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PART 8

MEDUSAE

By

P. L. KRAMP

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PART 8

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Dr. P. L. KRAMP

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By Dr. P. L. KRAMP

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(*Received for publication, April,* 1957.)

INTRODUCTION

This material, though collected during the years 1929–31, was not submitted for examination and report until a few months ago. It arrived in Copenhagen, despatched from Australia by Sir Douglas Mawson, who has taken over the disposal of such of the B.A.N.Z.A.R.E. Biological collections as were not allocated by the late Professor T. Harvey Johnston when he was in charge of these publications.*

As seen from remarks set out in the section of this report dealing with Zoogeographic distribution the B.A.N.Z.A.R.E. collection has given some valuable additions to our knowledge of the distribution of the medusae. Three species were observed for the first time in the Indian Ocean, the distribution of two others is extended more or less southward than previously known in this ocean. The remaining species confirm and increase our previous knowledge of their occurrence within the areas investigated.

SYMBOLS USED FOR NETS.

N 100, townet with mouth ring 100 cm. in diameter.
N 200, townet with mouth ring 200 cm. in diameter.
N 70, silk townet with mouth ring 70 cm. in diameter.
H, horizontal hauls. V, vertical hauls.

* The advent of war and later the death of Professor Harvey Johnston both contributed greatly to the long delay in publication. In 1934 Prof. Johnston transferred abroad a large collection of Medusae obtained in Antarctic waters by the Australasian Antarctic Expedition of 1911–14 hoping to have the material adequately dealt with in Europe. It would appear that this material has not been dealt with, and no record can now be found of its present location. Ed.

LIST OF SPECIES

SYSTEMATIC ACCOUNT.

ANTHOMEDUSAE.

Staurocladia kerguelensis (Gilchrist).

Eleutheria vallentini, Vanhöffen 1911, p. 201, Pl. 22, Figs. 1, 2; Text figs. 5 a, b, c, d.
Eleutheria vallentini Vanhöffen 1912, p. 357.
Cnidonema kerguelensis Gilchrist 1919, p. 521.
Staurocladia kerguelensis Browne & Kramp 1939, p. 277.

Occurrence: Coll. 854 (St. 60), 25.11.30, Royal Sound, Kerguelen (2 specimens).

The two specimens are young stages, about 1 mm. in diameter; they are somewhat mutilated, each with about 20 tentacles in which the upper branch is shorter than the lower. Nematocyst-clusters (besides the terminal one) are retained in only three of the tentacles, and each of them carries only one or two clusters, the position of which is uncertain. This in connexion with the juvenile stage of the specimens makes it difficult to determine the species with certainty. The ring of nematocysts below the umbrella margin is continuous, which separates the species from *S. hodgsoni* (Browne). It seems reasonable, however, to refer the present specimens to *S. kerguelensis*, the only species of this genus previously recorded from the Kerguelen Islands, but they do not contribute to a solution of the question of the relation between the various species of *Staurocladia*. *S. kerguelensis* may be identical with *S. charcoti* (Bedot 1908) in which, however, we know nothing about the structure of the nematocyst-ring. For further consideration of the relation between the species, see Browne & Kramp 1939. No medusa buds are found in the present specimens.

Bougainvillia macloviana Lesson, 1836.

Occurrence: Coll. 233 (St. 8), 20.XI.29, near head of Bras Bossière, Kerguelen, surface (55 specimens); Coll. 261, same date and locality (10 specimens); Coll. 416, 10.11.30, Royal Sound, Kerguelen, surface (1 specimen); Coll. 451, 15.11.30, Observatory Bay, Kerguelen, surface (3 specimens); St. 63, 2.III.30, Royal Sound, Kerguelen, 49° 28′ 30″ S. 70° 20′ E., N 100 H, 39 m. (1 specimen).

According to a note on the label the specimens at St. 8 were found swimming amongst surface kelp, and they had " bright orange coloured coelenteron and bases of tentacles ".

The numerous specimens taken in November, 1929, were 3–9 mm. in height; most of the specimens from February and March the next year were of larger size, 8–15 mm. high. According to previous records from Kerguelen, the Falkland Islands, and Campbell Island (summarized in Browne & Kramp 1939 pp. 284–285, with additions in Kramp 1948 p. 4 and 1957 p. 9) this medusa has a very long breeding season and may be found throughout the year, though apparently with a predominance of adult specimens during the summer.

Distribution: Probably circumpolar in subantarctic coastal waters, repeatedly recorded from the surroundings of the Falkland Islands, from Kerguelen and from Campbell Island south of New Zealand. Also found in the North Sea, undoubtedly owing to transportation of the hydroid by ships.

Pandea rubra Bigelow 1913.

Pandea rubra Bigelow 1913, p. 14, Pl. 2, Figs. 1–7.
Pandea rubra Kramp 1926, p. 96, Pl. 2, Fig. 15.
Pandea rubra Bigelow 1938, p. 107.
Pandea rubra Kramp 1957, p. 18, 99.

Occurrence: St. 27, 64° 32′ S. 75° 55′ E., 17.XII.19, N 200 H, estimated depth 1,000 m. (1 specimen); St. 31, 66° 11′ S. 65° 10′ E., 31.XII.29, N 200 H, 1,000 m. (1 specimen); St. 32, 66° 35′ S. 61° 13′ E., 4.1.30, N 200 H, estimated depth 750 m. (1 specimen); St. 96, 65° 10′ S. 109° 32′ E., 26.1.31, N 100 H, 2,000 m. warp (fragments of one large specimen).

The specimen from St. 27 is 43 mm. in height, the others are 17–30 mm.

DISTRIBUTION: Northern parts of the Pacific and Atlantic Oceans; Bermuda; south of Africa; around South Georgia. It is very interesting that this bathypelagic medusa has now been found near the continent in the Indian Ocean sector of the Antarctic Ocean. The only previous record from antarctic waters is that from a number of localities near South Georgia (Kramp 1957).

ANNATIARA AFFINIS (Hartlaub 1913).

Tiaranna affinis Hartlaub 1913, p. 269, Figs. 220, 221.
Tiaranna affinis Kramp 1926, p. 68, Pl. 1, Figs. 15–17.
Annatiara affinis Russell 1940, p. 518.
Annatiara affinis Kramp 1957, pp. 15, 99.

OCCURRENCE: St. 69, 43° 19′ S. 93° 56′ E., 10.III.30, N 100 H, 1,000 m warp (1 specimen).

The specimen is 15 mm. in diameter and 19 mm. in height and is well preserved.

DISTRIBUTION: This species belongs to the intermediate layers and is widely distributed in the Atlantic Ocean, where it is recorded from several localities ranging from Scotland to South Africa. Now for the first time found in the Indian Ocean.

CALYCOPSIS BORCHGREVINKI (Browne 1910).

Sibogita borchgrevinki Browne 1910, p. 17, Pl. 2, Figs. 1–5.
Sibogita borchgrevinki Vanhöffen 1911, p. 215, Pl. 22, Fig. 7, text-fig. 10 a, b.
Calycopsis borchgrevinki Kramp 1957, p. 20, map of distribution, Fig. 4.

OCCURRENCE: St. 27, 64° 32′ S. 75° 55′ E., 17.XII.29, N 200 H, estimated depth 1,000 m. (3 specimens); St. 31, 66° 11′ S. 65° 10′ E., 31.XII.29, N 200 H, 1,000 m. (1 specimen); St. 45, 63° 51′ S. 54° 16′ E. 28.1.30, N 200 H, 2,000 m. warp (4 specimens); St. 93, 64° 21′ S. 116° 02′ E., 18.1.30, N 200 H, 1,500 m. warp (8 specimens); St. 96, 65° 10′ S. 109° 32′ E., 26.1.31, N 200 H, 2,000 m. warp (3 specimens); St. 101, 65° 00′ 30″ S. 85° 08′ E., 5.11.31, N 70 V, 250–100 m. (1 specimen); St. 107, 66° 45′ S. 62° 03′ E., 16.11.31, N 70 V, 200–100 m. (1 specimen).

The specimens were all taken in the Indian sector of the Antarctic Ocean, near or inside the rim of the pack-ice, and all in the middle of the summer, December to February. The height of the bell varies from 8 to 21 mm.

One of the specimens (St. 93) differs somewhat from the typical appearance of this species. It is 14 mm. high and 13 mm. in diameter, and besides the usual 16 large tentacles it has the same number of very small tentacles alternating with the large ones; some few minute tentacles between the fully developed ones were observed by Browne (1910) in his original specimens. Moreover each of the bulbous terminal swellings of the large tentacles exhibits a small, hollow prolongation. This can hardly be regarded as a character of specific importance; a very similar structure of the terminal bulbs was observed by me in a particularly large specimen of *Calycopsis papillata* taken off the west coast of Africa by the "Galathea" Expedition (Kramp 1955, p. 252, Pl. 1, Figs. 2 and 3). The gonads of the present specimen have the remarkable structure which is characteristic of *C. borchgrevinki* in contradistinction to all other species of this genus.

DISTRIBUTION: Circumpolar in the antarctic and subantarctic waters, mainly occurring in the upper and intermediate layers.

CHROMATONEMA RUBRUM Fewkes 1882.

Chromatonema rubrum Fewkes 1882, p. 305, Pl. 1, Fig. 41.
Chromatonema rubrum Kramp 1919, p. 7, Pl. 1, Figs. 1–8, Text figs 3, 4a.

OCCURRENCE: St. 35, 66° 07′ S. 58° 26′ E., 9.1.30, N 200 H, estimated depth about 1,570 m. (1 specimen).

The specimen is 17 mm. in diameter and has about 20 tentacles. In a short part of the umbrella margin one or two cordyli are seen between successive tentacles; this is in accordance with the number of cordyli typically found in this species. The two other species of the genus, which have been described, *C. erythrogonon* (Bigelow 1909) and *C. hertwigi* (Vanhöffen 1911) are probably identical with *C. rubrum*.

DISTRIBUTION: This is a bathypelagic medusa, widely distributed in the deep parts of the Atlantic Ocean, especially in its northern parts. Its penetration southwards into the antarctic waters is discussed in Kramp, 1957, pp. 27 and 99. It is recorded from the Weddell Sea, near Bouvet Island, and in the Indian sector near the continent.

LEPTOMEDUSAE.

LAODICEA PULCHRA Browne 1902.

Laodiceapulchra Browne 1902, p. 280.
Laodicea pulchra Browne & Kramp 1939, p. 291, Pl. 16, Figs. 3–5.
Laodicea pulchra Kramp 1957, pp. 27, 96, Pl. 4, Fig. 7.

OCCURRENCE: St. 63, Royal Sound, Kerguelen, 49° 28′ 30″ S. 70° 20′ E., 2.III.30, N 70 H, 39 m. (1 specimen).

The specimen is about 28 mm. in diameter, with 45 tentacles. The number of cordyli between successive tentacles is usually 3–4, but if a new tentacle has just appeared as a tiny knob in the middle of the space between two fully developed tentacles, as many as 7 cordyli may be present in the same space.

DISTRIBUTION: This is the first record of this species from the Indian Ocean; it was previously known only from the Falkland Islands.

COSMETIRELLA DAVISI (Browne 1902).

Tiaropsis davisi Browne 1902, p. 16.
Cosmetirella simplex Brown 1910, p. 34, Pl. 1, Figs. 6–8.
Cosmetirella davisi Kramp 1932, p. 359, Figs. 4, 34, 46.
Cosmetirella davisi Browne & Kramp 1939, p. 293, Pl. 17, Fig. 1.
Cosmetirella davisi Kramp 1957, pp. 31, 96, 97.

OCCURRENCE: St. 63, Royal Sound, Kerguelen, 49° 28′ 30″ S. 70° 20′ E., 2.III.30, N 70 H,; 39 m. (5 specimens); N 100 H, 39 m. (14 specimens).

The specimens are 15–36 mm. in diameter.

DISTRIBUTION: Circumpolar in the upper layers of the antarctic and subantarctic waters South Africa.

TRACHYMEDUSAE.

HALICREAS MINIMUM Fewkes 1882.

Halicreas minimum Fewkes 1882, p. 306.
Halicreas papillosum Vanhöffen 1902, p. 68, Pl. 9, Figs. 7–8, Pl. 11, Fig. 30.
Halicreas papillosum Bigelow 1909, p. 138, Pl. 3, Fig. 3, Pl. 33, Figs. 8, 9, Pl. 34, Figs. 1–3, 5, 8, 10, 11,
Halicreas minimum Bigelow 1938, p. 122.

OCCURRENCE: St. 27, 64° 32′ S. 75′ 55′ E., 17.XII.29, N 200 H, estimated depth 1,000 m. (1 specimen); St. 31, 66° 11′ S. 65° 10′ E., 31.XII.29, N 200 H, 1,000 m. (2 specimens); St. 65, 47° 43′ S. 76° 48′ E., 4.III.30, N 200 H, 2,000 m. warp (2 specimens); St. 69, 43° 19′ S. 93° 56′ E.,

10.III.30, N 200 H, 3,000 m. warp (1 specimen); St. 93, 64° 21′ S. 116° 02′ E., 18.1.31, N 200 H, 1,500 m. warp (1 specimen); St. 96, 65° 10′ S. 109° 32′ E., 26.1.31, N 100 H, 2,000 m. warp (2 specimens).

The specimens are 12–34 mm. wide, most of them more than 20 mm.

Distribution: Widely distributed in the deep parts of all the oceans, except in the Mediterranean and in the arctic basins. Its occurrence in the Atlantic and Indian sectors of the antarctic region is discussed by Kramp (1957, pp. 46 and 100) and illustrated in a map, Fig. 18, p. 102.

Haliscera conica Vanhöffen 1902.

Haliscera conica Vanhöffen 1902, p. 72, Pl. 9, Fig. 6, Pl. 11, Fig. 33.
Haliscera conica Kramp 1957, pp. 48, 100.

Occurrence: St. 27, 64° 32′ S. 75° 55′ E., 17.XII.29, N 200 H, estimated depth 1,000 m. (2 specimens); St. 92, 64° 19′ S. 116° 42′ E., 17.1.31, N 70 V, 1,000–0 m. (1 specimen); St. 93, 64° 21′ S. 116° 02′ E., 18.1.31, N 200 H, 1,500 m. warp (11 specimens); St. 95, 64° 43′ S. 113° 03′ E., 24.1.31, N 70 V, depth not stated (2 specimens).

All these localities are in or near the pack-ice in the Indian sector of the Antarctic Ocean, from where it was recorded before.

Distribution: Mediterranean; Atlantic Ocean from the Azores southwards to the Weddell Sea; circumpolar in the antarctic waters; recently recorded from South-east Australia (Blackburn 1955, p. 419). See also the map, Fig. 17, in Kramp 1957. It mainly occurs in the deep and intermediate layers.

Rhopalonema funerarium Vanhöffen 1902.

Rhopalonema funerarium Vanhöffen 1902, p. 61, Pl. 9, Fig. 2, Pl. 10, Fig. 17, Pl. 11, Fig. 31.
Rhopalonema coeruleum, Mayer 1910, p. 380, in part.
Rhopalonema funerarium Kramp 1947, p. 14, Pl. 2, Figs. 4, 5.

Occurrence: St. 69. 43° 19″ S. 93° 56′ E., 10.III.30, N 200 H, 3,000 m. warp (1 specimen).

The specimen is comparatively large, 23 mm. in diameter.

Distribution: A bathypelagic species found in numerous localities in the northern Atlantic and off the entire west coast of Africa; a single specimen was also found in the southern Atlantic, somewhat north of South Georgia. Once recorded from the Mediterranean. Moreover it has been found in some scattered localities in the eastern tropical Pacific and once in the central part of the Indian Ocean, not very far from the locality mentioned above.

Pantachogon haeckeli Maas 1893.

Pantachogon haeckeli Maas 1893, p. 17, Pl. 1, Fig. 2.
Pantachogon rubrum Vanhöffen 1902, p. 63, Pl. 9, Fig. 9, Pl. 10, Figs. 19, 20, Pl. 11, Fig. 25.
Pantachogon haeckeli Russell 1953, p. 440, Pl. 25, Fig. 2, Text-figs. 290–292.

Occurrence: St. 27, 64° 32′ S. 75° 55′ E., 17.XII.29, N 200 H, estimated depth 1,000 m. (10 specimens); St. 45, 63° 51′ S. 54° 16′ E., 28.1.30, N 200 H, 2,000 m. warp (6 specimens); St. 69, 43° 19′ S. 93° 56′ E., 10.III.30, N 200 H, 3,000 m. warp (2 specimens); St. 93, 64° 21′ S. 116° 02′ E., 18.1.31, N 200 H, 1,500 m. warp (5 specimens); St. 96, 65° 10′ S. 109° 32′ E., 26.1.31, N 200 H, 2,000 m. warp (3 specimens).

St. 69 is in the central part of the Indian Ocean, the other localities are near the continent in the Indian sector of the Antarctic Ocean.

DISTRIBUTION : A bathypelagic species, widely distributed, probably cosmopolitan, in the deep parts of the oceans, except in the Mediterranean and the arctic basins ; circumpolar in the antarctic region.

COLOBONEMA SERICEUM Vanhöffen 1902.

Colobonema sericeum Vanhöffen 1902, p. 57, Pl. 9, Fig. 1, Pl. 12, Figs. 39–42.
Colobonema typicum Maas 1905, p. 53, Pl. 10, Figs. 62–65 (non Maas 1897).
Colobonema sericeum Kramp 1957, pp. 54, 100, 104.

OCCURRENCE : St. 69, 43° 19′ S. 93° 56′ E., 10.III.30, N 200 H, 3,000 m. warp (1 specimen)

The specimen is 25 mm. in height.

DISTRIBUTION : Widely distributed in the deep parts of the oceans, except in the Mediterranean and in the arctic basins. The locality mentioned above is the southermost point, in which this bathypelagic species has been found up to now. It does not penetrate into the antarctic regions. Its penetration towards the South is discussed by Kramp, 1957.

CROSSOTA BRUNNEA Vanhöffen 1902.

Crossota brunnea Vanhöffen 1902, p. 73, Pl. 9, Figs. 11–13, Pl. 12, Figs. 34–38 and 43–47.
Crossota brunnea Kramp 1957, pp. 61, 100, map of distribution Fig. 17.

OCCURRENCE : St. 31, 66° 11′ S. 65° 10′ E., 31.XII.29, N 200 H, 1,000 m. (4 specimens) ; St. 45, 63° 51′ S. 54° 16′ E., 28.1.30, N 200 H, 2,000 m. warp (1 specimen) ; St. 96, 65° 10′ S. 109° 32′ E., 26.1.31, N 100 H, 2,000 m. warp (1 specimen) ; St. 111, 44° 11′ S. 143° 36′ E., 17.III.31, N 200 H, 1,710–0 m., 3,450 m. warp (1 specimen).

The specimens are 18–24 mm. in diameter. St. 111 is near Tasmania, the others are near the antarctic continent.

DISTRIBUTION : Widely distributed in the deep layers in all the oceans south of the equator. The localities mentioned above confirm the statement by Kramp, 1957, that this is one of the bathypelagic species penetrating into the antarctic region.

NARCOMEDUSAE.

AEGINA CITREA Eschscholtz 1829.

Aegina citrea Eschscholtz 1829, p. 113, Pl. 11, Fig. 4.
Aegina citrea Russell 1953, p. 467, Pl. 28, Fig. 1, Text-figs. 308–310. Synonyms.
Aegina citrea Kramp 1957, pp. 63, 125.

OCCURRENCE : St. 1, 36° 53′ S. 19° 21′ E., 21.X.29, N 70 H, surface (4 specimens) ; St. 96, 65° 10′ S. 109° 32′ E., 26.1.31, N 200 H, 2,000 m. warp (1 specimen).

St. 1 is near the coast of South Africa, and the specimens found there are 14–24 mm. in diameter. St. 96, where a specimen 24 mm. wide was taken, is near the Antarctic Continent, and this is the first time this species has been found in the antarctic region.

DISTRIBUTION : *Aegina citrea* is widely distributed in the warm and temperate parts of the oceans, and it has a remarkably wide vertical distribution. In the warm areas it may be met with from the surface downwards to considerable depths, but in cold areas it only occurs in deep water. It has been found as far north as off the south coast of Iceland in the Atlantic and near the Aleutian Islands in the Pacific. A single specimen was taken in deep water near South Georgia by the " Discovery " in 1927 (Kramp 1957), and it is very interesting that the species has now been found in the " warm deep water " near the antarctic continent.

SCYPHOMEDUSAE.

Haliclystus kerguelensis Vanhöffen 1908.

Haliclystus kerguelensis Vanhöffen 1908, p. 31, Pl. 2, Fig. 1.
Haliclystus kerguelensis Mayer 1910, p. 536, Fig. 341.

Occurrence: Coll. 243 (St. 9), 21.XI.29, from detached kelp floating in pool between tide marks at Jeanne d'Arc, Kerguelen (1 specimen); Coll. 445, 15.II.30, Bras Bolinder, Kerguelen (1 specimen); St. 56, Rivett Arm, Kerguelen, 20.II.30, shore collection (1 specimen).

The specimen from St. 9 is large, in its present condition 23 x 29 mm. wide across the ends of the arms; Vanhöffen's type-specimen was 27 mm. wide. The specimen from coll. 445 is a small one, greatest diameter 2 mm., height 3.5 mm. of which the pedicel makes 2 mm. The specimen from St. 56 is 14 mm. wide; according to a note on the label its body was pale olive, stalk paler with pink base, ends of tentacles pale orange. These colours are rather different from those described by Vanhöffen. As pointed out by Mayer (1910) this species is closely related to *H. antarcticus* Pfeffer (1889), from which it differs in a few structures of relative character and by the colours. The present specimens agree perfectly with the description of *H. kerguelensis*, but as seen from the remarks above, the colours of the specimens are too variable to be relied upon as specific characters.

Distribution: *H. kerguelensis* is known only from Kerguelen; *H. antarcticus* was found at South Georgia.

Atolla wyvillei Haeckel 1880.

Atolla wyvillei Haeckel 1880, p. 488.
Atolla bairdii Fewkes 1886, p. 936.

Occurrence: St. 27, 64° 32′ S. 75° 55′ E., 17.XII.29, N 200 H, estimated depth 1,000 m. (1 specimen and some fragments); St. 31, 66° 11′ S. 65° 10′ E., 31.XII.29, N 200 H, 1,000 m. (4 specimens); St. 45, 63° 51′ S. 54° 16′ E., 28.I.30, N 200 H, 2,000 m. warp (1 specimen); St. 69, 43° 19′ S. 93° 56′ E., 10.III.30, N 200 H, 3,000 m. warp (3 specimens); St. 71, 41° 59′ S. 98° 59′ E., 12.III.30, N. 200 H, 4,200 m. warp (2 specimens); St. 93, 64° 21′ S. 116° 02′ E., 18.I.31, N 200 H, 1,500 m. warp (2 specimens and fragments of one large specimen); St. 111, 44° 11′ S. 143° 36′ E., 17.III.31, N 200 H, 1,710–0 m., 3,450 m. warp, (1 specimen).

The specimen from St. 111, which is near Tasmania, is young, only 22 mm. in diameter; the five specimens from Sts. 69 and 71, south-west of Australia, vary in size between 36 and 95 mm. Among the specimens from the other four stations, all of which are near the Antarctic Continent, one is small, 28 mm. wide, the others have the following diameters: 47, 60, 69, 70, 70, 80 and 110 mm. No correlation may be pointed out between the size of the specimens and the depth, where they were captured.

Distribution: *Atolla wyvillei* is a cosmopolitan deep-sea medusa. From the Atlantic Ocean it penetrates into the Polar Sea between Greenland and Norway, where it occurs in the icy-cold bottom water. It is no wonder, therefore, that it also occurs in the deep water layers near the Antarctic Continent.

Periphylla periphylla (Péron & Lesueur 1909).

Carybdea periphylla Péron & Lesueur 1809, p. 332.
Periphylla hyacinthina Haeckel 1880, p. 419, Pl. 24, Figs. 11–16.
Periphylla hyacinthina Mayer 1910, p. 544, Figs. 342–344.
Periphylla periphylla Kramp 1947, p. 42.

Occurrence: St. 22, 61° 44′ S. 77° 59′ E., 9.XII.29, N 70 V, 750–550 m. (1 specimen); St. 27, 64° 32′ S. 75° 55′ E., 17.XII.29, N 200 H, estimated depth 1,000 m. (2 specimens); St. 32, 66° 35′ S. 61° 13′ E., 4.I.30, N 200 H, estimated depth 750 m. (1 specimen); St. 35, 66° 07′ S.

58° 26′ E., 9.I.30, N 200 H, estimated depth about 1,570 m. (1 specimen); St. 45, 63° 51′ S. 54° 16′ E., 28.I.30, N 70 V, 250–100 m. (1 specimen); N 200 H, 2,000 m. warp (5 specimens); St. 71, 41° 59′ S. 98° 59′ E., 12.III.30, N 200 H, 4,200 m. warp (1 specimen); St. 96, 65° 10′ S. 109° 32′ E., 26.I.31, N 200 H, 2,000 m. warp (2 specimens).

St. 71 is between Kerguelen Island and south-western Australia above a depth of 3,716 m.; the specimen caught there, at a short distance above the bottom, is 59 mm. in diameter, reckoned around the coronial furrow.

The other localities are in the Antarctic Ocean, more or less close to the continent. If we arrange these localities approximately according to the depths, in which the hauls were made, we find the following distribution of specimens of different size :—

Station.	Approximate Depth of Haul.	Diameter of Specimens.
	Metres.	Millimetres.
45	250–100	38
22	750–550	20
32	Estimate 750	40
27	Estimate 1,000	15, 45
35	Estimate 1,570	44
45	Warp 2,000	7, 11, 14, 22, 90
96	Warp 2,000	66, 90

The figures show that the two largest specimens, 90 mm. wide, were taken in two of the deepest hauls, but very small specimens occurred at the same depths; fairly small specimens, 15–20 mm. wide, were also taken at considerably higher levels. No distinct correlation between the depth and the size of the specimens may, therefore, be pointed out by means of the present material. Examination of a larger collection might, however, reveal a certain regularity in the vertical distribution of large and small specimens. When specimens of this bathypelagic medusa occasionally are met with in the upper strata in other cold areas, e.g. along the west coast of Greenland, they are almost alway of considerable size (Kramp 1942, p. 108). All of these hauls were taken in the so-called " warm deep current " at temperatures between about 0.05 and 2° C.

Distribution: *Periphylla periphylla* has a world-wide distribution in the oceans, including the Mediterranean. It does not occur in the deep basins of the arctic seas but, as mentioned above, it may sometimes be carried rather far northwards by the surface currents. It is recorded from several localities in the Atlantic sector of the antarctic and subantarctic regions. In the Indian sector a large specimen was taken off Queen Mary Land by the " Challenger " (Haeckel 1881), and it was found south of Kerguelen by the German South Polar Expedition (Vanhöffen 1908). In the Pacific sector some specimens were collected in the Bellinghausen Sea and near the South Shetland Islands by the " Discovery " (Stiasny 1934), and it is recorded from Cape Adare and McMurdo Sound by Browne (1910); in McMurdo Sound a specimen has even been captured by hand. It is a bathypelagic medusa which occasionally may ascend towards the surface water, especially in cold areas.

The specific name was discussed by me in 1947.

ZOOGEOGRAPHICAL RESULTS.

Medusae were collected by the B.A.N.Z.A.R. Expedition in some localities between south-western Australia and the Kerguelen Islands, in the coastal waters of Kerguelen, and in a series of localities near the Antarctic Continent between about 50° E. and 120° E.; moreover in one locality near South Africa (St. 1) and in one locality south-west of Tasmania (St. 111). Among the eighteen species collected five had not previously been found within the area investigated, and the occurrence of some of the others also give occasion to a few remarks.

Species Previously Known from the Area Investigated

The sedentary Stauromedusa *Haliclystus kerguelensis* and the crawling Anthomedusa *Staurocladia kerguelensis* were found among the kelp on Kerguelen Islands and are not known from any other parts of the world.

Only two of the free-swimming species are strictly neritic forms. Both have probably a circumpolar distribution, *Bougainvillia macloviana* in subantarctic waters, *Cosmetirella davisi* in antarctic as well as in subantarctic regions. Both were taken near Kerguelen.

The Anthomedusa *Calycopsis borchgrevinki* has a very extensive vertical distribution in the antarctic and subantarctic seas; in the subantarctic parts of the Atlantic Ocean it mainly occurs in the upper and intermediate layers. By the present expedition it was taken in several localities near the Antarctic Continent, mainly in the deep water, but on two occasions in the antarctic surface water at temperatures below −1° C.

The southward penetration of oceanic bathypelagic medusae was recently discussed by me (Kramp 1957, pp. 98 ff). Some few of these species seem to avoid the deep-sea of the antarctic region proper; one of these, *Rhopalonema funerarium*, was taken by the B.A.N.Z.A.R.E. between Australia and Kerguelen, but not farther south, which confirms my previous statement.

The following predominantly bathypelagic species which were taken by the expedition near the Antarctic Continent, had all been found in the same tracts:—*Chromatonema rubrum*, *Halicreas minimum*, *Haliscera conica*, *Panthachogon haeckeli*, *Crossota brunnea*, *Atolla wyvillei*, and *Periphylla periphylla*. They were all taken in the "warm deep water" between the antarctic surface water and the antarctic bottom water, at temperatures from somewhat above 0° to 1 or 2° C., most of them more than 1,000 m. below the surface, though a few specimens of *Periphylla periphylla* were also found somewhat higher up in vertical hauls 750–500 and 250–100 m., but still below the antarctic surface layer.

Species not Previously Known from the Area Investigated

Only one of these species belongs to the neritic fauna, viz. *Laodicea pulchra*, which was taken at Kerguelen; it was previously known only from the Falkland Islands.

The Narcomedusa *Aegina citrea* has a very extensive vertical distribution in the warm parts of the oceans, but in cold areas it only occurs in deep water. Besides some specimens taken near the surface off the south coast of Africa (St. 1) a single specimen was found in the "warm deep water" at St. 96 near the Antarctic Continent, by far the southermost locality from where this species has ever been recorded.

Colobonema sericeum is one of the widely distributed bathypelagic Trachymedusae which do not penetrate into the antarctic region. It is common in the tropical parts of the Indian Ocean, and a specimen was found by the expedition in a locality between Australia and Kerguelen somewhat further south than previously known in this ocean.

The bathypelagic Anthomedusa *Annatiara affinis* was taken at the same station, previously known from the Atlantic Ocean only.

Pandea rubra is likewise a bathypelagic Anthomedusa, now for the first time found in the Indian Ocean, but it was only taken in the antarctic region, where it occurred at four stations at depths exceeding 750 m., thus in the "warm deep water". The previous records are partly from the northern parts of the Atlantic and Pacific Oceans, partly from the southern Atlantic, south of Africa and around South Georgia.

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