,	,,
LA 5/83/68	,,	0430	,,	,,
LA 5/84/68	,,	0445	,,	,,
LA 5/85/68	,,	0502	,,	,,
LA 5/86/68	,,	0522	,,	,,
LA 5/87/68	,,	0537	,,	,,
LA 5/88/68	,,	0555	,,	,,

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