

PRELIMINARY REPORT ON THE PELAGIC POLYCHAETES FROM THE SOUTH SHETLAND ISLANDS, BISCOE ISLANDS AND THEIR VICINITIES

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Abstract This report provides a result obtained by the First Chinese Antarctic and Southern Ocean Expedition. Specimens were collected by investigators of the Second Institute of Oceanography, SOA, with plankton nets in February and March of 1985 from the South Shetland Islands, the Biscoe Islands and their vicinities, between 61°15'20S-65°30'16S, 56°18'72W-67°59'45W. Eight species belonging to 5 genera in 4 families have been identified, of which 4 species, namely *Maupasias coeca* Viguier, *Rhynchonerella petersii* (Langerhans), *Rhynchonerella bongraini* (Gravier), and *Tomopteris planktonis* Apstein are recorded for the first time from the South Shetland Islands and 2 species, namely *Rhynchonerella bongraini* (Gravier), and *Tomopteris carpenteri* Quatrefages are endemic species of Antarctica.

Key words Pelagic polychaetes, South Shetland Islands, Biscoe Islands, Endemic species.

The pelagic polychaetes were found in the samples collected by the investigators of the

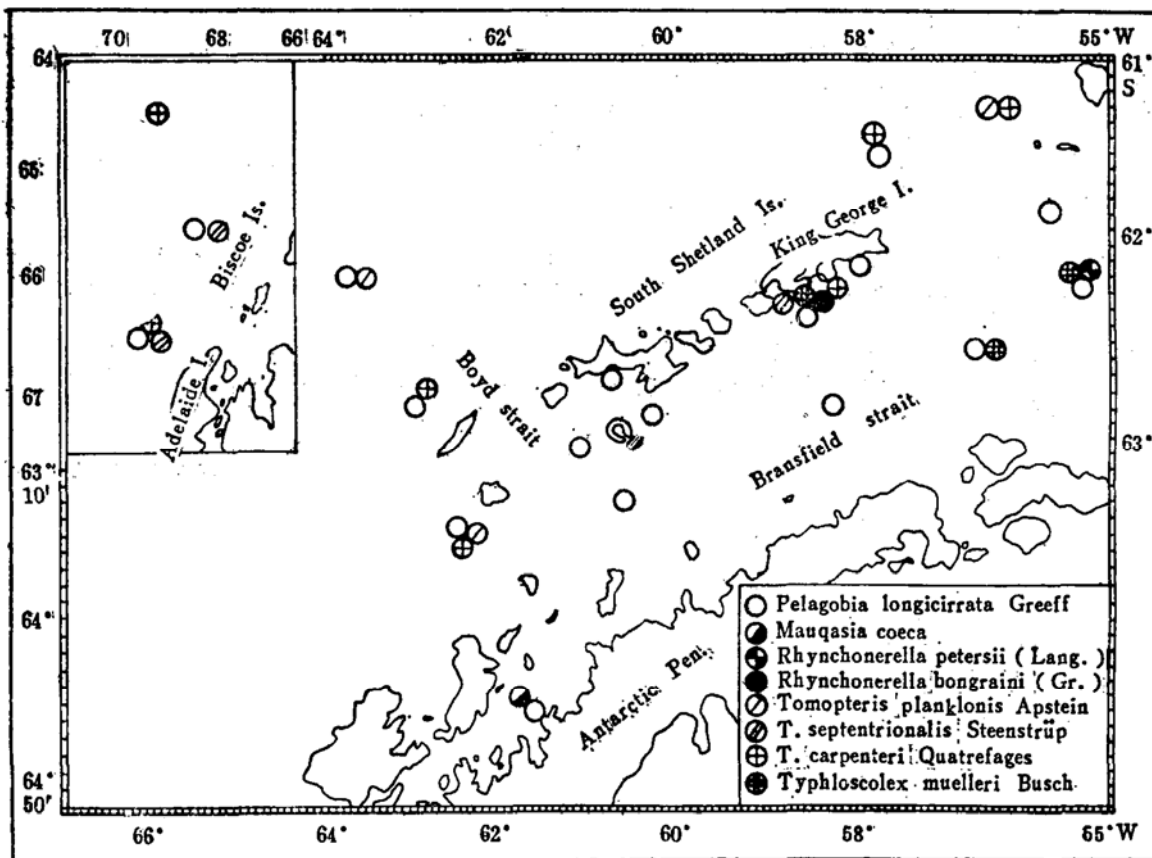


Fig. 1 Distribution of pelagic polychaetes in the area of South Shetland and Biscoe Islands and their vicinities.

First Chinese Antarctic and Southern Ocean Expedition, with plankton net in February and March of 1985 from the South Shetland Islands, the Biscoe Islands and their vicinities, between 61°15'20S-65°30'16S, (Fig. 1).

Eight species belonging to 5 genera in 4 families have been identified, of which 4 species are recorded for the first time from the South Shetland Islands and 2 species are endemic to Antarctic. It is sorry that the specimens collected during the expedition are insufficient. However, we believe that the numbers of species of pelagic polychaetes would increase largely with the future systematic expeditions. Here is a report based on the present data.

Phyllodocidae

1. *Pelagobia longicirrata* Greeff, 1879

Pelagobia longicirrata: Uschakov, 1957:268; Tebble, 1960:202; Hartman, 1964:64, pl. 19, figs. 5,6; 1968:327, figs. 1—3; Day, 1967:163, fig. 5,7 f-i; Dales and Peter, 1972:59; O'Sullivan, 1982:47, fig. 19; Wu Baoling and Meng Fan and Qian Peyian, 1986:148, fig. 1.

Collection: Stas. S10, S9, S3, S2, L1, L3, M4, M6, R1, R2, R4, J, S26, S25, S24, S23, S21, S20, S11.

Body 2–12mm long with 10–15 setigers; a pair of small eyes present; second setiger without dorsal cirri. Parapodia uniramous with long acicular lobes; heterogomph spinigers with smooth shafts, blades serrated on one side. Middle parapodia often yellowish brown.

This is a species that has the most abundant numbers of individuals of pelagic polychaetes and is widely distributed in the South Ocean and Antarctic waters. Some juveniles with 10 setigers and many adults with ova are obtained in the samples of zooplankton nets.

According to Chen Mu and Wu Baoling (1983), the first two pairs of parapodia are without dorsal cirri, which may fall off.

Distribution: *P. longicirrata* have been found from Antarctic to Arctic waters throughout the world in a recorded depth range of 0–3000 m.

2. *Maupasia coeca* Viguier, 1886, (Fig. 2)

Maupasia coeca: Dales, 1957b:662; Dales and Peter, 1972:61; Uschakov, 1957b:268, fig. 1; Tebble, 1958:66; 1960:204; 1962:421, figs. 23, 24; Hartman, 1964:63, pl. 19, figs. 3,4; Day, 1967:164, fig. 5,7j-i; Wu Baoling and Sun Ruiping, 1978:216, fig. 2; O'Sullivan, 1982:49, fig. 20.

Collection: Sta. S26.

This species found singly. Body 4 mm long, short and broad, with 17 segments. Prostomium square without eyes; two pairs of antennae subequal to width of prostomium; proboscis without jaws; first segment bearing a pair of nuchal epaulette, and a few setae between dorsal and ventral cirri. Three pairs of tentacular cirri composed of ventral cirri of first setiger and dorsal cirri of first and second setigers; second dorsal cirrus twice as long as first one; others swollen, flask-shaped; setigerous lobes conical (Fig. 2); setae compound with smooth shafts and very long fine blades bearing faintly serrated edge on one side.

This species is recorded for the first time in the South Shetland Islands, whose difference from the reported specimens from the Xisa Island of China is that the acicular of setigerous lobe do not extend out of body.

Distribution: *M. coeca* is known to be cosmopolitan in surface depths to 750 m.

Alciopidae

3. *Rhynchonerella petersii* (Langerhans, 1880) (Fig. 3 a, b)

Callizona setosa: Wesenberg-Lund, 1939:43; Uschakov, 1957:281, fig. 6.

Rhynchonerella petersii: Stop-Bowitz, 1948:34; Dales, 1957:133; 1963:502; Dales and Peter, 1972:70; Tebble, 1962:398, fig. 12a-c; 1963:33; Hartman, 1964:61, pl. 18, figs. 4,5; Day, 1967:192, fig. 7, 4i-m; O'Sullivan, 1982:15, fig. 5.

Collection: Stas. S3, R2.

Body 4 mm long, 2 mm wide for first 22 segments, with 5 antennae; black eyes directed obliquely forwards; proboscis short with 10 low marginal papillae; tentacular cirri arranged in 1+1/1+1/N. Parapodia all with one short cirriform appendage, one large cordate dorsal

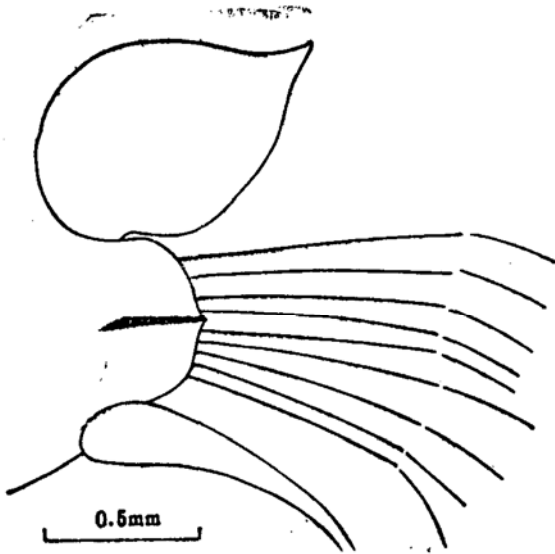


Fig. 2 *Maupasia coeca* Viguier, A medium parapodium.

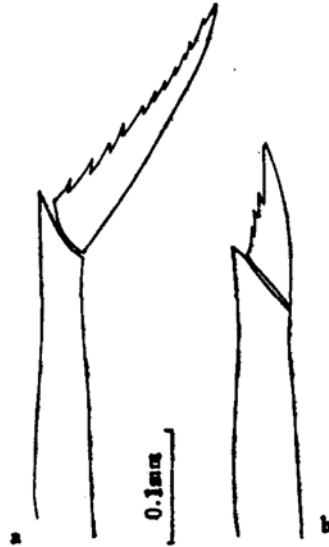


Fig. 3 *Rhynchonerella petersii* Langerhans, a. A composite acicular seta from 2nd parapodium b. A composite acicular seta from 7th parapodium.

cirrus and one small ventral cirrus. Segmenglands do not appear until 14th parapodium. Setae include fine compound spinigers and acicular setae which are composite until 8th parapodium (Fig. 3 a.b) and lessen gradually to single in posterior.

This species was once found in the East Antarctic waters by Ehlers 1912, 1913; Monro, 1939. It is recorded for the first time in the South Shetland Islands.

This species have two differences from the reported specimens collected in the Xisa Islands of China, whose arrangement of tentacular cirri is 1+1/1+1/1 and whose acicular setae remain composite in middle parapodia.

Distribution: This Species is known to be cosmopolitan in the surface depths to 200 m.

4. *Rhynchoneella bongraini* (Gravier, 1911) (Fig. 4 a. b).

Callizona bongraini: Gravier, 1911:312; Benham, 1929:189, pl. 1, figs., 11,12.

Callizonella bongraini: Monro, 1936:119; Fauvel, 1936a:18, 1936b:119.

Kroknia bongraini: Stp-Bowitz, 1948:33; 1949:11, figs. 3,4; 1951:8.

Rhynchonerella bongraini: Tebble, 1960:191, fig. 12; Hartman, 1964:59, pl. 18, figs. 1—3; Dales and Peter, 1972:70; O'Sullivan, 1982:15, fig. 4.

Collection: Sta. R1.

The specimen found singly, 10 mm long, and 1 mm wide for the first 38 segments. Prostomium extends forwards beyond eyes; two pairs of antennae set close together at the frontal margin; a single median one in groove between the two eyes; five pairs of tentacular cirri arranged in 1+1/1+1/1. Proboscis everted, long with 12 blunt papillae at the frontal margin. Each parapodium has a large foliaceous dorsal cirrus and a small foliaceous ventral cirrus; a small cirriform appendage at the end of the acicular lobe (Fig. 4. a). First 8 segments with both straight and curved short compound setae; middle segments with stout acicular setae and long compound spinigers; posterior segments with a single acicular setae and simple spinigers. Segment glands absent.

The species is collected in the top 545 m of water and recorded for the first time in the South Shetland Islands.

Distribution: This species is known to be endemic to the Antarctic Ocean.

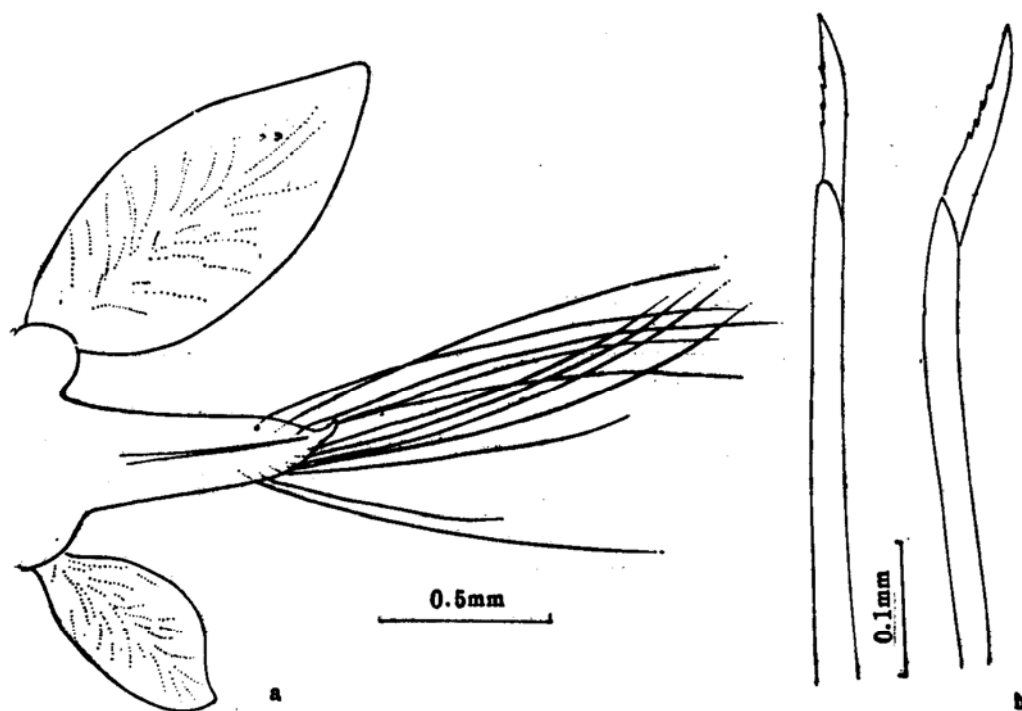


Fig. 4 *Rhynchonerella bongraini* Gravier, a. A median parapodium, b. Composite setae from anterior parapodium.

Tomopteridae

5. *Tomopteris planktonis* Apstein, 1900

Tomopteris planktonis: Fauvel, 1953:142, fig. 71. f; Stp-Bowitz, 1948:52, 1949:13; 1951:9; Dales, 1957:663; 1963:503; Dales and Peter, 1972:75; Tebble, 1958:166; 1960:171, figs. 6a-f; 1962:383; Rullier, 1965:873; Day, 1967:206, fig. 8, 2n-o; O'Sullivan, 1982:18, fig. 10.

Collection: Stas. S11, S9, S5.

Body 5 mm long, with 14 pairs of parapodia; tail absent. Prostomium not notched between antennae; a pair of eyes slightly prominent. Well-developed chromophil glands present from the 4th segment onwards and located in the inferior half of the ventral pinnule where they cause an obvious swelling. Spur glands absent. Hyaline glands indistinct but present at the apices of the ventral pinnules from the first pair of parapodia onwards; gonads in the dorsal rami from the second or the third segment onwards.

This species is recorded for the first time in the South Shetland Islands.

Distribution: *T. planktonis* is cosmopolitan, recorded in the surface depths to 4190 m.

6. *Tomopteris septentrionalis* Steenstrup, 1847

Tomopteris septentrionalis: Dales, 1957a:145, fig. 51f, 52g, 54; Tebble, 1960:176, fig. 8a, b; Imajima, 1961:9; 1962:382, fig. 5; Pettibone, 1963:97, fig. 25c; Day, 1967:205, fig. 8, 21 m; Hartman, 1968:355, figs. 1.2; O'Sullivan, 1982:28, fig. 11.

Collection: Stas. S20, S21, M4.

Body 12 mm long, with 23 pairs of parapodia; Tail absent. Prostomium notched between two antennae and bearing a pair of brown eyes; the second cirrus almost as long as the length of body. Pinnules oval; chromophil glands present from the 2nd 4th parapodia onwards at the apex of ventral pinnule and become well-developed in posterior. Hyaline glands small, distinct at above chromophil gland; gonads in dorsal rami from the second parapodia to 14th onwards.

It is found that the specimens collected from the South Ocean have a larger body and more segment number than those reported from the Xisa Islands of China.

Distribution: *T. septentrionalis* is known to be cosmopolitan in cold water masses in the surface depths to 4000 m.

7. *Tomopteris carpenteri* Quatrefages, 1865 (Fig. 5)

Tomopteris carpenteri: Quatrefages, 1865:227, pl. 20, figs. 1,2; McIntosh, 1885:20; Augener, 1929:304; Monro, 1930:84; 1936:126; Tebble, 1958:166; 1960:175; Hartman, 1964:67, pl. 21, fig. 1; Day, 1967: 204, fig. 8, le, f; Dales and Peter, 1972:73; O'Sullivan; 1982:21, fig. 7.

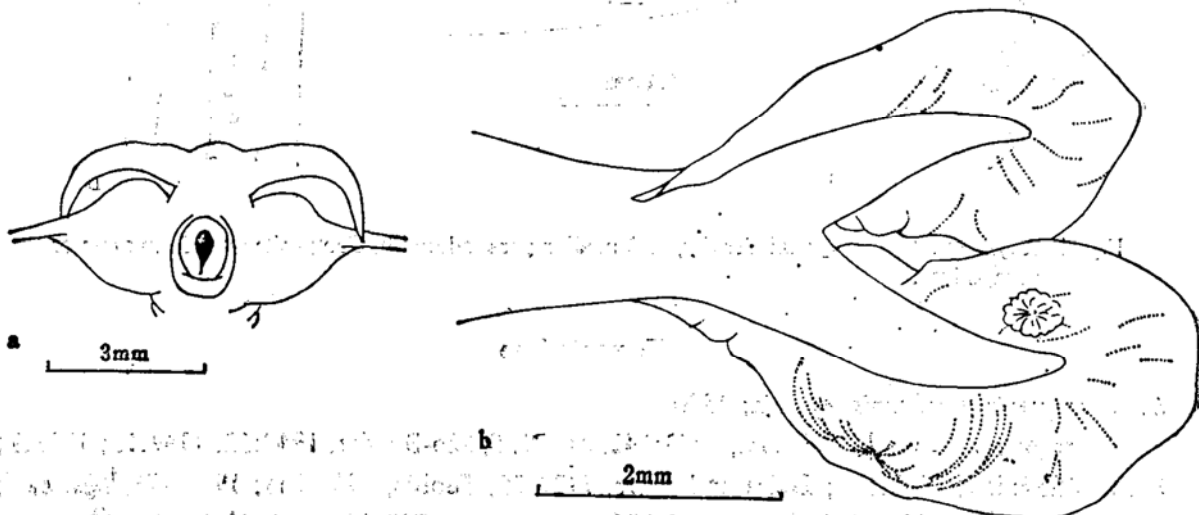


Fig. 5 *Tomopteris carpenteri* Quatrefages, a. Anterior end of body, in ventral view, b. A median parapodium.

Collection: Stas. S5, S6, S9, S10, S19, S21.

Body large, 25—60 mm long, and 10—20 mm wide, with 26—36 Pairs of parapodia; tail absent. Prostomium not notched; neck short and broad (Fig. 5 a); a pair of small eyes black. First pair of cirri absent but the second almost reach back the 3/4 length of body. Pinnules oval, extend to distal ends of the parapodial trunks (Fig. 5 b). Hyaline glands distinctly red from 3rd parapodia onwards in superior half of ventral pinnules; chromophil glands large, first appear from 6th parapodium in inferior half of ventral pinnules; gonads present in both dorsal and ventral rami from first parapodia onwards; spur glands absent.

The species described by Hartman (1964) and Day (1967) have chromophil gland first appearing from the 4th parapodia, which differ from the our specimens that have chromophil glands from the 6th parapodia onwards.

This species was collected with IKMT nets. The main differences from the above two species is that *T. carpenteri* have a larger body, numerous segments, well-developed chromophil glands and distinct hyaline glands.

Distribution: The species is known to be endemic to the Antarctic and Subantarctic zone in the top 2800m depths of water.

Typhloscolecidae

8. *Typhloscolex muelleri* Busch, 1851

Typhloscolex muelleri: Dales, 1960:485; 1963:503; Dales and Peter, 1972:80; Tebble, 1960:145; 1962:407; Hartman, 1964:67, pl. 20, fig. 13; 1968:343, figs. 1—3; Day, 1967:208, fig. 9, Ia, b; O'Sullivan, 1982:33, fig. 12.

Collection: Stas. S2, S3, R1.

Body 3—5 mm long with 24 segments. Prostomium blunt and bearing a palpode with a ventral swelling; dorsal ciliated lobe with a pair of small nuchal lappets on the sides. Head enfolded along sides by 3 pairs of flattened cirri. Dorsal and ventral cirri both cordate; a pair of anal cirri ovate.

Distribution: This species is known to be cosmopolitan in the top 3000 m depths of water.

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