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# MEDUSAE

MAINLY FROM

## THE WEST COAST OF AFRICA

BY

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## INTRODUCTION

The collections dealt with in the present paper comprise partly the medusae collected by the Belgian oceanographical expeditions to the Atlantic coasts of Africa during the years 1948-1949 and 1955, partly results obtained during the cruises of the Belgian training ship « Mercator » in 1935, 1937, 1938 and 1953. A few of the samples in the first-named collection were taken during the voyage from Belgium to Africa in July 1948 (stat. 1-3), and a few of the samples collected by the « Mercator » are derived from the western Atlantic (30-31.XII.1935, 2.I.1939 and 29.IV.1953). The others are from the west coast of Africa.

34 species of medusae are represented in these collections, viz. 21 hydromedusae (two of which are young stages of Narcomedusae which could not be identified) and 13 scyphomedusae. No new species are described, but from zoogeographical points of view the collections are of considerable interest. *Chiropsalmus quadrumanus*, *Paraphyllina ransonii* and *Cyanea capillata* have not previously been recorded from the west coast of Africa, *Helgicirrha schulzei* and *Drymonema dalmatina* were known from the Straits of Gibraltar but not further south on the African coast. *Oceania armata*, *Rhacostoma atlanticum* and *Discomedusa lobata* were taken considerably farther south on the African coast than known before.

The most important recent addition to our knowledge of the West-African fauna of medusae was due to the Danish « Atlantide » Expedition in 1945-1946 (KRAMP, 1955). The number of species known before then was 56, and the addition amounted to 33 species new to West Africa, so that up to now 89 species of medusae were known from the waters off the tropical part of the West-African coast. By the present collections the number is increased to 94. In view of the considerable number of specimens collected by the Belgian expeditions in numerous different localities it is remarkable that so few species (one hydromedusa and four scyphomedusae) were added to the list; this seems to confirm the supposition that the West-African pelagic fauna, especially of neritic species, in reality is rather poor, which may be explained by the predominantly sandy condition of the bottom on the comparatively narrow shelf which is exposed to the full force of the oceanic waves; it is a coast which does not afford favourable conditions for attachment of fixed, polypoid animals from which medusae may be produced.

Of particular interest is the rediscovery in the mouth of Congo of the small medusa *Cnidostoma fallax* VANHÖFFEN, which has been considered a doubtful species, and an opportunity to study five beautiful specimens of *Chiropsalus gorilla* HAECKEL. A young specimen of a *Paraphyllina*, probably *ransoni* RUSSELL, is likewise described. The Cubomedusa, *Chiropsalmus quadrumanus* (MÜLLER) has for the first time been found in the eastern Atlantic.

The collections are deposited in the Institut royal des Sciences naturelles de Belgique, Bruxelles, and I wish to thank the director a.i., Dr. E. LELOUP, because he has placed these collections at my disposal for examination.

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#### ANTHOMEDUSAE.

##### *Cnidostoma fallax* VANHÖFFEN.

*Cnidostoma fallax* VANHÖFFEN, 1911, p. 205, fig. 7 a-c.

Stat. 303 : Mouth of river Congo in the Kisongo inlet of Banana, 18.VII.1955. 1 specimen.

It is the first time this interesting little medusa has been found since it was described by VANHÖFFEN from exactly the same locality. VANHÖFFEN had 30 specimens at his disposal, up to 2.5 mm in diameter. The present specimen confirms that the original description of the species is entirely correct; it is only 1.2 mm in diameter and 1.0 mm in height, the apical jelly is fully as thick as the height of the umbrella cavity, evenly rounded above, and the umbrella is almost globular. Only one of the four tentacles is fully retained, with scattered nematocysts in its proximal half, whereas the distal portion is moniliform. There are only two medusa buds on the walls of the stomach; one of them is very large and carries four tentacles in young stages of development, each of them about half as long as the diameter of the bud and spread almost horizontally outwards. The other medusa bud is somewhat smaller and shows no vestiges of tentacles. Since the specimen apparently has been treated with osmic acid, the ocelli cannot be seen.

##### *Oceania armata* KÖLLIKER.

*Oceania armata* KÖLLIKER, 1853, p. 323. — MAYER, 1910, p. 147, figs. 79-81.

#### West-African records :

*Callitara polyophthalma* HAECKEL, 1879, p. 67, pl. 3, figs. 1-5; Canary Islands.

*Oceania armata* RANSON, 1936, p. 57; Canary Islands. — KRAMP, 1959, p. 8; east and south of the Canary Islands.

**Material :**

Senegambia, 13°25'N-16°50'W, 15.XI.1935, « Mercator ». 27 specimens.

Martinique, in the West Indies, 30-31.XII.1935, « Mercator ». 1 specimen.

The specimens are 3-5 mm in diameter.

This species has now been found somewhat further south on the African coast than known before.

**Further distribution.** — Mediterranean; Bay of Cadiz; the Azores. Recently also recorded from a single locality in the West Indies.

**LEPTOMEDUSAE.*****Laodicea undulata* (FORBES et GOODSIR).****West-African records :**

*Laodice ulothrix* HAECKEL, 1879, p. 133; Cape Verde Islands.

*Laodice undulata* VANHÖFFEN, 1912, p. 365; Cape Verde Islands.

*Laodicea undulata* KRAMP, 1955, p. 253; Gold Coast. — KRAMP, 1957, p. 27; near the Cape of Good Hope. — KRAMP, 1959, p. 33; Cape Blanco to Sierra Leone.

**Material :**

Stat. 14 : 5°53'39"S-11°40'30"E, 45 M.<sup>(1)</sup> WNW. of Banana, 21.VIII.1948. Plankton net, 100-0 m. 1 specimen, diam. 7 mm.

Stat. 112 : 14°42'S-11°50'E, 35 M.<sup>(1)</sup> WbyN. of Baia das Moscas, 28.I.1949. Plankton net, surface. 1 specimen, diam. 14 mm.

Stat. 336 : 6°00'S-12°10'E, 17.VIII.1955. 3 specimens, diam. 7-14 mm.

**Further distribution.** — Widely distributed along the Atlantic coasts from northern Norway to the Cape of Good Hope and from Nova Scotia to Patagonia; Mediterranean Sea. Records from the Pacific Ocean are doubtful.

***Obelia* sp.****Material :**

Stat. 12 : 5°56'S-12°00'E, 17.VIII.1948. Surface. 1 specimen, diam. 2,5 mm.

Stat. 23 : 4°55'S-11°35'E, 3.IX.1948. Surface. 16 specimens, diam. 2-3 mm.

Stat. 25 : 4°52'S-11°39'30"E, 5.IX.1948. Surface. 6 specimens, diam. 1-1.5 mm.

Stat. 27 : 4°08'S-11°59'45"E, 6.IX.1948. Surface. 5 specimens, diam. 1-2 mm.

Stat. 113 : 13°22'S-12°32'30"E, 29.I.1949. Surface. 1 specimen, diam. 2 mm.

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<sup>(1)</sup> M = Miles.

P. L. KRAMP. — MEDUSAE

***Eucheilota ventricularis* McCrady.**

*E. ventricularis* MAYER, 1910, p. 282, pl. 37, fig. 5, pl. 38, fig. 1.

West-African records :

*E. ventricularis* VANHÖFFEN, 1911, p. 228, fig. 18; Great Fish Bay.

Material :

Rio de Oro, 26°02'30"N-14°36'W, 28.X.1935. « Mercator ». 7 specimens.

The specimens are 5-9 mm in diameter in their present condition, but they are contracted in different ways, so that the proportion between the height and the diameter of the umbrella is very variable. In most regards the specimens agree with previous descriptions of *Eucheilota ventricularis*, but their gonads are comparatively long, usually comprising the distal two thirds of the radial canals, whereas in other localities the gonads are said to occupy only the middle third of the canals. In a previous paper (KRAMP, 1955, p. 309) I have expressed doubt as to the correctness of VANHÖFFEN's identification of a specimen from Great Fish Bay. There is no doubt, however, that the specimen belonged to the same species as that recorded above from Rio de Oro; also in VANHÖFFEN's specimen the gonads occupied the distal two-thirds of the radial canals. After a careful investigation of the present specimens I feel sure that, in spite of the longer gonads, they belong to *E. ventricularis*, and VANHÖFFEN's specimen, therefore, must also be referred to that species. On the other hand, his record in the same paper of *E. ventricularis* as occurring in the Red Sea and near Chagos Islands in the Indian Ocean must still be regarded with some doubt. The dimensions of the present specimens are as follows :

Diameter of umbrella, mm	Number of tentacles	Number of marginal warts between successive tentacles	Length of gonads, mm
5	ca. 10-11	3	3
7	16	3-4	3
8	16	3-4	4
8.5	13	3	2.5
9	16	3	4
9	ca. 18	3	3
9	ca. 20	3	3

Further distribution. — East coast of North America from the Tortugas, Florida to Cape Cod; an isolated occurrence in the southern part of the west coast of Greenland.

**Lovenella cirrata** (HAECKEL).

*Mitrocomium cirratum* HAECKEL, 1879, p. 182, pl. 11, figs. 9-11.

*Mitrocoma cirrata* MAYER, 1910, p. 288, textfig. 154.

## West-African records :

*Euchilota multicirrata* THIEL, 1938, p. 330; Accra and Cape Verde Islands.

*Eucheilota cirrata* KRAMP, 1955, p. 254; Canary Islands, Gulf of Guinea.

## Material :

Stat. 213 : 7°10'N-14°10'W, 5.VI.1949. Stramin net, surface. 2 specimens, diam. 2.5 mm.

Owing to the great number of marginal vesicles (about 16) this species must be referred to the genus *Lovenella* and not to *Eucheilota*. The locality is off Sierra Leone, connecting the previous West-African records.

Further distribution. — Mediterranean; off the mouth of Amazonas, Brazil.

**Eirene viridula** (PÉRON et LESUEUR).

*Eirene viridula* ESCHSCHOLTZ, 1829, p. 94.

non *Eirene viridula* MAYER, 1910, p. 311.

*Eirene viridula* + *pellucida* KRAMP, 1936, pp. 244-245.

## West-African records :

*Irene pellucida* VANHÖFFEN, 1911, p. 230, fig. 20; off the mouth of Congo and Great Fish Bay.

*Eirene pellucida* RANSON, 1949, p. 126; Cape Verde; Senegal.

*Eirene viridula* KRAMP, 1955, p. 262; numerous localities from Cape Palmas to Congo.

## Material :

Stat. 23, 32, 45, 84, 93, 115, 165, 171 : For details, see Table I.

A particularly great number of specimens were taken on January 30th 1949. Specimens of all sizes were found at any time throughout the period of investigation from September to April, as follows :

Month	IX	X	XII	I	III	IV
—	—	—	—	—	—	—
Diam., mm	9-12	3-7	2-8	3-11	10	4-8

Further distribution. — The North Sea; British coasts; Mediterranean. East coast of Africa from Djibouti to Zanzibar; Ceylon.

**Helgicirrha schulzei** HARTLAUB.

*H. schulzei* HARTLAUB, 1909, p. 86.

**Material :**

Stat. 12 : 5°56'S-21°00'E, 23 M. WNW. of Banana, 17.VIII.1948. 25-0 m. 1 specimen.

It is a young specimen, 2 mm in diameter, with 8 tentacles and some young bulbs; the specimen is somewhat abnormal, and only one of the gonads has been developed.

This species has not previously been found at the west coast of Africa, but it is recorded from the Straits of Gibraltar.

**Further distribution.** — North Sea and British coasts; Mediterranean.

**Aequorea aequorea** (FORSKÅL).

*Medusa aequorea* FORSKÅL, 1775.

*Aequorea forskalea* PÉRON and LESUEUR, 1809.

**West-African records :**

*Aequorea aequorea* RANSON, 1949, p. 128; Senegal. — KRAMP, 1955, p. 265; Gold Coast. — KRAMP, 1957, p. 37; off Walvis Bay; SW. of the Cape of Good Hope.

**Material :**

Stat. 44 : 5°39'S-12°00'E, 12 M. WSW. of Cabinda, Congo, 14.X.1948. Trawl, depth 40 m. 1 specimen.

The specimen is 95 mm in diameter, with about 100 radial canals; apparently there have been about half as many tentacles as radial canals.

**Further distribution.** — European coasts from Norway to Portugal; Mediterranean; Azores; Atlantic coast of North America from Cape Cod to Florida, Bermudas, the Patagonian coast in South America; the only valid record from outside the Atlantic is from the Gulf of Iran; Pacific records are doubtful.

**Rhacostoma atlanticum** L. AGASSIZ.

*Rhacostoma atlanticum* L. AGASSIZ, 1850, p. 342.

*Zygodactyla groenlandica* L. AGASSIZ, 1862, p. 360.

**West-African records :**

*Rhacostoma atlanticum* KRAMP, 1955, p. 266; Senegal.



**Material :**

Stat. 12 : 5°56'S-12°00'E, 23 M. WNW. of Banana, 17.VIII.1948. Trawl, depth 34 m. 1 specimen.

The specimen is in a poor condition, hardly more than the gelatinous substance is retained, showing the radiating rows of gelatinous papillae on the subumbrella characteristic of this species; they are present in a number of about 87. Accordingly radial canals must have been present in the same number, but only slight traces of them may be distinguished.

It is the second time that this American medusa has been observed in the eastern Atlantic.

**Further distribution.** — East coast of North America from the Gulf of Maine to Cape Hatteras; on the coast of Colombia in the Caribbean sea.

**LIMNOMEDUSAE.*****Olindias phosphorica* (DELLE CHIAJE).**

*Olindias mülleri* HAECKEL, 1879, p. 253, pl. 15, figs. 9-13.

*Olindias phosphorica* MAYER, 1910, p. 355.

**West-African records :**

*O. phosphorica* KRAMP, 1955, p. 267; Nigeria near the mouth of Niger; the mouth of Congo

**Material :**

Stat. 12 : 5°56'S-12°00'E, 23 M. WNW. of Banana, 17-19.VIII.1948. Trawl and dredge at the bottom, depth 34 m. 13 specimens.

Stat. 345 : 5°52' S-12°07'E, 10 M. W. of Vista, 24.VIII.1955. Trawl, 5 specimens.

It is rather peculiar that this strictly littoral medusa has been taken at considerable distances from the coasts in both localities.

Owing to the great variability of this species it may be advisable to give some measurements of the specimens collected. Unfortunately counting of the

Station No.	Diameter mm	Number of centripetal canals	Diameter mm	Number of centripetal canals	Diameter mm	Number of centripetal canals
12	17	?	18	9+9+9+9	24	11+11+11+11
	18	?	22	11+11+11+11	26	?
	18	12+12+12+12	22	?	26	19+14+13+12
	18	15+15+15+15	24	12+14+12+14	27	26+14+20+23
345	33	16+15+15+13	35	?	40	14+?+?+?
	34	15+?+?+?	35	8+14+14+13		

tentacles has been impossible except in two specimens, but the number of centripetal canals can be stated in most specimens.

One of the specimens from station 12, 27 mm in diameter, has about 64 primary and about 140 secondary tentacles. Another specimen from the same station, 21 mm wide, is somewhat abnormal, two of the radial canals reaching to the ring canal close together; its centripetal canals are counted as follows : 0+14+16+17.

**Further distribution.** — The typical *Olindias phosphorica* is common in the Mediterranean, besides being found in the localities on the west coast of Africa mentioned above. The variety *tenuis* occurs at the east coast of North America, var. *sambaquinensis* at the coast of Brazil.

### TRACHYMEDUSAE.

#### *Liriope tetraphylla* (CHAMISSE et EYSENHARDT).

##### West-African records :

*Liriope cerasus* HAECKEL, 1879, p. 289; Canary Islands.

*Glossocoanus canariensis* HAECKEL, 1879, p. 289; Canary Islands.

*Liriope cerasiformis* + *eurybia* + *distagona* + *hyperbolica* MAAS, 1893, pp. 35-38; off the coasts from Morocco to Sierra Leone.

*Liriope exigua* KRAMP, 1948, p. 10; between the Canary and Cape Verde Islands.

*Liriope tetraphylla* RANSON, 1949, p. 133; off Senegal. — KRAMP, 1955, p. 275; between the Canary Islands and Angola. — KRAMP, 1957, p. 63; numerous localities between Cape Verde and the Cape of Good Hope. — KRAMP, 1959, p. 58; off the entire west coast of Africa.

##### Material :

Stat. 8, 12, 13, 14, 15, 23, 24, 25, 27, 32, 33, 46, 79, 84, 92, 113, 115, 140, 142, 155, 164, 165, 171, 177, 183, 190, 200, 211, 212, 213 : For details, see Table I.

The occurrence and sizes of the specimens within each month during the period of investigation may be summarized as follows :

Month	Number of hauls	Number of specimens	Diameter mm
VIII	18	ca. 640	0.5-14
IX	9	ca. 215	1-14
X	2	2	4-13
XII	2	2	2
I	3	13	0.5-8
III	6	21	1-6.5
IV	6	26	1.5-7
V	2	16	3
VI	3	26	1-9

Further distribution. — Generally distributed in the upper water layers in all tropical and subtropical seas.

### **Rhopalonema velatum GEGENBAUR.**

#### West-African records :

*Trachynema octonarium* + *Marmanema clavigerum* + *Rhopalonema coeruleum* HAECKEL, 1879, pp. 260-264; Canary Islands.  
*Marmanema clavigerum* + *velatoides* MAAS, 1893, p. 13; off the coasts from Cape Verde Islands to Liberia.  
*Rhopalonema velatum* KRAMP, 1948, p. 9; between the Canary and Cape Verde Islands. — RANSON, 1949, p. 130; off Senegal. — KRAMP, 1955, p. 272; from the Canary Islands to the Gold Coast. — KRAMP, 1957, p. 52; from Cape Lopez in the Gulf of Guinea to the Cape of Good Hope. — KRAMP, 1959, p. 47; along the entire west coast of Africa.

#### Material :

Stat. 1 : 44°15'N-8°30'W, Bay of Biscay, 6.VII.1948. 200-0 m. 6 specimens, diam. 2-6 mm.  
 Stat. 2 : 40°53'N-11°08'W, West of Portugal, 7.VII.1948. 300-0 m. 1 specimen, diam. 9 mm.  
 Stat. 190 : 14°34'S-11°29'E, 53 M. NW. of Mossamedes, 8.V.1949. Surface. 3 specimens, diam. 5-8.5 mm.  
 Stat. 200 : 6°30'S-11°40'E, 42 M. SW. of Moita Seca, 18-19.V.1949. Surface. 3 specimens, diam. 5-8 mm.  
 Stat. 213 : 7°10'N-14°10'W, off Sierra Leone, 5.VI.1949. Surface. 1 specimen, diam. 5 mm.

Further distribution. — Common in the warmer parts of all the oceans and in the Mediterranean.

### **NARCOMEDUSAE.**

#### **Solmundella bitentaculata (QUOY et GAIMARD).**

#### West-African records :

*Aeginella dissonema* HAECKEL, 1879, p. 340; Canary Islands.  
*Solmundella tetralinus* HAECKEL, 1879, p. 351; Canary Islands.  
*Solmundella mediterranea* MAAS, 1893, p. 54; off the coast from the Cape Verde Islands to Liberia.  
*Solmundella bitentaculata* RANSON, 1949, p. 133; off Senegal. — KRAMP, 1955, p. 282; Gulf of Guinea. — KRAMP, 1957, p. 64; numerous localities off the west coast of Africa from the equator to the Cape of Good Hope. — KRAMP, 1959, p. 63; off the entire coast between Cape Blanco and the Cape of Good Hope.

#### Material :

Stat. 14, 23, 24, 34, 112, 115, 212, 213 : For details, see Table I.

These localities are scattered along the coast between Sierra Leone and Mossamedes in Angola. The specimens are 1.5-5 mm in diameter, regardless of the seasons when they were collected.

Further distribution. — Widely distributed in the oceans and in the Mediterranean; in the Atlantic it is particularly common in the southern hemisphere and never recorded further north than about 40°N.

**Pegantha martagon** HAECKEL.

*Pegantha martagon* BIGELOW, 1909, p. 83, pl. 18, figs. 1-8. — KRAMP, 1957, p. 67, pl. 6, fig. 1.

West-African records :

*Pegantha martagon* KRAMP, 1955, p. 277; south of the Canary Islands. — KRAMP, 1957, p. 67; Canary Islands to Cape Verde Islands; Cape Lopez to the Cape of Good Hope. — KRAMP, 1959, p. 64; several localities off the coast between Morocco and Walvis Bay.

Material :

Stat. 190 : 14°34'S-11°29'E, 53 M. NW. of Mossamedes, 8.5.1949. Surface. 1 specimen, diam. 7 mm.

Further distribution. — Almost generally distributed in the Atlantic Ocean between about 40°N and 55°S. Also recorded from several localities in the Indian and Pacific Oceans.

**Pegantha laevis** BIGELOW.

West-African records :

*Pegantha laevis* KRAMP, 1955, p. 279; south of Cape Verde Islands. — KRAMP, 1957, p. 79; south of Cape Verde Islands; off the Cape of Good Hope. — KRAMP, 1959, p. 66; from Rio de Oro to Sierra Leone.

Material :

Stat. 115 : 11°45'S-12°40'E, 65 M. NW. of Lobito, Angola, 30.I.1949. Surface. 2 specimens.

The specimens are 32-38 mm in diameter with 18-21 tentacles.

Further distribution. — Atlantic Ocean from the Bay of Biscay southwards to about 50°S; south-east of Africa; also recorded from a few scattered localities in the tropical Pacific.

**Pegantha** juv.

Stat. 23 : 4°55'S-11°35'E, 3.IX.1948. Surface. 1 specimen, diam. 1 mm, with 11 tentacles.

**Solmaris juv.**

Stat. 115 : 11°45'S-12°40'E, 30.I.1949. Surface. 1 specimen, 4 mm in diameter, with 22 tentacles; the marginal lappets are evenly rounded, about as long as broad, each with one statocyst.

**Cunina peregrina BIGELOW.****West-African records :**

*Cunina peregrina* KRAMP, 1955, p. 282; from the Canary Islands to the Gulf of Guinea. — KRAMP, 1957, p. 84; south-west of the Canary Islands; Cape Verde Islands; west of the Cape of Good Hope. — KRAMP, 1959, p. 70; Canary Islands to Sierra Leone.

**Material :**

Stat. 112 : 14°42'S-11°50'E, 35 M. WbyN. of Baia das Moscas, 28.I.1949. Surface. 1 specimen.

Stat. 165 : 4°08'S-10°50'E, 22 M. SW. of Cape Banda, 27-28.III.1949. Surface. 1 specimen.

The specimen from station 112 is 11 mm in diameter, with 11 tentacles and marginal lappets; the 11 stomach pouches are distally rounded; most of the marginal lappets have 3 statocysts, but some have five. The specimen from station 165 is only 2.5 mm in diameter, with 12 tentacles; stomach pouches distally rounded; there are 3 statocysts on each of the marginal lappets.

The two localities mentioned above connect the previous records in the Gulf of Guinea and in South Africa.

**Further distribution.** — Atlantic Ocean between about 40°N and 35°S; East Africa; eastern tropical Pacific; Japan.

**Cunina octonaria MCCRADY.****West-African records :**

*Cunina octonaria* KRAMP, 1955, p. 284; Canary Islands to Angola. — KRAMP, 1957, p. 82; Cape Verde Islands; off Cape Lopez, Gulf of Guinea. — KRAMP, 1959, p. 69, Senegal.

**Material :**

Stat. 3, 23, 34, 93, 113, 183, 211 : For details, see Table I. Stat. 3 is off the Bay of Cadiz, stat. 211 is south of Nigeria; the other localities are from near the coasts of Congo and Angola.

Medusa buds are not observed in any of the specimens examined.

**Further distribution.** — Warm parts of all the oceans; Mediterranean.

**Solmissus marshalli** AGASSIZ et MAYER.**West-African records :**

*Solmaris flavescens* VANHÖFFEN, 1908, p. 58; off Sierra Leone and in the Gulf of Guinea. — VANHÖFFEN, 1912, p. 394; between the Cape Verde Islands and Walvis Bay.  
*Solmissus marshalli* KRAMP, 1957, p. 79; several localities from the Cape Verde Islands to the Cape of Good Hope. — KRAMP, 1959, p. 71; from Rio de Oro to Sierra Leone.

**Material :**

Stat. 114 : 13°25'S-12°32'E, Santa Maria, Angola, 29.I.1949. Collected at the beach.  
6 specimens, diam. 49-61 mm.

**Further distribution.** — Atlantic Ocean, mainly in the eastern parts, from the Bay of Biscay to South Africa; tropical Indian and Pacific Oceans.

**SCYPHOMEDUSAE.****Tamoya haplonema** MÜLLER.**West-African records :**

*Tamoya haplonema* STIASNY, 1934, p. 339; textfig. 1; French Congo. — RANSON, 1949 p. 137; French Guinea; Senegambia; Luderitz Bay S.W. Africa. — KRAMP, 1955, p. 287; off Freetown, Sierra Leone.

**Material :**

Off Sierra Leone, 7°05'N-12°00'W, 15.I.1938. 33-35 m, « Mercator ». 1 specimen.  
Stat. 142 : 1°07'S-8°38'E, 29 M. S. of Cape Lopez in the Gulf of Guinea, 9.III.1949. Near surface. 1 specimen.  
Stat. 153 : 0°33'S-8°50'E, 11 M. N. of Port Gentil, near Cape Lopez, 15.III.1949. Trawl, 50-75 m. 2 specimens.

There are 12-14 velar canals in each quadrant of the velarium. The specimens have the following sizes : Off Sierra Leone, 38 mm high and about 30 mm in diameter; station 142, 70 mm high and about 45 mm in diameter; station 153, 84-94 mm high and about 45 mm in diameter. In the small specimen from Sierra Leone the apical portion of the exumbrella is provided with small gelatinous warts, whereas the lateral walls are smooth.

**Further distribution.** — Along the Atlantic coast of America from Long Island to Brazil and near the Bermuda and Bahama Islands.

**Chiropsalmus quadrumanus** (MÜLLER).

- Tamoya quadrumanus* MÜLLER, 1859, pp. 1-11, pl. 2, 3, figs. 18-32.  
*Chiropsalmus quadrumanus* L. AGASSIZ, 1862, p. 174. — MAYER, 1910, p. 515, pl. 57, fig. 3.  
 ? *Chiropsalmus quadrumanus* STIASNY, 1926, p. 250, fig. 1.  
*Chiropsalmus quadrumanus* RAO, 1931, p. 28. — RANSON, 1949, p. 137. — VANNUCCI, 1954, p. 120, pl. 5, figs. 1-6. — SOUTHCOTT, 1956, pp. 270, 272-274, pl. 2, fig. 2.

**Material :**

- Stat. 25 : 4°52'S-11°39'30"E, 11 M. WSW. of Pointe Noire, 5.IX.1948. Surface. 3 large specimens.  
 Stat. 136 : 6°30'S-11°40'E, 45 M. SW. of Moita Seca, 22.II.1949. Dredge, depth 150 m. 1 specimen, height 70 mm.  
 Stat. 207 : 5°57'S-12°00'E, 25 M. WNW. of Banana. Dredge, depth 35 m. 1 specimen, height 88 mm.  
 7-8 M. of the island Margarita, Venezuela, 2.I.1939. Dredge, depth 35-37 m. « Mercator ». 2 specimens, height 42-50 mm.

In all essential features these specimens agree with *Chiropsalmus quadrumanus*, but the configuration of the gastric saccules in some of the West-African specimens gave occasion to some doubt of the identification.

The configuration of the gastric saccules is usually emphasized as the most important distinguishing character among the species of *Chiropsalmus*. In *C. zygonema* HAECKEL they are said to be very small, oval; it is a doubtful species, described by HAECKEL from a locality on the coast of Argentine. THIEL (1927, p. 15) is inclined to regard it as a young specimen of *C. quadrigatus*, which does not seem probable, since it was 60 mm in height. In *C. buitendijki* HORST, which occurs in the Malayan Archipelago, the saccules are very long, almost as long as the depth of the umbrella cavity, simple, finger-shaped and smooth. I have been able to examine a specimen of this species kindly sent to me by Dr. H. ENGEL, Amsterdam.

In *Chiropsalmus quadrigatus* HAECKEL, which likewise is an inhabitant of the Malayan Archipelago and adjacent parts of the Indian and Pacific Oceans, the gastric saccules have a somewhat more complicated structure. MAYER (1910, p. 516, text-fig. 331) describes them as laterally flattened, cock's-comb-shaped, with an irregularly notched margin. STIASNY (1937, p. 213, text-fig. 9) will not use the expression « cock's-comb-shaped », but confirms that they are laterally flattened and irregularly lobed (more so than in MAYER's figures), attached by a fairly narrow pedicel.

According to the descriptions and figures of *Chiropsalmus quadrumanus* the saccules in this species are comparatively short, hardly half as long as the depth of the umbrella cavity, finger-shaped, with a smooth surface, and so they are in three of the present specimens. In the two specimens from stations 25 and 136 on the West-African coast, however, some of the saccules are smooth whereas others have a notched margin (fig. 1), which might be apprehended

as intermediate between the conditions in *C. quadrumanus* and *quadrigatus*. The saccules, however, are not laterally flattened as in *quadrigatus*, and their edges are far from being « irregularly lobed », sometimes even merely faintly wrinkled. Moreover the saccules are attached along almost half the length of their inner margin, not by a narrow pedicel. The more or less wrinkled or

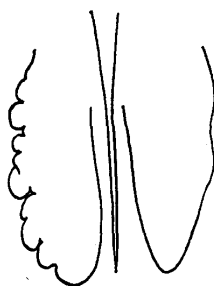


FIG. 1. — A pair of gastric saccules  
in a specimen of *Chiropsalmus quadrumanus* (Stat. 25).

notched outer edge of the saccules in these specimens may simply be due to shrinkage during the preservation. As a matter of fact, a comparison of the West-African specimens with the two specimens from Venezuela and with a specimen from São Paulo in southern Brazil, kindly sent to me by Dr. Martha VANNUCCI, has convinced me that they all belong to *C. quadrumanus* and do not represent a transitional form between this species and *C. quadrigatus*.

Further distribution. — Atlantic coast of North America south of Cape Hatteras; the coast of Brazil as far south as Santa Catarina. If the identification is correct it has also been found near Madras and Puri on the east coast of India and in the Mergui Archipelago (RAO, 1931). According to SOUTHCOTT (1956) a record from Port Darwin in North Australia by STIASNY (1926) is open to doubt. — Now for the first time taken in the eastern Atlantic, in three localities near the mouth of Congo.

### *Chiropsopus gorilla* HAECKEL.

#### West-African records :

*Chiropsopus gorilla* HAECKEL, 1880, p. 448, pl. 26, figs. 1-8; Loango, French Congo. — VANHÖFFEN, 1920, p. 17; Muculla, Angola. — STIASNY, 1931, p. 139; near Cape Town. — KRAMP, 1955, p. 288, figs. 9-12; Monrovia harbour, Liberia.

#### Material :

Stat. 36 : 5°56'S-12°08'E, 12 M. W. of Moanda, 4.X.1948. Dredge, depth 15-18 m. 3 specimens.

Stat. 156 : 5°50'S-12°03'E, 20 M. WNW. of Moanda, 23.III.1949. Dredge, depth 20-25 m. 2 specimens.



It is very interesting that no less than five new specimens of this large and beautiful medusa have been found, all of them in a fairly good state of preservation. Only four specimens were known beforehand, two of them in very mutilated conditions. The specimen recorded in a posthumous paper by VANHÖFFEN (1920) was further mentioned by THIEL (1927, p. 16), who gave a description of such organs which were left in the badly damaged specimen. The specimen seen by STIASNY (1931) was in a still more miserable condition, and no description was given.

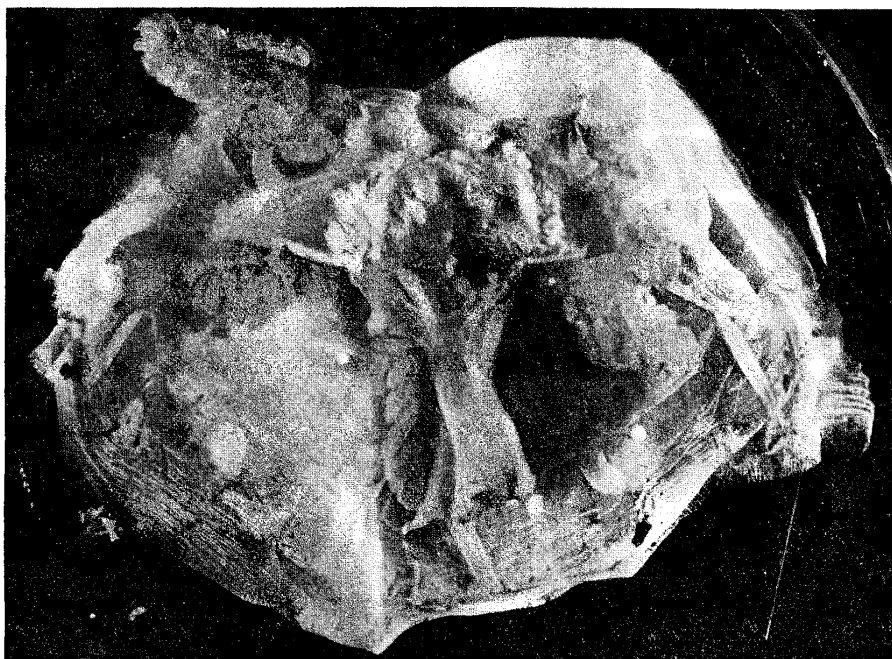


FIG. 2. — A specimen of *Chirodropus gorilla* (Stat. 36)  
cut open, showing internal structures.

The fourth specimen was collected by the Danish « Galathea » Expedition in 1950; it was well preserved, and I was able to give a new description with various additions and corrections to HAECKEL's original description (KRAMP, 1955). The most important correction concerns the structure of the eight gastric sacs which, according to HAECKEL, carry very numerous filiform appendages, whereas in the specimen examined by me these appendages were blunt and finger-shaped and comparatively few in number. In all the present specimens the gastric sacs and their appendages are exactly as described and figured in my previous paper.

One of the specimens in the present collection had been cut open before I received it, and its internal features are seen in the photograph, fig. 2, showing the large gastric sacs, which in this specimen are about 80-90 mm long, each with about 45 finger-shaped appendages. The mouth tube is prismatic, 70 mm

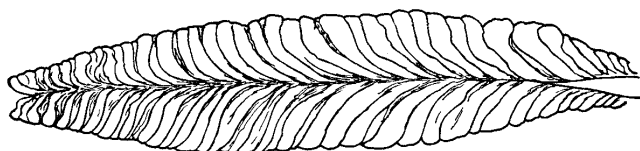


FIG. 3 a. — *Chirodropus gorilla* (Stat. 156).  
General outline of the gonad.

long, fairly narrow, terminating in a mouth with four short but distinct lips. The upper portion of the stomach is cut open, showing the numerous filiform gastric filaments; they are simple, unbranched, very densely crowded in four interradial longitudinal rows which, in their present condition of contraction,

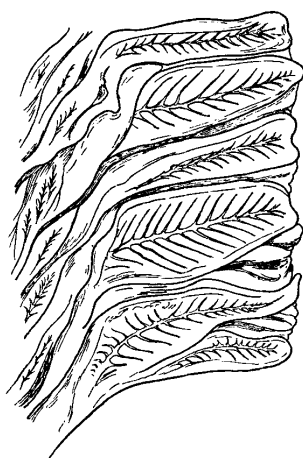


FIG. 3 b. — *Chirodropus gorilla* (Stat. 156).  
Portion of gonad.

are about 45 mm in length, making about six broad, transverse waves; the four rows of filaments nearly meet each other in the apical centre of the stomach. No traces of the four small crescent-shaped valves (« Gaumenklappen ») as described and figured by HAECKEL (Pl. 26, fig. 4) are observed.

The gonads cannot be seen in the photograph. They are attached along the interradial septa, and each of them has a feather-like appearance consisting of two lateral leaves densely transversally folded (fig. 3 *a, b*), but they have no grape-like clusters of swellings as figured by HAECKEL. There are about 40-45 folds on each side, issuing from the median line at acute angles but outwards curved, so that their terminal ends are almost perpendicular to the median septum. The transversal lamellae likewise show a feather-like structure of minute folds of second order (fig. 3 *b*). The entire gonad is about 32 mm long, narrowing towards both ends, each of the two lateral leaves about 4 mm broad in the middle portion.



FIG. 4. — *Chirodropus gorilla* (Stat. 36).  
Portion of umbrella margin between two frenulae,  
showing the canals in the velarium.

The velarium was down-hanging in HAECKEL's original specimen, and so it is in one of the present specimens, but in the others, as also in the specimen described by me in 1955, the velarium is turned horizontally inwards as is generally the case in the Cubomedusae. The canals in the velarium are very numerous, up to 50 or 60 in each quadrant in large specimens; they are dendritically divided in a number (up to 5) of elongated branches, each of which is provided with numerous short diverticula (fig. 4).

The rhopalia and their niches, as seen in the present specimens, agree exactly with the description given by me in 1955.

In so far as it has been possible to count the tentacles there are 7-9 on each of the pedalia.

Measurements of the specimens, in mm.

Station	36	156	156	36	36
Height of umbrella ... ..	46	c. 130	140	148	180
Diameter of umbrella .. ...	c. 41	c. 100	c. 110	c. 120	c. 120
Thickness of apical jelly ... ..	4	4	3	3	3
Width of velarium ... ..	7	22	c. 20	19	23
Distance from apex of umbrella to pedalia ... ..	31	80	90	112	125
Base of pedalia, length. ... ..	8	22	25	25	?
Base of pedalia, width. ... ..	4	16	16	18	?
Distance from rhopalia to umbrella margin ... ..	9	22	22	23	23

Distribution. — Only known from the west coast of Africa, from Liberia to Cape Town.

*Nausithoë punctata* KÖLLIKER.

West-African records :

*Nausithoë punctata* VANHÖFFEN, 1902, p. 29; Gulf of Guinea. — VANHÖFFEN, 1908, p. 37; Cape Verde Islands. — STIASNY, 1934, p. 365; Gulf of Guinea; Cape of Good Hope. — KRAMP, 1955, p. 293; numerous localities between Liberia and Angola.

Material :

Stat. 23, 45, 171, 183, 190, 200 : For details, see Table I.

All these localities are along the coasts of Congo and Angola. Particularly numerous specimens (about 200) were taken at station 45, off Cabinda near the mouth of the river Congo.

Further distribution. — Common in the coastal waters in all tropical and warm seas, in the Atlantic occasionally found as far north as west of the British Isles.

*Paraphyllina ranson* RUSSELL.

*Paraphyllina intermedia* RANSON, 1936, pp. 269-276, figs.

*Paraphyllina ranson* RUSSELL, 1956, pp. 105-111, pl. I and II.

Material :

Stat. 212 : 3°45'N-11°40'W, off Liberia, 4.VI.1949. Surface. 1 specimen, diam. 3 mm.

The genus *Paraphyllina* is characterized as Coronatae with 16 marginal lappets, 4 perradial rhopalia, 12 tentacles, and with 4 pairs of interradial gonads.

Three species have been described, two of them, *P. intermedia* MAAS, 1903, and *P. rubra* NEPPI, 1915, are probably identical. The third species is *P. ransoni* RUSSELL, 1956; it is distinguished from *P. intermedia* by the following features :

<i>Paraphyllina ransoni</i> .	<i>Paraphyllina intermedia</i> .
Up to 35 mm wide.	15 mm wide.
Brownish colouration over whole medusa.	Stomach red-brown in interradial parts.
8 adradial gonads	Gonads 4 pairs
W-shaped.	of bean-shaped or egg-shaped sacs.
Rhopalar pedalia	Rhopalar pedalia
slightly narrower than the tentacular.	half as wide as the tentacular.
Ring-muscle continuous.	Ring-muscle 16 trapezoids.
No ocelli with lens.	Ocelli with a lens.

The present specimen is a young stage, 3 mm wide, colourless, gonads not developed. The rhopalar pedalia are hardly narrower than the tentacular, the ring-muscle is continuous, and there are no ocelli with lens. Presumably, therefore, it belongs to *Paraphyllina ransoni*. The gastral filaments are few (about 5 in each of the four groups), some of them very large. Only one of the marginal tentacles is well developed, the 11 others are minute bulbs.

*Paraphyllina intermedia* was described from the Malayan Archipelago, and according to MAYER (1910, p. 549) it has also been found in the Mediterranean, near Naples. *P. rubra* was taken in the Adriatic Sea.

Further distribution of *Paraphyllina ransoni*. — Bay of Biscay (RANSON, 1936); off the mouth of the English Channel (RUSSELL, 1956). It is very interesting that a young specimen, presumably belonging to this species, has been found at the west coast of Africa, off Liberia.

### *Pelagia noctiluca* (FORSKÅL).

#### West-African records :

- Pelagia discoides* ESCHSCHOLTZ, 1829, p. 76, pl. 7, fig. 1; Cape of Good Hope.  
*Pelagia phosphora* HAECKEL, 1880, p. 506; numerous West-African localities.  
*Pelagia neglecta* VANHÖFFEN, 1888, p. 9; Canary Islands.  
*Pelagia phosphora* VANHÖFFEN, 1888, p. 11; Canary Islands. — VANHÖFFEN, 1902, p. 36; off Cape Verde; Gulf of Guinea; off Luanda, Angola. — VANHÖFFEN, 1892, p. 19; around the Cape Verde Islands.  
*Pelagia noctiluca* VANHÖFFEN, 1920, p. 17; S.W. Africa. — BOONE, 1938, p. 45; Canary Islands. — RANSON, 1945, p. 47; Canary Islands. — Var. *perla* RANSON, 1945, p. 48; Canary Islands. — KRAMP, 1948, p. 12; north of Cape Verde Islands. — RANSON, 1949, p. 138; off French Guinea. — KRAMP, 1955, p. 294; several localities between French Guinea and Angola.

#### Material :

Stat. 149 : 0°42'S-8°49'E, bay of Cape Lopez, 13.III.1949. Surface. 3 specimens, diam. 37-40 mm.

Stat. 218 : 14°34'N-17°20'W, Near Cape Verde, 10-11.VI.1949. Surface. 2 specimens, mutilated.

Stat. 390 : Freetown, Sierra Leone, 13.X.1955. 2 specimens, diam. 40-55 mm.

Coast of French Guinea, 9°51'N-15°30'W, 11.I.1938. Trawl, depth 3-4 m. « Mercator ». 27 specimens, diam. 20-60 mm.

Bay of Goree, south of Angra de Cintra, Rio de Oro, 30.XII.1937. « Mercator ». 1 specimen, diam. 45 mm.

Off Portugal, 37°24'N-13°20'W, 1.V.1953. « Mercator ». 1 specimen, diam. 32 mm.

It is remarkable that medium-sized and full-grown specimens were taken in January and February as well as in October.

Further distribution. — Widely distributed in the upper strata in all warm and temperate seas.

### *Chrysaora quinquecirrha* (Desor).

#### West-African records :

*Dactylometra africana* VANHÖFFEN, 1902, p. 40; Great Fish Bay.

*Dactylometra quinquecirrha* STIASNY, 1931, p. 139; Lagos, Gulf of Guinea.

*Dactylometra africana* RANSON, 1949, p. 142; several scattered localities between the Bay of Polpito, Rio de Oro, and Luderitz Bay in South-West Africa.

*Chrysaora quinquecirrha* KRAMP, 1955, p. 297; Lagos, Nigeria; Angola harbour.

#### Material :

Stat. 102 : 13°13'S-12°43'30"E, Elephant Bay, 12-13.I.1949. Collected at the beach. 2 specimens, very large, one of them about 220 mm in diam.

Angra de Cintra, Rio de Oro, 30.XII.1937. Trawl, depth 3-4 m. « Mercator ». 2 specimens, diam. 95-250 mm.

Port Etienne, Mauritania, 3.I.1938. Trawl, depth 3-5 m. « Mercator ». 3 specimens, diam. 45-100 mm.

Gulf of St. Braz, Angola, 8.II.1938. Depth 9-11 m. « Mercator ». 2 specimens, diam. 150-170 mm.

Farta Bay, south of Lobito, Angola, 10.II.1938. Trawl, depth 18-22 m. « Mercator ». 5 specimens, diam. 55-110 mm.

Gambia estuary, 13°34'N-17°49'W, 5.III.1953. Depth 15 m. « Mercator ». 1 specimen, diam. about 180 mm.

All these localities as well as the previous West-African records are from the immediate neighbourhood of the coast, most of them in or just outside estuaries of rivers.

Further distribution. — Widely distributed along the coasts in the warm parts of the Atlantic and Indian Oceans and in the western Pacific, never observed on the European coasts.

***Aurelia aurita* (L.).**

## West-African records :

*Aurelia aurita* KRAMP, 1955, p. 300; French Guinea; Gulf of Guinea.

## Material :

Angra de Cintra, Rio de Oro, 30.XII.1937. Trawl, depth 3-4 m. « Mercator ». 1 specimen, diam. 70 mm.

Further distribution. — Almost cosmopolitan.

***Discomedusa lobata* CLAUS.**

## West-African records :

*Discomedusa lobata* KRAMP, 1955, p. 301; Nigeria.

## Material :

Stat. 107 : 22°30'S-13°38'E, 38 M. W. of Walvis Bay, 24.I.1949. 1 specimen, diam. 45 mm.  
Stat. 123 : 8°28'S-12°54'E, 25 M. W. of Pointa do Dande, N. of Luanda, Angola, 7.II.1949.  
Surface. 3 specimens, diam. 70, 78, 83 mm.

These are the southernmost localities in which this species has been found.

Further distribution. — Adriatic Sea and the Gulf of Lyon; English Channel.

***Cyanea capillata* (L.).**

## Material :

Stat. 215 : 10°04'N-16°30'W, off French Guinea, 7-8.VI.1949. 4 specimens, diam. about 320-480 mm.  
30-35 M. S. of the mouth of Congo, 7.II.1938. « Mercator ». 1 specimen, diam. 225 mm.  
8-10 M. off the coast of Sierra Leone, 7°05'N-12°00'W, 15.I.1938. Trawl, depth 33-35 m.  
« Mercator ». 1 specimen, diam. 65 mm.  
Off the river Serbre, Sierra Leone, 8°40'N-13°30'W, 14.I.1938. Trawl, depth 22-24 m.  
« Mercator ». 2 specimens, diam. 350-400 m.m  
Inhabitant Bay, Nova Scotia, 44°35'N-61°17'W, 29.VI.1953. Surface. « Mercator ». 1 specimen, diam. 90 mm.

The last mentioned locality is in the north-western Atlantic; the others are on the west coast of Africa, whence this species has not previously been recorded, which seems rather peculiar. One cannot suppress the suspicion that this is due to some disinclination, frequently shown by collecting expeditions, to spend jars and room for preservation of such ordinary animals.

Further distribution. — There is some uncertainty as to the limitation of the various « species » of *Cyanea* which have been described, but presumably *C. capillata* with its local varieties has an almost world-wide distribution in coastal waters.

***Drymonema dalmatina* HAECKEL.**

*Drymonema dalmatina* HAECKEL, 1880, p. 642.

*Drymonema victoria* HAECKEL, 1881, p. 125, pl. 30, 31.

**Material :**

Off Cape de St. Braz, Angola, 10°00'S-12°30'E, 9.II.1938. Trawl, depth 55-64 m. « Mercator ». 1 specimen.

The specimen is much damaged but seems to have been about 150 mm in diameter. It was a surprise to find this Mediterranean medusa so far south on the African coast.

Further distribution. — Adriatic Sea; Straits of Gibraltar.

***Catostylus tagi* (HAECKEL 1869).**

*Crambessa tagi* + *pictonum* HAECKEL, 1880, p. 621.

*Catostylus tagi* MAYER, 1910, p. 668.

**West-African records :**

*Catostylus* sp. VANHÖFFEN, 1920, pp. 16, 17; S. W. Africa.

*Catostylus tagi* STIASNY, 1929, p. 214; St. Louis, Mauritania. — STIASNY, 1930, p. 20, figs 1-7; mouth of Congo. — STIASNY, 1939, p. 43; mouth of Congo. — RANSON, 1949, p. 144; Rio de Oro; Mullet Bay, Angola. — KRAMP, 1955, p. 303; Freetown, Sierra Leone; Gold Coast in the Gulf of Guinea.

**Material :**

Stat. 12, 25, 31, 153, 156, 175, 215, 7.IX.1955 : For details, see Table I.

30-35 M. S. of the mouth of Congo, 7.II.1938. « Mercator ». 2 specimens.

Dunford Point, Rio de Oro, 23°35'N-16°10'W, 15.II.1953. « Mercator ». Fragment of one very large specimen.

According to the seasons the sizes of the specimens varied as follows :

Month	II	III	IV	VI	VIII	IX
—	—	—	—	—	—	—
Diam., mm	150-175	160-650	340	170-180	120	60-300

One specimen is a giant, 650 mm wide (stat. 156 in March 1949); at the same station a smaller specimen, 160 mm wide, was taken. Two fairly small specimens, 60 and 80 mm wide, were taken off Banana in September 1955,



but in September 1948 several specimens of greater size, up to 300 mm in diameter, were found. Apparently, therefore, this medusa has no definite breeding season at the west coast of Africa. As in most other localities within the area of distribution the majority of the West-African specimens have been collected in or near the estuaries of rivers. The localities enumerated above are scattered between about 23°N and 6°S, within an area, whence the species was known before.

Further distribution. — Atlantic coasts of Portugal and Spain; mouth of Loire in France.

***Rhizostoma luteum* (QUOY et GAIMARD).**

*Rhizostoma pulmo* var. *lutea* MAYER, 1910, p. 703.

*Rhizostoma luteum* STIASNY, 1931, p. 164, figs. 4-6. — STIASNY, 1936, pp. 1-6, figs. 1-2.

West-African records :

*Rhizostoma luteum* RANSON, 1949, p. 147; Mauritania and Angola. — KRAMP, 1955, p. 304 near the mouth of Congo.

Material :

Stat. 76 : 13°53'S-12°28'30"E, bay of Santa Maria, 3.XII.1948. Surface. 2 specimens, diam. 42-48 mm.

Stat. 115 : 11°45'S-12°40'E, 65 M. NW. of Lobito, 30.I.1949. Surface. 1 specimen, diam. 17 mm.

Portuguese Guinea, 12°46'N-17°07'W, 9.I.1938. Trawl, depth 18-20 m. « Mercator ». 1 specimen, diam. 150 mm.

Gambia estuary, 13°34'N-17°49'W, 5.III.1953. Trawl, depth 7 m. 1 specimen, diam. 260 mm.

Thorough descriptions of this species are given by STIASNY and RANSON in the papers quoted above. For comparison with STIASNY's figures of the canal system in older stages I have made the accompanying drawing (fig. 5) of the proximal portions of the canals in one octant of a young specimen, 48 mm in diameter (stat. 76). It will be seen that the radial canals are remarkably broad, whereas the ring canal is rather faintly developed, and the infracircular net of canals is less complicated than in the specimens examined by STIASNY. In the juvenile specimen, 17 mm wide, from station 115, the canals were not essentially different from those shown in figure 5.

Besides the colouration and various minor structures, STIASNY emphasizes the shape of the subgenital papillae as a distinguishing character between this species and *Rhizostoma pulmo*, in which they are only represented by a somewhat thickened valve on the outer edge of each subgenital pit, whereas in *R. luteum* they are seen as an isolated and well-defined, egg-shaped or bean-shaped gelatinous protuberance in the bottom of each subgenital pit. I can

fully confirm this statement after an examination of the present specimens; these papillae are even faintly indicated in the very young specimen, 17 mm wide, mentioned above.

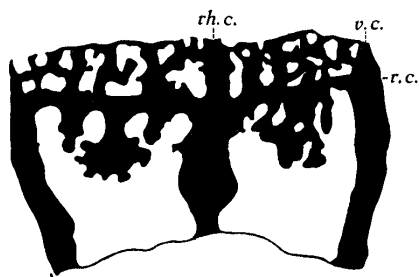


FIG. 5. — *Rhizostoma luteum* (Stat. 76).  
Infracircular canals and portion of extracircular canals of a specimen,  
48 mm in diameter.  
rh. c. : rhopalar canal; v. c. : velar canal; r. c. : ring canal.

Further distribution. — Straits of Gibraltar; west coast of Portugal. This medusa, which has been considered a rare species, is now recorded from seven localities on the west coast of Africa between the Mauritanian coast and Great Fish Bay in southern Angola.

TABLE I.

Medusae collected by the Belgian oceanographical expeditions to the Atlantic coasts of Africa.

Stat. n°	Position	Date	Depth m	Gear	Depth of haul m	<i>Eirene viridula</i>	<i>Laröpe tetraphylla</i>	<i>Schmiedella bidenticulata</i>	<i>Cunina octoraria</i>	<i>Nausithoe punctata</i>	<i>Catostylus tagi</i>	Other species
1	44°15'N-8°30'W Bay of Biscay	6.VII.1948	470	Pl.	200-0	.	.	.	.	.	.	6 <i>Rhopalonema velatum</i>
2	40°53'N-11°08'W off Portugal	7.VII.1948	300	Pl.	300-0	.	.	.	.	.	.	1 <i>Rhopalonema velatum</i>
3	35°44'N-12°44'W Bay of Cadiz	8.VII.1948	1.000	Pl.	0	.	.	.	1	.	.	—
8	6°16'S-12°07'E 48 M. SW. of Moita Seca	3.VIII.1948	50	Pl.	50-0	.	13	.	.	.	.	—
12	5°56'S-12°00'E	17-19.VIII.1948	34	Various	0-25	.	c. 350	.	.	.	.	1 <i>Obelia</i> sp. 1 <i>Helgicirrha schulzei</i> 1 <i>Rhacostoma atlanticum</i> 13 <i>Olindias phosphorica</i>
				Dredge	34	.	.	.	.	.	1	—

TABLE I (continued).

Stat. n°	Position	Date	Depth m	Gear	Depth of haul m	<i>Eirene viridula</i>	<i>Liriope tetraphylla</i>	<i>Solmundella bidentaculata</i>	<i>Cunina odonaria</i>	<i>Nausithoe punctata</i>	<i>Catostylus tagi</i>	Other species
13	5°52'S-11°43'30"E 41 M. WNW. of Banana	20.VIII.1948	74	Pl.	0	.	33	.	.	.	.	—
					20	.	19	.	.	.	.	—
14	5°53'30"S-11°40'30"E 45 M. WNW. of Banana	21.VIII.1948	100	Pl.	10	.	43	1	.	.	.	—
				Pl.	100-0	.	14	.	.	.	.	1 <i>Laodicea undulata</i>
15	5°50'S-11°32'E 51 ½ M. WNW. of Banana	22.VIII.1948	210	Pl.	0	.	15	.	.	.	.	—
				Pl. v.		.	6	.	.	.	.	—
				Str.		.	c. 150	.	.	.	.	—
23	4°55'S-11°35'E 16 M. WSW. of Pointe Noire	3.IX.1948	115	Pl.	0	1	69	2	.	1	.	16 <i>Obelia</i> sp. 1 <i>Pegantia</i> juv.
				Pl.	100-0	2	31	.	1	.	.	—
24	4°58'S-11°20'30"E 31 M. WSW. of Pointe Noire	4.IX.1948	180	Pl.	0	.	38	1	.	.	.	—
25	4°52'S-11°39'30"E 14 M. WSW. of Pointe Noire	5.IX.1948	58	Pl.	0	.	66	.	.	.	5	6 <i>Obelia</i> sp. 3 <i>Chiropsalmus quadrumanus</i>
27	4°08'S-11°59'45"E 20 M. S. of Cape Banda	6.IX.1948	54	Pl.	0	.	5	.	.	.	.	5 <i>Obelia</i> sp.
31	7°16'S-12°47'E 6 M. W. of Ambrizette	29.IX.1948	35	Pl.	0	.	.	.	.	.	2	—
32	7°17'S-12°42'30"E 13 M. W. of Ambrizette	30.IX.1948	45	Pl.	0	3	5	.	.	.	.	—
33	7°16'S-12°17'E 35 M. W. of Ambrizette	1.X.1948	145	Ep.	—	.	1	.	.	.	.	—
34	7°16'S-12°08'E 45 M. W. of Ambrizette	1.X.1948	250	Pl.	—	.	.	1	1	.	.	—
36	5°56'S-12°08'E 12 M. W. of Moanda	4.X.1948	20	Dredge	15-18	.	.	.	.	.	.	3 <i>Chirodromus gorilla</i>
44	5°39'S-12°00'E 12 M. WSW. of Cabinda	14.X.1948	40	Dredge	40	.	.	.	.	.	.	1 <i>Aequorea aequorea</i>
45	5°39'S-11°25'E 47 M. WbyS. of Cabinda	14.X.1948	480	—	—	1	.	.	.	c. 200	.	—
46	5°39'S-10°06'E 66 M. WbyS. of Cabinda	14.X.1948	1.000	Str.	0	.	1	.	.	.	.	—
76	13°53'S-12°28'30"E Bay of Santa Maria	3.XII.1948	80	Ep.	0	.	.	.	.	.	.	2 <i>Rhizostoma luteum</i>
79	13°25'S-12°10'E 14 M. NW. of Lobito	5.XII.1948	0	Pl. Ep.	0	.	1	.	.	.	.	—

TABLE I (continued).

Stat. nº	Position	Date	Depth m	Gear	Depth of haul m	<i>Eirene viridula</i>	<i>Liriope tetragylla</i>	<i>Solmundella bitemaculata</i>	<i>Cunina octonaria</i>	<i>Nausithoe punctata</i>	<i>Catostylus tagi</i>	Other species
84	10°41'S-13°20'E 25 M. WhyN. of Cape Morro	10.XII.1948	128	Pl.	0	1	1	.	.	.	.	—
92	11°36'S-13°45'E 5 M. W. of Cabeça da Baleia	15.XII.1948	37	Pl.	0	.	1	.	.	.	.	1 <i>Solmaris</i> juv.
93	10°36'S-13°28'E 21 M. W. of Cabeça da Baleia	15-16.XII.1948	127	Pl.	0	15	.	.	2	.	.	—
102	13°13'S-12°43'30"E Elephant Bay	12-13.I.1949	—	L.	Beach	.	.	.	.	.	.	2 <i>Chrysaora quinquecirrha</i>
107	22°30'S-13°38'E 38 M. W. of Walvis Bay	24.I.1949	115	—	—	.	.	.	.	.	.	1 <i>Discomedusa lobata</i>
112	14°42'S-11°50'E 35 M. WhyN. of Baía das Moscas	28.I.1949	2.000	Pl.	0	.	.	1	.	.	.	1 <i>Laodicea undulata</i>
113	13°25'S-12°32'30"E Santa Maria, Angola	29.I.1949	45	Pl.	0	.	24	.	2	.	.	2 <i>Obelia</i> sp.
114	13°25'S-12°32'30"E Santa Maria, Angola	29-30.I.1949	0	—	Beach	.	.	.	.	.	.	6 <i>Solmissus marshalli</i>
115	11°45'S-12°40'E 65 M. NW. of Lobito	30.I.1949	2.000	—	0	105	4	1	.	.	.	2 <i>Pegantha laevis</i> 1 <i>Solmaris</i> juv. 1 <i>Rhizostoma luteum</i>
123	8°28'S-12°54'E 25 M. W. of Ponta do Dandé	7.II.1949	310	—	0	.	.	.	.	.	.	3 <i>Discomedusa lobata</i>
136	6°30'S-11°40'E 45 M. SW. of Moita Seca	22.II.1949	150	Dredge	150	.	.	.	.	.	.	1 <i>Chiropsalmus quadrumanus</i>
140	0°49'S-8°41'E 11 M. S. of Cape Lopez	8.III.1949	21	—	0-1	.	4	.	.	.	.	—
142	1°07'S-8°38'E 29 M. S. of Cape Lopez	9.III.1949	51	Pl.	0	.	1	.	.	.	.	1 <i>Tamoya haplonema</i>
				Pl.	5	.	2	.	.	.	.	—
149	0°42'S-8°49'E Bay of Cape Lopez	14.III.1949	14	—	0	.	.	.	.	.	.	3 <i>Pelagia noctiluca</i>
153	0°33'S-8°50'E 11 M. N. of Port Gentil	15.III.1949	48	Dredge	50-75	.	.	.	.	.	6	2 <i>Tamoya haplonema</i>
155	5°56'S-12°03'E 20 M. W. of Moanda	22.III.1949	32	—	0	.	1	.	.	.	.	—
156	5°50'S-12°03'E 20 M. WNW. of Moanda	23.III.1949	20	Dredge	20-25	.	.	.	.	.	10	2 <i>Chirodropus gorilla</i>
164	3°11'S-10°14'E 30 M. NW. of Mayumba	27.III.1949	30	—	25	.	2	.	.	.	.	—

TABLE I (continued).

Stat. nº	Position	Date	Depth m	Gear	Depth of haul m	<i>Eirene viridula</i>	<i>Liriope tetraphylla</i>	<i>Schmudella bilentaculata</i>	<i>Cunina oclonaria</i>	<i>Nausithoe punctata</i>	<i>Calostylus tagi</i>	Other species
165	4°08'S-10°50'E 22 M. SW. of Cape Banda	27-28.III.1949	85	—	0	1	11	.	.	.	.	1 <i>Cunina peregrina</i>
171	4°48'S-11°30'E 32 M. W. of Pointe-Noire	1-2.IV.1949	137	Pl., day	0	1	1	.	.	10	.	—
				Pl., night	0	2	1	.	.	30	.	—
175	6°00'S-12°22'E 300 m. W. of Banana	3.IV.1949	3	Dredge	3-5	.	.	.	.	.	1	—
177	8°00'S-12°40'E 30 M. WbyS. of Ambrizette	9-10.IV.1949	125	Str.	0	.	1	.	.	.	.	—
183	9°22'S-13°01'E 13 M. WbyS. of Cuanza	12-13.IV.1949	50	—	—	.	5	.	1	4	.	—
190	14°34'S-11°29'E 53 M. NW. of Mossamedes	8.V.1949	2.000	Str.	0	.	18	.	.	7	.	3 <i>Rhopalonema velatum</i> 1 <i>Pegantia martagon</i>
200	6°30'S-11°40'E 42 M. SW. of Moita Seca	18-19.V.1949	155	Str.	0	.	1	.	.	2	.	3 <i>Rhopalonema velatum</i>
207	5°57'S-12°00'E 25 M. WNW of Banana	21.V.1949	34	Dredge	35	.	.	.	.	.	.	1 <i>Chiropsalmus quadrumanus</i>
211	0°10'S-5°00'W S. of Ivory Coast	2.VI.1949	2.000	—	0	.	4	.	3	.	.	—
212	3°45'N-11°40'W off Liberia	4.VI.1949	2.000	Str.	0	.	20	1	.	.	.	1 <i>Paraphyllina ransoni</i>
213	7°10'N-14°10'W off Sierra Leone	5.VI.1949	2.000	Str.	0	.	2	4	.	.	.	2 <i>Lovenella cirrata</i> 1 <i>Rhopalonema velatum</i>
215	10°04'N-16°30'W off French Guinea	7-8.VI.1949	60	—	—	.	.	.	.	.	2	4 <i>Cyanea capillata</i>
218	14°34'N-17°20'W Near Cape Verde	10-11.VI.1949	40	—	0-4	.	.	.	.	.	.	2 <i>Pelagia noctiluca</i>
303	Mouth of Congo. Kisongo. Banana	18.VII.1955	0	Pl.	—	.	.	.	.	.	.	1 <i>Cnidostoma fallax</i>
336	6°00'S-12°10'E Off mouth of Congo	17.VIII.1955	55	—	—	.	.	.	.	.	.	3 <i>Laodicea undulata</i>
345	5°52'05"S-12°07'E 10 M. off Vista	24.VIII.1955	—	Dredge	0	.	.	.	.	.	.	5 <i>Olindias phosphorica</i>
	Off the church of Banana	7.IX.1955	—	Dredge	—	.	.	.	.	.	2	—
390	Freetown, Sierra Leone	13.X.1955	—	—	—	.	.	.	.	.	.	2 <i>Pelagia noctiluca</i>

TABLE II.

Medusae collected during the cruises of the training ship « Mercator ».

Position	Date	Depth m	Gear	Depth of haul m	Species
26°02'30"N-14°36'W Rio de Oro	28.X.1935	—	—	—	7 <i>Eucheilota ventricularis</i>
13°25'N-16°50'W Senegambia, off Gambia	15.XI.1935	—	—	—	27 <i>Oceania armata</i>
Martinique, West Indies	30-31.XII.1935	—	—	—	1 <i>Oceania armata</i>
Angra de Cintra, Rio de Oro	30.XII.1937	—	Dredge	18-22	2 <i>Chrysaora quinquecirrha</i> 1 <i>Pelagia noctiluca</i> 1 <i>Aurelia aurita</i>
Port Etienne, Mauretania	3.I.1938	—	Dredge	2,5-5,5	3 <i>Chrysaora quinquecirrha</i>
12°46'N-17°07'W Portuguese Guinea	9.I.1938	—	Dredge	18-20	1 <i>Rhizostoma luteum</i>
9°51'N-15°30'W French Guinea	11.I.1938	—	Dredge	29-31	27 <i>Pelagia noctiluca</i>
8°40'N-13°30'W Sierra Leone, off the river Serbre	14.I.1938	—	—	22-24	2 <i>Cyanea capillata</i>
7°05'N-12°00'W Sierra Leone	15.I.1938	—	—	33-35	1 <i>Tamoya haplonema</i> 1 <i>Cyanea capillata</i>
30-35 M. S. of mouth of Congo	7.II.1938	—	—	—	1 <i>Cyanea capillata</i> 2 <i>Catostylus tagi</i>
Gulf of St. Braz, Angola	8.II.1938	—	—	9-11	2 <i>Chrysaora quinquecirrha</i>
10°00'S-12°30'E Off Cape St. Braz, Angola	9.II.1938	—	Dredge	55-64	1 <i>Drymonema dalmatina</i>
Farta Bay S. of Lobito, Angola	10.II.1938	—	Dredge	18-22	5 <i>Chrysaora quinquecirrha</i>
7-8 M. off the island Margarita, Venezuela	2.I.1939	—	Dredge	35-37	2 <i>Chiropsalmus quadrumanus</i>
23°35'N-16°10'W Dunford Point, Rio de Oro	15.II.1953	—	—	—	1 <i>Catostylus tagi</i>
13°34'N-17°49'W Gambia estuary	5.III.1953	—	—	11	1 <i>Chrysaora quinquecirrha</i> 1 <i>Rhizostoma luteum</i>
37°24'N-13°20'W Off Portugal	1.V.1953	—	—	—	1 <i>Pelagia noctiluca</i>
44°35'N-61°17'W Inhabitant Bay, Nova Scotia	29.VI.1953	7	—	0	1 <i>Cyanea capillata</i>

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