

muito densamente distribuídos, excepto na parte anterior da segunda dorsal. O castanho carregado dene-grido do dorso continua para cima nas membranas desta barbatana, e desbota gradualmente até branco para a borda distal. Íris, escura.

Em espécimenes frescos a cor base nos lados e na parte inferior da cabeça é clara e prateada.

Parece ser raro. Os dois espécimenes aqui descritos constituem os primeiros assinalados na Madeira.

part of the head is silvery.

Apparently rare. The 2 specimens here described constitute the only records for Madeira.

## ADDITIONS TO PREVIOUSLY REVISED FAMILIES

No. VI, Art. 16.

By G. E. Maul

### ORDER INIOMI

#### FAMILY PARALEPIDIDAE

Genus *Macroparalepis* Ege, 1955

*Macroparalepis egei* Maul

*Macroparalepis egei* MAUL, 1945, Bol. Mus. Mun. Funchal, no. 1, art. 1, p. 31, fig. 9, table 15.

One specimen, no. 3038, 128 mm. total length without caudal. Taken from stomach of *Alepisaurus ferox* Lowe. 3.V.1945. Fair condition.

Head  $4\frac{7}{8}$ , greatest depth equals snout, 11 in total length without caudal. Eye 2 in snout and  $4\frac{2}{3}$  in head. Dorsal 11; anal incomplete. Dentition and colour like type.

#### FAMILY MYCTOPHIDAE

Genus *Myctophum* Rafinesque, 1810

*Myctophum (M.) selenops* Taaning

Fig. 13.

*Myctophum selenops* TAANING, 1928, Vidensk. Medd. fra Dansk naturh. Foren., Bd. 86, p. 54.

*Myctophum (Myctophum) selenops* Taaning. FRAZER-BRUNNER, 1949, Proc. Zool. Soc., vol. 118, part 4, p. 1059, figure.

One specimen, no. 3108, 59 mm. total length without caudal. Taken from stomach of *Alepisaurus ferox* Lowe. 18.I.1950. Good condition.

Head  $5 \frac{1}{3}$ , greatest depth  $3 \frac{1}{4}$  in total length without caudal. Eye  $2 \frac{2}{5}$ , depth at middle of caudal peduncle about 2 in head. Scales in lateral line 55. Dorsal 13; anal 18. Gill-rakers long and thin, 6 on upper and 16 on lower part of first gill-arch.

Photophores large, intervals between them mostly less than diameter of

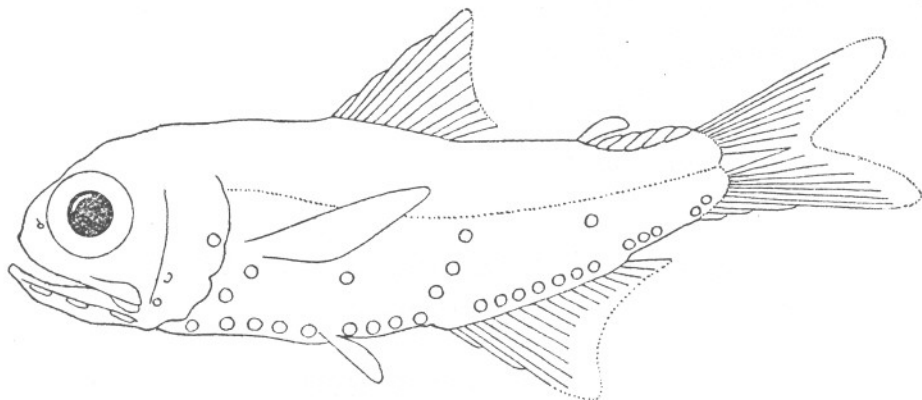


Fig. 13.—*Myctophum (M.) selenops* Taaning

organs. Br 3; preorbital 1; Op 3; PO 5; VO 4; AOant. 7 and AOpost. 3; Prc 2; PLO 0; PVO 2; VLO 1; SAO 3, upper well separated from lateral line; Pol 1, well removed from lateral line. Five large luminous plates on upper part of caudal peduncle.

Pectorals long, not quite reaching vertical through end of dorsal base. Ventrals somewhat before vertical through dorsal origin. Anal origin under penultimate dorsal ray. Preopercle slightly inclined downward forward.

Genus *Diaphus* Eigenmann & Eigenmann, 1891

*Diaphus (Lamprossa) effulgens* (Goode & Bean)

Fig. 14.

*Aethoprora effulgens* GOODE AND BEAN, 1895, Oce. ichth., p. 87, fig. 105.

*Myctophum (Diaphus) aeolochrus* BARNARD, 1927, Ann. South Afric. Mus., vol. 21, p. 1021.

*Diaphus effulgens* (Goode & Bean). TAANING, 1928, Vidensk. Medd. fra Dansk naturh. Foren., Bd. 86, p. 49.

*Diaphus (Lamprossa) effulgens* Goode & Bean. FRASER-BRUNNER, 1949, Proc. Zool. Soc., vol. 118, part 4, p. 1073, figure.

One specimen, no. 3107, 75 mm. total length without caudal. Taken from stomach of *Alepisaurus ferox* Lowe, 18.I.1950. Snout and lower posterior half of caudal peduncle dissolved by gastric juices.

Head large, slightly more than 3 in total length without caudal, greatest depth 3 1/5. Eye about 3, least depth of caudal peduncle 2 1/2 in head. Dorsal 16; anal 16. Gill-rakers large, 6 on upper and 14 on lower part of first gill-arch.

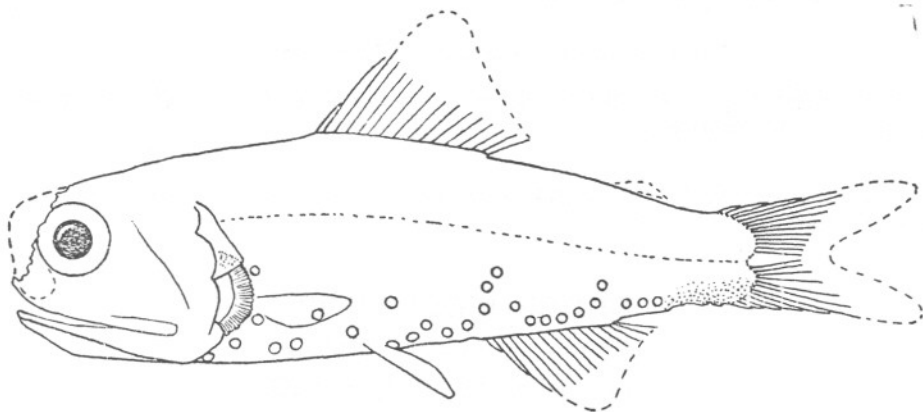


Fig. 14.—*Diaphus (Lamprossa) effulgens* (Goode & Bean)

Photophores large. Orbital glands destroyed by gastric juices. Br 3; PO 5, second and third close together and far removed from first, fourth high up, higher than upper PVO; VO 5, third highest; AO ant. 6, first and last highest and on same level; AO post. incomplete; Prc destroyed by gastric juices; PLO 1, nearer base of pectoral than lateral line; PVO 2; VLO 1, on level with middle SAO; SAO 3; Pol 1, above and slightly behind last AO ant., nearer latter than lateral line, from which equally far removed as uppermost SAO.

#### FAMILY ANOPTERIDAE

Genus *Anopterus* Zugmayer, 1911

*Anopterus pharao* Zugmayer

Fig. 15.

*Anopterus pharao* Zugmayer. MAUL, 1946, Bol. Mus. Mun. Funchal, no. 2, art. 2, p. 56, fig. 21.

One postlarva, no. 3071, 47.5 mm. total length without caudal. From sto-

mach of *Alepisaurus ferox*. 28.XI.1946. In good condition.

Head  $3 \frac{1}{3}$ , greatest depth 14 in total length without caudal. Snout  $1 \frac{2}{3}$ , eye nearly 7 in head, 4 in snout.

The two palatines bear together 14 teeth of the shape and proportions of those in adult specimens.

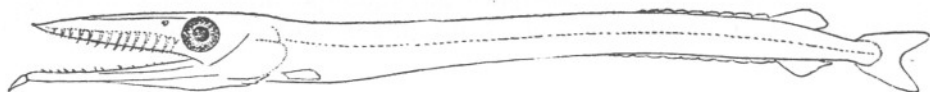


Fig. 15.—*Anotopterus pharao* Zugmayer (no. 3071)

Body and head throughout rather densely pigmented with minute dark brown chromatophores.

Some more adult specimens, also taken from stomachs of *A. ferox*, have come to hand.

## ORDER ISOSPONDYLI

### FAMILY ALEPOCEPHALIDAE

Genus *Searsea* Parr, 1957

*Searsea koefoedi* Parr

*Searsea koefoedi* Parr. MAUL, 1948, Bol. Mus. Mun. Funchal, no. 3, art. 5, p. 12, fig. 3.

One specimen, no. 5326, 114 mm. total length without caudal. Taken from stomach of *Aphanopus carbo* Lowe. 17.III.1952. Fair condition.

No essential differences between this and the specimen described in Boletim no. III, but it is interesting to note that the latter was collected in about 100-150 m. depth, whereas the specimen here recorded comes from the stomach of a species which lives in 600-1600 m. depth and is mostly fished at about 1000 m.

### FAMILY STOMIATIDAE

Genus *Photostomias* Collett, 1889

*Photostomias guernei* Collett

Fig. 16.

*Photostomias guernei* COLLETT, 1889, Bull. Soc. Zool. de France, vol. 14, p. 291 [*vide* COLLETT, 1896]. GOODE & BEAN, 1895, Oce. ichth., p. 115,

fig. 140. COLLETT, 1896, Rés. Camp. Sci. Monaco, fasc. 10, p. 151, pl. 1, fig. 5. ZUGMAYER, 1911, Rés. Camp. Sci. Monaco, fasc. 35, p. 65, pl. 3, fig 1, 1 a. PARR, 1927, Bull. Bing. Oce. Coll., vol. 3, art. 2, p. 102. REGAN & TREWAVAS, 1950, Danish "Dana" Exp., no. 6, p. 154, fig. 150, 151, pl. 13, fig. 1. FOWLER, 1956, Bull. Am. Mus. Nat. Hist., vol. 70, p. 205, fig. 90.

One specimen, no. 3184, 41 mm. total length without caudal. "Président Théodore Tissier", Station 254 N° P 319. 3.IV.1950. Between Madeira and Porto Santo, at a vertical haul, 1000 m. depth. Very good condition.

Lower jaw  $6 \frac{1}{4}$ , greatest depth 9 in total length without caudal. Horizontal diameter of eye equals snout, about  $5 \frac{1}{2}$  in lower jaw. Postocular organ  $1 \frac{1}{2}$  in eye. Photophores of lateral series: O-V 16; V-A 22; A-C 13. Photophores of ventral series: I-V 21; V-A 22.

Dorsal 24; anal 28; ventrals 6; pectorals 0. Origin of ventrals in middle of distance between snout-tip and first photophore of A-C series. Basis of anal begins a short distance in advance of that of dorsal and ends at about an equal

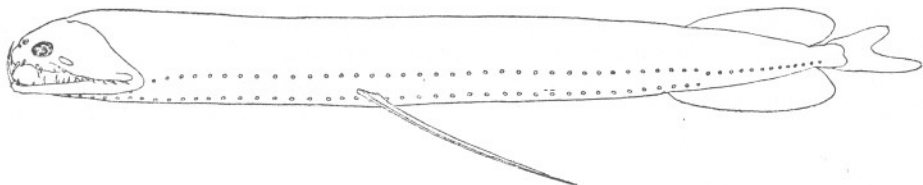


Fig. 16.—*Photostomias guernei* Collett

distance behind it. Lower lobe of caudal much longer than upper. Length of ventrals  $1 \frac{1}{4}$  in distance between origins of ventral and anal.

Teeth of premaxillaries of greatly varying size, those of maxillaries of similar shape and size, flattened and pointing backwards, 6 on left side and 8 on right. Palatine teeth 4. Near symphysis of lower jaw one greatly enlarged curved canine on each side, its length being slightly less than 3 in lower jaw. All other teeth of lower jaw are small.

As regards proportions of eyes, head and body, as well as fin-counts and photophores there is perfect agreement with the descriptions of numerous specimens of *Photostomias guernei*, of greatly varying size, rendered by COLLETT, REGAN & TREWAVAS, PARR and ZUGMAYER. However, several characters of some importance—if we consider that the material of some of the aforementioned authors contained several specimens of nearly the same size as the one here described—disagree so greatly that it is with some hesitation that the author identifies the specimen at hand with *P. guernei*. In all figures, except in one of a postlarval specimen of about 24 mm., the ventrals reach far back to middle of anal, here they are far removed from the origin of the

fin. Without exception 2 pairs of canines are given for the lower jaw and their length is contained about 5 times in the lower jaw, whereas here there is only one pair, being proportionally almost twice as long. The number of maxillary teeth (6-8) also seems rather low compared to the numbers given by other authors; ZUGMAYER 12, PARR about 21, and REGAN & TREWAVAS show in their figures 27-30.

FAMILY GONOSTOMATIDAE

Genus *Argyripnus* Gilbert & Cramer, 1897

*Argyripnus atlanticus* sp. n.

Fig. 17.

One specimen, type, no. 5226, 59 mm. total length without caudal, from Funchal harbour, near surface. Caught alive during the night of 14th April 1951, by Mr. Adão Nunes. Very good condition.

Body compressed, with its deepest portion between preopercle and ventrals. Depth of caudal peduncle somewhat less than  $2 \frac{1}{2}$  in greatest depth. Head moderate,  $3 \frac{1}{5}$  in total length without caudal. Eye large, slightly more than  $2 \frac{1}{4}$  in head. Base of pectorals low, its origin distinctly in advance of

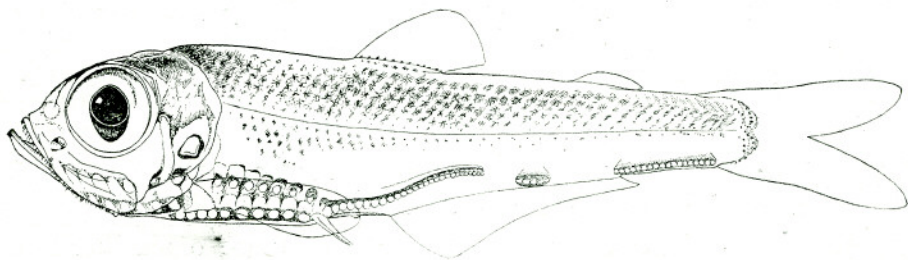


Fig. 17.—*Argyripnus atlanticus* sp. n.

end of head. Ventrals slightly in advance of origin of dorsal, which is situated about in middle of length without caudal. Base of dorsal short, that of anal long. Origin of anal under middle of base of dorsal. Adipose low, with a long base, its origin in middle of distance between dorsal and caudal. End of base of anal under posterior  $\frac{1}{4}$  of adipose.

Dorsal 12; anal 27; pectorals 19; ventrals 7; caudal 15, 10/9, 10. Gill-rakers long and finely barbed along their upper edges, 7 on upper and 17 on lower part of first gill-arch. Pseudobranchiae present. Teeth small, curved, in single rows on premaxillaries, maxillaries and limbs of lower jaw. On each premaxillary and maxillary about 24 teeth. Those of the lower jaw much smaller. On each side of the very broad vomer 2 teeth, and 4-5 on each palatine. Scales moderately large, cycloid, somewhat caducous.

Luminous organs on head 5: one slightly in advance of eye, on a level with its lower border, luminous disc pointing towards centre of eye; one small one at posterior border of orbit; one on lower edge of preopercle; one a short distance behind and on a level with it; one very large and conspicuous one on opercle, on a level with the antorbital one. Series on isthmus 6, branchiostegal series also 6. From isthmus to ventrals 10, round, large, not touching, set in a blackish band. From ventrals to  $5/7$  of base of anal 28 photophores: the first small and higher than second; the second large, and resting directly on the upper border of the base of the ventral fin, up to the ninth organ they decrease in size gradually, the diameter of the ninth measuring only about half that of the second. This row of photophores curves, from its origin, slightly upwards towards the origin of anal, from where it rises somewhat more steeply to half the length of the part situated above the anal, and the last part runs about parallel with the lower outline of the body; all the organs of this series touch each other, and the row is bordered above by a broad, conspicuous, blackish band. Well separated from this series, and at a lower level than the last organ of it, there is a short series of 5 organs, bordered, above and below, by a broad blackish band; the individual organs of this series are distinctly larger than those of the posterior part of the previous series and touch one another. The hindmost series of photophores consists of 18 organs, the second being exactly above the end of the base of the anal, and the last ending where the caudal begins; the row is bordered, above and below, by a moderately broad blackish band, and all the organs touch one another. The upper series consists of 7 photophores, well separated from one another, each placed in the middle of a large modified scale; first above fourth organ of series between isthmus and ventrals, the last touching the first organ of the series commencing at ventrals.

Measurements in mm., taken on a plane, between verticals.

Total length . . . . .	72
» » without caudal . . . . .	56
Head . . . . .	16.75
Snout to pectoral . . . . .	14.25
» » ventral . . . . .	24.25
» » dorsal . . . . .	27.50
» » anal . . . . .	30.75
» » end of dorsal base . . . . .	34.75
» » adipose . . . . .	45.25
» » end of anal base . . . . .	49.50
Greatest depth . . . . .	14.75
Depth of caudal peduncle . . . . .	6.25
Greatest breadth of body . . . . .	8
Longest ray of dorsal . . . . .	7
» » » anal . . . . .	7
» » » pectoral . . . . .	13
Interorbital . . . . .	4.5
Longest gill-raker . . . . .	3.75

Colour on fresh specimen, snout and part of body posterior to ventrals, except for chromatophores, completely colourless and transparent. Parts of opercles, upper part of maxillary, modified scales of upper series of luminous organs silvery. Peritoneum shows blackish silvery through body-wall. Fore-head and nape black, a pear-shaped white spot on top, between eyes. Scales in upper half of body-height brown in their centres. All fins transparent, white.

The only other two species of the genus *Argyripnus* so far described are *Argyripnus iridescens* McCulloch and *A. ephippiatus* Gilbert and Cramer, the two being considered possibly not distinct by NORMAN (1930, Discovery Reports, p. 500) and McCULLOCH (1926, Biol. Res. "Endeavour", V, p. 171). The characters in which this new species differs most strikingly from them are most conveniently expressed in the following comparison:—

	Rays of anal	Rays of pectorals	Photophores in series from base of ventrals to above anal	Photophores between anal and caudal	Luminous organ on opercle compared to largest of body
<i>A. iridescens</i> & <i>A. ephippiatus</i>	22-25	16	19-21	13-15	smaller
<i>A. atlanticus</i> sp. n.	27	19	28	18	much larger

Genus *Argyropelecus* Cocco, 1829

*Argyropelecus gigas* Norman

*Argyropelecus gigas* Norman. MAUL, 1949, Bol. Mus. Mun. Funchal, no. 4, art. 9, p. 17, fig. 6.

One specimen, no 5276, 116 mm. total length without caudal. Taken from stomach of *Aphanopus carbo* Lowe. Poor condition.



## ORDER ANACANTHINI

## FAMILY MACROURIDAE

Genus *Coryphaenoides* Gunnar, 1761*Coryphaenoides theleostomus* Maul

*Coryphaenoides theleostomus* MAUL, 1951, Bol. Mus. Mun. Funchal, no. 5, art. 12, fig. 2 & 4a.

Two specimens, nos. 3285 and 3297, 170 mm. and 195 mm. in predorsal length, respectively. Former from Câmara de Lobos, 16. I. 1952, latter from Funchal fish market, 22. II. 1952. According to fish merchant this latter was caught on tackle for *Polyprion americanum*, ca. 500 m. Both in very good condition, no. 3285 has part of the tail missing.

First dorsal 12; pectorals 21; ventrals 8. Gill-rakers large, tubercular, covered with spines, 7 on lower part of second gill-arch. Other characters like in type.

## BIBLIOGRAPHY (Art. 15 &amp; 16)

Barnard, K. H.:

1925. A Monograph of the Marine Fishes of South Africa. Ann. South Afric. Mus., vol. 21, pp. 1-418, part 1.

1927. *Ibid.*, pp. 410-1065.

Bowdich, T. E.:

1825. Excursions in Madeira & Porto Santo, during the Autumn of 1823.

Collett, R.:

1896. Poissons provenant des campagnes du yacht "l'Hirondelle". Résultats des campagnes scientifiques du Prince de Monaco, fasc. 10.

Ege, V.:

1935. On some Fishes of the Families Sudidae and Stomiidae. Vidensk. Medd. fra Dansk naturh. Foren., Bd. 94, pp. 223-236.

Fowler, H. W.:

1956. The Marine Fishes of West Africa. Bull. Am. Mus. Nat. Hist., vol. 70, part 1 & 2.

Fraser-Brunner, A.:

1949. A classification of the Fishes of the Family Myctophidae. Proc. Zool. Soc., vol. 118, part 4, pp. 1019-1106.

- Goode, G. B. & Bean, T. H. :  
1895. Oceanic Ichthyology. A Treatise on the Deep-Sea and Pelagic Fishes of the World. Special Bull., U. S. Nat. Mus., Washington.
- Günther, A. :  
1862. Catalogue of the Fishes in the British Museum, vol. 4.  
1887. Report on the Deep-Sea Fishes. Rept. Sci. Res. Challenger, vol. 22.
- Harry, R. R. :  
1951. Deep-sea Fishes of the Bermuda Oceanographic Expeditions. Family Paralepididae. Zoologica, vol. 36, part 1, pp. 17-55.
- Johnson, J. Y. :  
1862a. Notes on rare and little known Fishes taken at Madeira. Ann. Mag. Nat. Hist., 3, 10.  
1862b. On new Genera and species of Fishes from Madeira. Proc. Zool. Soc. London. June 10.  
1865. Descriptions of some New Genera and Species of Fishes obtained at Madeira. *Op. cit.*, 3, 11.
- Koefoed, E. :  
1927. Fishes from the Sea-Bottom. Rep. Sci. Res. Michael Sars, 1910, vol. 4, part 1.
- Lowe, R. T. :  
1857. A Synopsis of the Fishes of Madeira. Trans. Zool. Soc. London, 14, vol. 2, part 3, pp. 173-200.  
1859. Supplement to "A Synopsis of the Fishes of Madeira". Trans. Zool. Soc., 1, vol. 3, part 1, pp. 1-20.  
1845-60. A History of the Fishes of Madeira.  
1844. Notices of Fishes newly observed or discovered in Madeira during the years 1840, 1841 and 1842. Ann. Mag. Nat. Hist., no. 85, pp. 390-402.
- Maul, G. E. :  
1945. Monografia dos Peixes do Museu Municipal do Funchal. Familia Sudidae. Bol. Mus. Mun. Funchal, no. 1, art. 1, pp. 1-58.  
1946. *Ibid.* Ordem Iniomi, no. 2, art. 2, pp. 1-61.  
1948. *Ibid.* Ordem Isospondyli, no. 3, art. 5, pp. 1-41.  
1949. *Ibid.* Ordem Isospondyli, Conclusão, no. 4, art. 9, pp. 1-20.  
1950. *Ibid.* Familia Macrouridae e Merlucciidae, no. 5, art. 12, pp. 1-55.
- McCulloch, A. R. :  
1926. Report on some Fishes obtained by F. I. S. Endeavour on the Coasts of Queensland, New South Wales, Victoria, Tasmania,

South and south-western Australia. Part 5, Biological Res. Fish. Exper. F. I. S. Endeavour, 1909-14, part 4, pp. 155-216.

Moreau, E.:

1881. Histoire naturelle des poissons de la France.

1891. Supplément à l'histoire naturelle des poissons de la France.

Munro, I. S. R.:

1950. Revision of *Bregmaceros* with Descriptions of Larval Stages from Australia. Proc. Roy. Soc. Queensland, vol. 61, no. 5, pp. 57-55.

Nobre, A.:

1955. Fauna Marinha de Portugal. Porto.

Norman, J. R.:

1950. Oceanic Fishes and Flatfishes collected in 1925-1927. Discovery Reports, vol. 2, pp. 261-370.

1955. Coast Fishes, Part 1. The South Atlantic. Discovery Reports, vol. 12, pp. 1-58.

1957. Coast Fishes, Part 2. The Patagonian Region. Discovery Reports, vol. 16, pp. 1-150.

Noronha, A. C. de & Sarmiento, A. A.:

1954. Peixes dos Mares da Madeira. --

1948. Vertebrados da Madeira, Peixes. (1954 edition revised)

Parr, A. E.:

1927. The Stomioid Fishes of the Suborder Gymnophotodermi. Bull. Bing. Oce. Coll., vol. 5, art. 2, pp. 1-125.

1951. Deepsea Fishes from off the Western coast of North and Central America, with key to the genera *Stomias*, *Diplophos*, *Melamphaes* and *Bregmaceros*, and a Revision of the *Macropterus* group of the genus *Lampanyctus*. *Ibid.*, vol. 2, art. 4, pp. 1-55.

1957. Concluding Report on Fishes. *Ibid.*, vol. 5, art. 7, pp. 1-79.

Poll, M.:

1947. Faune de Belgique. Poissons Marins.

1949. Résultats Scientifiques des Croisières du Navire-École Belge «Mercator», ser. 2, fasc. 55, vol. 4, Poisson.

Regan, C. T. & Trewavas, E.:

1950. The Fishes of the Families Stomiidae and Malacosteidae. The Danish "Dana" Exp. 1920-22, no. 6.

Risso, A.:

1826. Histoire Naturelle des Principales Productions de l'Europe Méridionale, tome 5.

Roule, L.:

1919. Poissons provenant des campagnes du yacht Princesse-Alice et du yacht Hironnelle II. Résultats des campagnes scientifiques du Prince de Monaco, fasc. 52.

Smith, J. L. B.:

1950. The Sea Fishes of South Africa.

Taaning, A. V.:

1928. Synopsis of the Scopelids in the North Atlantic. Vidensk. Medd. Dansk Naturhist. Foren., vol. 86, Copenhagen.

Vaillant, L.:

1888. Expédition Scientifique du Travailleur et du Talisman. Poissons.

Valenciennes, M. A.:

- 1835-50. Ichthyologie des Iles Canaries.

Zugmayer, E.:

1911. Poissons provenant des campagnes du yacht Princesse-Alice, Résultats des campagnes scientifiques du Prince de Monaco, fasc. 35.
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