

III

PISCES

BY

H. C. DELSMAN (Hilversum)

9th CRUISE

The collection of Atlantic fishes brought home by D^r W. ADAM and D^r V. ZASLAVSKY from their cruise on board the Belgian school-ship *Mercator* in the years 1935-1936 comprises species from the African coast, from the American coast, from the Atlantic Ocean and from the Amazone-river.

In working out the African species I was greatly aided by D^r FOWLER's recent book : « The Marine Fishes of West Afrika » (1936) ⁽¹⁾ which enabled me to dispense with the task of examining and citing fully the extensive literature on this matter, for which I can refer to FOWLER's book. Although CADENAT ⁽²⁾, in a recent list of West-African marine fishes, in many respects deviates from the nomenclature used by FOWLER, I have thought it better to keep to the latter which in general seems to me well-founded. In the list following below I have also arranged the species in accordance with FOWLER's book.

The African Heterosomata have been sent to D^r P. CHABANAUD, Paris, who has kindly undertaken to deal with this group in a separate paper.

In arranging the American species I have followed the work of MEEK and HILDEBRAND on the Fishes of Panama (1923-1928) ⁽³⁾.

The fishes from the Amazone-river comprise a restricted number of Silurids and Gymnotids, together with one Characinid.

⁽¹⁾ FOWLER, H., The marine Fishes of West Afrika. (*Bull. Am. Mus. Nat. Hist.*, vol. LXX, 1936.)

⁽²⁾ CADENAT, J., Liste des Poissons littoraux (in : *Revue des Travaux de l'Office des Pêches maritimes*, t. X, fasc. 4, 1937).

⁽³⁾ MEEK, S. E. and HILDEBRAND, S. F., The marine Fishes of Panama. (*Publ. Field Museum Zool.*, XV, 1923-1928.)

A few hauls were made on the high ocean, which yielded 4 *Myctophum*- and one *Mandacus*-species, besides a number of young fishes and larvae.

A few new species are described and figured (though not always irreproachably), one from the Afrikan coast, four from the American coast (and one new variety), and two from the Amazone-river.

AFRICAN FISHES

Branchiostoma africae MONOD

Villa Cisneros (Rio de Oro), 3.XI.1935, 12 fathoms.

3 spec., length 29, 43 and 43 cm.

Number of myotomes about 67.

Mustelus canis (MITCHILL)

South of Garnet Head (Rio de Oro), 30.X.1935, hooked.

1 spec., length 730 mm.

Sphyrna zygaena (LINNÉ)

Port-Étienne (Mauretania), 9.XI.1935, on the shore.

1 ♂ juv., length 540 mm.

Rhinobatos rhinobatos (LINNÉ)

Off Bathurst (mouth of the Gambia-river, Senegambia), 10 miles from the coast, 15.XI.1935, 10 fathoms.

2 spec., length 320 and 350 mm.

Ibidem, 15 fathoms.

1 spec., length 270 mm.

This latter specimen showed the upper surface darker than those mentioned first and was speckled all over with small bluish-white, ocellated, spots. A similar condition is figured by FOWLER (fig. 36) but not mentioned in the text, where he says : « nearly uniform brownish above ». Comparing this individual with the two mentioned first I find the following slight differences : snout slightly more pointed; on the shoulder one small spine only (the others 2, + 1 more outward). For the relation anus to end of tail : tip of snout to anus, I find $1 \frac{1}{4}$ (the others $1 \frac{1}{3}$). Upper surface darker. I think we are justified in distinguishing the latter variety as var. *ocellata*.

Zanobatus schoenleinii (MÜLLER and HENLE)

Rufisque (Senegal), 14.XI.1935, 12 fathoms.

2 spec., breadth 170 and 175 mm.

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.

1 spec., breadth 120 mm.

Off Bathurst, 10 miles from the coast (Senegambia), 15.XI.1935, 10 fathoms.

1 spec., breadth 200 mm.

Raja picta LACÉPÈDE

Bay of Caballo (Rio de Oro), 2.XI.1935, 12 fathoms.

2 spec., breadth 130 and 165 mm, showing clearly the curious hieroglyphs characteristic of this species.

Torpedo narke Risso

Villa Cisneros (Rio de Oro), 3.XI.1935, 12 fathoms.

1 spec., breadth 230 mm.

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.

1 spec., breadth 160 mm.

Rufisque (Senegal), 14.XI.1935, 12 fathoms.

4 spec., breadth 55, 95, 95 and 140 mm.

Dasyatis centroura (MITCHILL)

Cape Blanco (Mauretania), 9.XI.1935, 10 fathoms.

Tail, jaws and photo of a specimen long 1030 mm and broad 700 mm.

Dasyatis margarita (GÜNTHER)

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.

1 spec., breadth 195 mm.

Rufisque (Senegal), 14.XI.1935, 12 fathoms.

2 spec., breadth 140 and 140 mm.

In front of Gambia (Senegambia), 15.XI.1935, 5 fathoms.

1 spec., breadth 120 mm.

Coast of Kassa (Isle of Los, French Guinea), 22.XI.1935.

1 spec., breadth 160 mm.

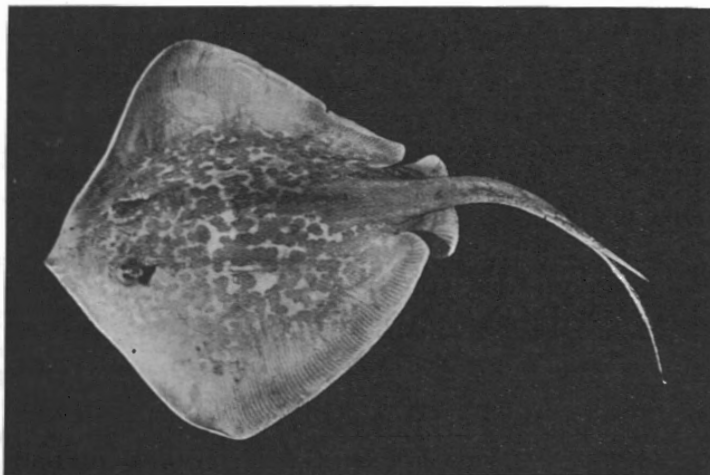


FIG. 1. — *Dasyatis pastinaca* (LINNÉ) var. *marmorata* STEINDACHNER.
Photo of a specimen from Cape Blanco, 9.XI.1935.
Length : 710 mm.; breadth : 400 mm.

***Dasyatis pastinaca* (LINNÉ), var. *marmorata* STEINDACHNER**
(Fig. 1.)

Cape Blanco (Mauretania), 9.XI.1935, 10 fathoms.

1 spec., breadth 170 mm.

Sardinella eba VALENCIENNES

Port-Étienne, baie du Repos (Mauretania), 7-8.XI.1935.

1 spec., length 80 mm.

Cape Blanco (Mauretania), 9.XI.1935, 10 fathoms.

3 spec., length 75, 85 and 95 mm.

Ilisha africana (BLOCH)

Isle Roumé (French Guinea), 18.XI.1935.

1 spec., length 140 mm, ventral scutes 23+7.

Coast of Kassa (Isle of Los; French Guinea), 22.XI.1935.

2 spec., length 135 and 150 mm.

South of Kassa (French Guinea), 23.XI.1935, 6 fathoms.

4 spec., length 57, 72, 80 and 95 mm.

FOWLER does not mention DERSCHIED's *Ilisha melanota* ⁽¹⁾ which, as a matter of fact, seems hardly to differ from *I. africana* ⁽²⁾. One of the most striking differences, according to D.'s description, is the greater number of ventral scutes, viz. 25-27+7-8 (prae- and post-pelvic) against 18-20+7-8 with *Ilisha africana*. In my specimens, however, I counted : 22+7; 22+7; 23+7; 24+7; 24+7, which is just halfway between the two values above given. Moreover, BLEEKER ⁽³⁾ says about *I. africana* : « ventre cultrato spinis 30 circiter serrato » which tallies with my totals. It seems to me doubtful, whether *I. melanota* indeed represents a new species.

NORMAN ⁽⁴⁾ and GILTAY ⁽⁵⁾ have recently raised the question if *Pristigaster dolloi* Boulenger 1902, = *Pristigaster martii* Agassiz 1829, should not be united with *Ilisha melanota*, the only difference between the two being the absence or presence of the vestigial pelvic fins. If NORMAN and GILTAY are right and if the difference between *I. africana* and *melanota* can neither be upheld, then all three species could be united as *Ilisha africana* (Bloch), which species occurs along the south-Atlantic coasts of America (though rarely?) as well as of Africa. Moreover, it is scarcely distinct from the Indian *I. brachysoma* Bleeker.

In the anal fin I counted in 3 specimens 47, 47 and 51 rays.

⁽¹⁾ DERSCHIED, J. M., Note sur certains *Clupeidae* de la côte W. de l'Afrique. (*Revue Zool. Afric.*, vol. XII, 1924.)

⁽²⁾ Neither is *I. gabonica* Duméril mentioned, of which the same can be said (cf. PELLEGRIN, J., 1928, *Ann. Mus. Congo belge, Zool.* [1] III).

⁽³⁾ BLEEKER, P., Mémoire sur les Poissons de la côte de Guinée. (*Natuurk. Verh. Holl. Mij. Wetensch.* [2] XVIII, 1863.)

⁽⁴⁾ NORMAN, J. R., A Revision of the Clupeid Fishes of the Genus *Ilisha* and allied Genera. (*Ann. Magazine Nat. Hist.* [9] XI, 1923.)

⁽⁵⁾ GILTAY, L., Note sur quelques poissons marins du Congo belge. (*Bull. Mus. roy. d'Hist. nat. de Belg.*, XI, 1935.)

Murenophis helena (LINNÉ)

South of Garnet Head (Rio de Oro), 1.XI.1935, 17 fathoms.

1 spec., length 670 mm.

Bay of Caballo (Rio de Oro), 2.XI.1935, 12 fathoms.

1 spec., length 455 mm.

Tachysurus gambensis (BOWDICH)

Kassa (French Guinea), near the coast, 24.XI.1935.

1 spec., length 800 mm (tail incl.).

This species seems to reach nearly the same size as BOULENGER'S *Arius gigas* (Freshw. Fishes Africa) which attains 1150 mm. PELLEGRIN, 1914, says : « Il atteint une grande taille, plus d'un mètre. BOULENGER en a reçu un individu de Boma mesurant 85 centimètres ».

Tachysurus heudelotii (VALENCIENNES)

Dakar (Senegal), 1 mile from the coast, 11.XI.1935, 10 fathoms.

2 spec., length 410 and 420 mm.

Trachinocephalus myops (SCHNEIDER)

Off Bathurst (Senegambia), 10 miles from the coast, 15.XI.1935, 10 fathoms.

1 spec., length 240 mm.

Exocoetus volitans LINNÉ

Atlantic Ocean, 0°50'N 28°26'W — 1°4'N 29°16'W., 30.XI-1.XII.1935 (during the night).

2 spec., length 82 and 102 mm, and smaller specimen.

Nerophis lumbriciformis (FRIES)

South of Garnet Head (Rio de Oro), 29-31.X.1935.

2 spec., length 95 and 100 mm.

Hippocampus hippocampus (LINNÉ)

Off Gambia-river (Senegambia), 15.XI.1935, 12 fathoms.

1 spec., height 62 mm (tail not unrolled).

Mugil auratus BRISO

Port-Etienne, baie du Repos (Mauretania), 7-8.XI.1935.

1 spec., length 315 mm.

Galeoides polydactylus (VAHL)

Ibidem, 7-8.XI.1935.

1 spec., length 115 mm.

Cape Blanco (Mauretania), 9.XI.1935, 10 fathoms.

5 spec., length 87, 97, 110, 112 and 115 mm.

Off Gambia-river (Senegambia), 15.XI.1935, 5 fathoms.

3 spec., length 120, 120 and 123 mm.

Coast of Kassa (Isle of Los; French Guinea), 22.XI.1935,

1 spec., length 84 mm.

Polynemus quinquarius LINNÉ

Between Kassa and Roumé (French Guinea), 23.XI.1935, 4 fathoms.

5 spec., length 150, 160, 190, 190 and 216 mm.

Trichiurus lepturus LINNÉ

South of Kassa (French Guinea), 23.XI.1935, 6 fathoms.

5 spec., length 116, 140, 320, 700 and 720 mm.

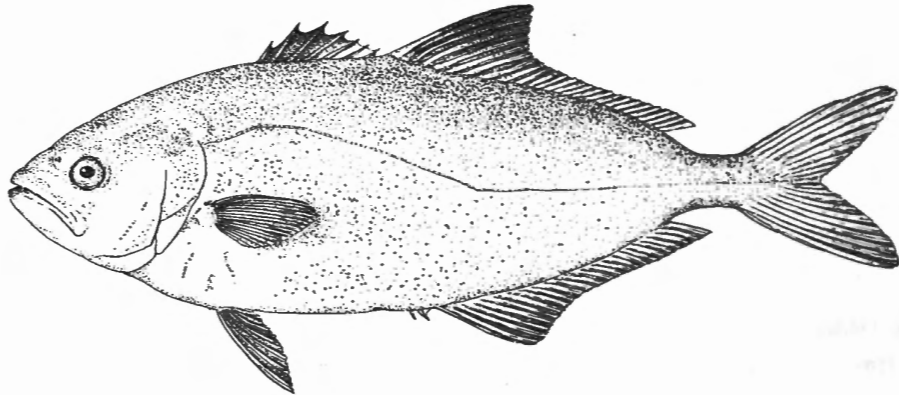


FIG. 2. — *Oligoplites africana* nov. sp.
Natural size.

***Oligoplites africana* nov. spec.**

(Fig. 2.)

Port-Étienne, baie du Repos (Mauretania), 7-8.XI.1935.

1 spec., length 123 mm.

Carangid. Body strongly compressed. Head $3\frac{2}{3}$, depth 3 in length (without caudal fin). DVII 26 A II 24. Snout $3\times$, eye $4\frac{2}{3}$ in head. Maxillary reaches to under hind border of pupil. Teeth few, mostly on mandibles, curved backward.

Beginning of anal fin slightly behind weak dorsal. Anterior part of spinous dorsal dark, third spine longest, its length $4\times$ in head. In front of dorsal a

fairly sharp ridge to in front of eyes. Anterior part of weak dorsal highest, dusky. Anal spines short, free. Anterior rays of weak anal highest, as in dorsal. Ventral $2\times$ in head, pectoral hardly longer. Scales very fine, absent on cheeks, upper side of head and under pectorals. Lateral line unarmed, faintly curved anteriorly, running downward gradually to behind the beginning of the anal fin, then straightly to tail. Height of caudal peduncle fully $4\times$ in head, $5\times$ in depth. Colour darker on back, lighter laterally and below. Opercle dusky. Gill-rakers of 1st arch $3+11$.

From the fin formula we see that the number of rays, for a *Seriola*, is unusually low in the weak part of the dorsal fin and fairly high in the anal fin. In the former we find in other species 29-39, in the latter 19-27, mostly about 20.

FOWLER'S dichotomic table for the Carangids begins with :

Anal much shorter than soft dorsal, its base not longer than abdomen.

Anal long as soft dorsal, its base longer than abdomen.

Between these two possibilities the species described above holds an intermediate position, the anal being only slightly shorter than the dorsal (its base not longer than abdomen).

***Chloroscombrus chrysurus* (LINNÉ)**

South of Kassa (French Guinea), 23.XI.1935, 6 fathoms.

1 spec., length 165 mm.

***Serranus goreensis* VALENCIENNES**

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.

1 spec., length 273 mm.

***Serranus guaza* (LINNÉ)**

Kassa (French Guinea), 24.XI.1935, bought from a fisherman.

Head and tail (damaged).

***Paracentropristis scriba* (LINNÉ)**

Cape Rouge (Senegal), 14.XI.1935, 8 fathoms.

1 spec., length 245 mm.

***Rypticus saponaceus* (SCHNEIDER)**

Rufisque (Sénégal), 14.XI.1935, 12 fathoms.

1 spec., length 190 mm.

Off Bathurst (Sénégal), 15.XI.1935, 10 fathoms.

2 spec., length 145 and 175 mm.

Brachydeuterus auritus (VALENCIENNES)

Off Gambia-river (Senegambia), 15.XI.1935, 5 fathoms.

1 spec., length 120 mm.

Coast of Kassa (Isle of Los; French Guinea), 22.XI.1935.

4 spec., length 47, 92, 97 and 190 mm.

Pomadasys incisus (BOWDICH)

Cape Bojador (Rio de Oro), 26°4'N 14°33'W, 2 ½ miles from the coast, 28.X.1935,
11 fathoms.

1 spec., length 153 mm.

Pomadasys jubelini (CUVIER)

South of Kassa (French Guinea), 23.XI.1935, 6 fathoms.

1 spec., length 280 mm.

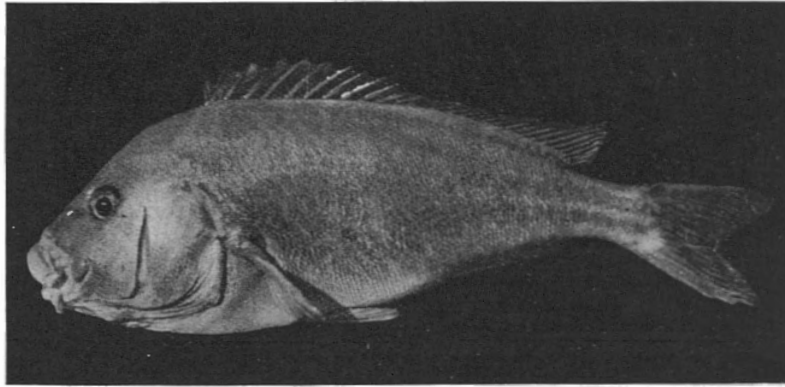


FIG. 3. — *Plectorhynchus mediterraneus* (GUICHEMOT).
Photo of a specimen from Cintra-Bay (Rio de Oro), 4.XI.1935.
Length : 650 mm.

Plectorhynchus mediterraneus (GUICHEMOT)

(Fig. 3.)

South of Garnet Head (Rio de Oro), 1.XI.1935, hooked, 17 fathoms.

1 spec., length 385 mm.

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.

1 spec., length 350 mm.

This species is mentioned as *Parapristipoma mediterraneum* (Guichemot) by FOWLER, which genus follows after *Plectorhynchus* (represented only by *Pl. macrolepis* [Boulenger]) and differs from the latter by the mouth being wider and more terminal, the mandible protruding and the prae-orbital being narrower. A look at the thick-lipped mouth of our *Pl. mediterraneus*, however, shows at once the likeness to that of the *Plectorhynchus*-species, so that I prefer including it in the latter genus.

Pl. mediterraneus is closely related to *Pl. griseus* (Cuv. & Val.) from the East coast of Africa and from British India. GUICHENOT ⁽¹⁾, who first described it, states very clearly the differences from the latter : « S'en distingue nettement par la nuque plus élevée, par la caudale plus profondément fourchue, et par les nageoires plus pointues, surtout la pectorale... La caudale est fortement échan-crée, et a vingt rayons. »

As a matter of fact the pectorals reach up to the vertical through the anus and nearly equal the head in length. The ventrals nearly reach the anus. Especially in the larger specimen the upper caudal lobe was stronger than the lower.

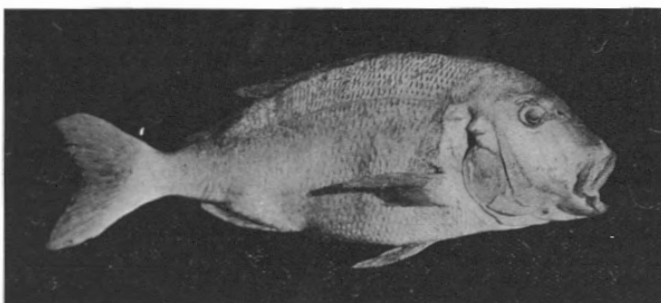


FIG. 4. — *Sparus aurata* LINNÉ.
Photo of a specimen from Garnet Head (Rio de Oro), 30.X.1935.
Length : 580 mm.

***Sparus aurata* LINNÉ**

(Fig. 4.)

South of Garnet Head (Rio de Oro), 30.X.1935, head and foto, length 580 mm; 3 parasitic crustacea.

***Pagrus auriga* VALENCIENNES**

Garnet Head (Rio de Oro), 1 ½ miles from the coast, 29.X.1935.

4 spec., length 85, 95, 95 and 97 mm.

South of Garnet Head (Rio de Oro), 17 fathoms.

1 spec., length 120 mm.

***Pagrus ehrenbergii* VALENCIENNES**

(Fig. 5.)

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.

1 spec., length 100 mm.

Rufisque (Sénégal), 14.XI.1935, 12 fathoms.

3 spec., length 39, 57 and 82 mm.

Off Gambia-river (Senegambia), 15.XI.1935, 5 fathoms.

1 spec., length 150 mm.

Especially in the last-mentioned specimen the rays of the spinous dorsal were

(1) GUICHENOT, A., 1850, *Exploration scientifique de l'Algérie*, Rept. Poissons.

more strongly elongated and, as a consequence, the dorsal looked more graceful than in STEINDACHNER's figure ⁽¹⁾. STEINDACHNER says: « Der 3., 4. und 5. Dorsalstachel ist fadenförmig verlängert, der 3. höchste Dorsalstachel erreicht bei einem Exemplar von c. 23 cm Länge etwas mehr als $\frac{1}{4}$, und der sechste c. $\frac{2}{11}$ der Totallänge. » In my specimen of 150 mm these numbers are $\frac{1}{3}$ and $\frac{1}{10}$ resp.

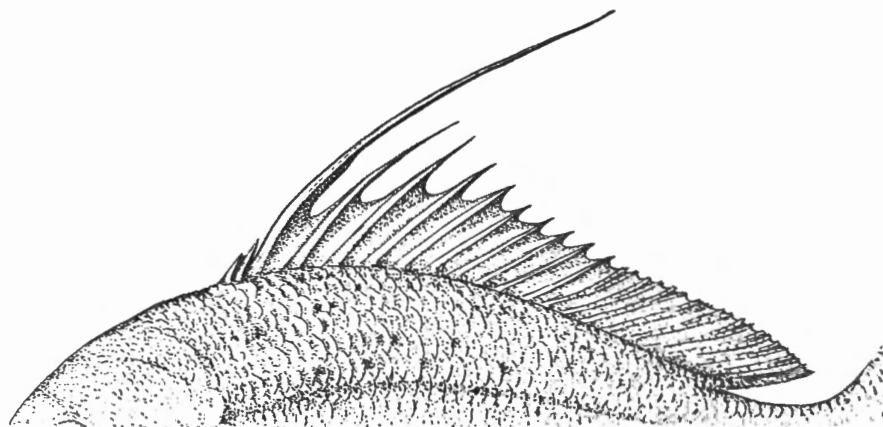


FIG. 5. — *Pagrus ehrenbergii* VALENCIENNES.
Dorsal fin.

Pagellus bogaraveo (BRÜNNICH)

South of Garnet Head (Rio de Oro), 31.X-1.XI.1935, 10-14 fathoms.

1 spec., length 110 mm.

Port-Étienne, baie du Repos (Mauretania), 7-8.XI.1935.

3 spec., length 37, 45 and 70 mm.

Cap Blanco (Mauretania), 9.XI.1935, 10 fathoms.

3 spec., length 120, 140 and 155 mm.

The scales of the occiput do not extend forward beyond hind edge of eye. Thus the species belongs to Swainson's *Lithognathus*, considered by FOWLER (p. 1296) as a subgenus of *Pagellus* Cuvier. No dark vertical cross streaks being present we must be dealing with either *P. centrodonatus* (De la Roche) or *bogaraveo* (Brünnich). In both depth goes $2\frac{2}{3}$ -3 times in length. The former has a dusky blotch at the suprascapula, at the beginning of the lateral line. This blotch is absent in my spec., so only *bogaraveo* remains. The depth, however, goes $3\frac{1}{4}$ in length, so that the shape is more like that of *P. acarne* or *mormyrus*.

Now STEINDACHNER ⁽²⁾ observed that in different species of this genus the depth increases with age. As *P. bogaraveo*, according to DAY, attains a length of 255 mm, my spec. are all young and therefore evidently more slender than full-grown ones.

⁽¹⁾ STEINDACHNER, F., *Denkschr. Akad. Wien*, LIV, 1882, pl. V.

⁽²⁾ STEINDACHNER, F., *Sitzungsber. Akad. Wien*, LVI, 1867, pp. 660, 662.

Diplodus vulgaris (GEOFFROY ST.-HILAIRE)

Gorée (Senegal), near the coast, 13.XI.1935.

2 spec., length 220 and 250 mm.

Diplodus bellottii (STEINDACHNER)

Cape Bojador (Rio de Oro), 26°4'N 14°33'W, 2 ½ miles from the coast, 28.X.1935, 11 fathoms.

1 spec., length 78 mm.

Garnet Head (Rio de Oro), 1 ½ mile from the coast, 29.X.1935.

1 spec., length 90 mm.

South of Garnet Head (Rio de Oro), 29-30.X.1935.

2 spec., length 90 and 100 mm.

Caballo Bay (Rio de Oro), 2.XI.1935, 12 fathoms.

1 spec., length 94 mm.

Cape Blanco (Mauretania), 9.XI.1935, 10 fathoms.

2 spec., length 78 and 153 mm.

Boops boops (LINNÉ)

Garnet Head (Rio de Oro), 1 ½ mile from the coast, 29.X.1935.

1 spec., length 130 mm.

Spondyliosoma cantharus (LINNÉ)

South of Garnet Head (Rio de Oro), 31.X-1.XI.1935, 10-14 fathoms.

3 spec., length 74, 77 and 90 mm.

Caballo Bay (Rio de Oro), 2.XI.1935, 12 fathoms.

4 spec., length 76, 88, 90 and 90 mm.

South of Garnet Head (Rio de Oro), 2.XI.1935, 13 fathoms.

2 spec., length 73 and 95 mm.

Upeneus prayensis CUVIER

Cap Rouge (Sénégal), 14.XI.1935, 8 fathoms.

1 spec., length 135 mm.

BLEEKER (1) distinguishes the African species as *Pseudupeneus prayensis*, creating a separate genus for it on account of the double row of teeth in the upper jaw. This characteristic, however, seems to be of little value; in my specimen e.g. I see it on the left side, not on the right.

The American species *Upeneus maculatus* and the African *U. prayensis* are evidently closely related to each other.

(1) BLEEKER, P., *Natuurk. Verhand. Holl. Mij. Wetensch.*, XVIII, pp. 56-57.

Otolithes dux (BOWDICH)

Between Kassa and Roumé (French Guinea), 23.XI.1935, 4 fathoms.
1 spec., length 200 mm.

Larimus peli BLEEKER

Coast of Kassa (Isle of Los; French Guinea), 22.XI.1935.
1 spec., length 140 mm.
Between Kassa and Roumé (French Guinea), 23.XI.1935, 4 fathoms.
1 spec., length 175 mm.

Johnius hololepidotus (LACÉPÈDE)

Port-Étienne (Mauretania), 5-9.XI.1935.
1 spec., length 250 mm.
Cap Blanco (Mauretania), 9.XI.1935, 10 fathoms.
1 spec., length 242 mm.
South of Kassa (French Guinea), 23.XI.1935, 6 fathoms.
2 spec., length 125 and 270 mm.

Chaetodipterus goreensis (CUVIER)

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.
1 spec., length 112 mm.

PELLEGRIN describes a young spec. of 74 and an adult of 162 mm; the former is higher, the eye is bigger, there are 7 dark brown bands over the sides and the anterior rays of the dorsal have not yet grown out so strongly. The Brussels spec. stands nearer to the adult one : the dorsal rays are elongated, height $1\frac{1}{2}$, in length (without caudal fin), there are only faint indications of vertical dark bands, and the eye goes more than $3\times$ in head.

Chaetodon luciae ROCHEBRUNE

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.
1 spec., length 190 mm.

Scorpaena notata RAFINESQUE

Cape Bojador (Rio de Oro), $26^{\circ}4'N$ $14^{\circ}33'W$, $2\frac{1}{2}$ miles from the coast, 28.X.1935, 11 fathoms.
5 spec., length 80, 95, 95, 115 and 126 mm.
Garnet Head (Rio de Oro), $1\frac{1}{2}$ mile from the coast, 29.X.1935.
5 spec., length 90, 115, 120, 125 and 135 mm.
South of Garnet Head (Rio de Oro), 31.X-1.XI.1935, 10-14 fathoms.
1 spec., length 72 mm.

Ibidem, 1.XI.1935, 17 fathoms.

8 spec., length 64, 66, 68, 70, 72, 72, 77 and 80 mm.

Bay of Dakar (Senegal), 13.XI.1935, 4 fathoms.

*1 spec., length 61 mm.

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.

*1 spec., length 155 mm.

Rufisque (Senegal), 14.XI.1935, 12 fathoms.

*4 spec., length 80, 90, 92 and 175 mm.

Off Bathurst (Senegambia), 10 miles from the coast, 15.XI.1935, 10 fathoms.

*4 spec., length 69, 74, 75 and 82 mm.

There is a striking difference in pigmentation between the specimens from the southern localities and those from the northern, the former being much darker. An * indicates the specimens belonging to the southern, dark, variety.

Thysanophrys gruvelli (PELLEGRIN)

Bay of Dakar (Senegal), 13.XI.1935, 4 fathoms.

2 spec., juv., length 43 and 58 mm.

Rufisque (Senegal), 14.XI.1935, 12 fathoms.

1 spec., juv., length 73 mm.

Trigla lyra LINNÉ

Garnet Head (Rio de Oro), 1 ½ mile from the coast, 29.X.1935.

1 spec., length 137 mm.

Bay of Dakar (Senegal), 13.XI.1935, 4 fathoms.

1 spec., juv., length 37 mm.

Trigla hirundo LINNÉ

Villa Cismeros (Rio de Oro), 3.XI.1935, 12 fathoms.

1 spec., length 475 mm.

Rufisque (Senegal), 14.XI.1935, 12 fathoms.

2 spec., length 210 and 235 mm.

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.

1 spec., length 220 mm.

Trigla lucerna LINNÉ

Garnet Head (Rio de Oro), 1 ½ mile from coast, 29.X.1935.

2 spec., length 107 and 150 mm.

South of Garnet Head (Rio de Oro), 29-30.X.1935.

3 spec., length 100, 115 and 155 mm.

Ibidem, 1.XI.1935, 17 fathoms.

3 spec., length 100, 112 and 125 mm.

Ibidem, 2.XI.1935, 13 fathoms.

1 spec., length 135 mm.

Cephalacanthus volitans (LINNÉ)

Rufisque (Senegal), 14.XI.1935, 12 fathoms.
1 spec., length 280 mm.

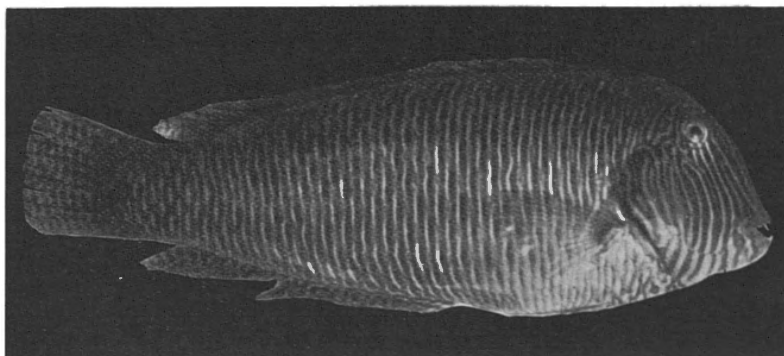


FIG. 6. — *Xyrichthys novacula* (LINNÉ).

Xyrichthys novacula (LINNÉ)

(Fig. 6.)

Off Bathurst (Senegambia), 10 miles from the coast, 15.XI.1935, 10 fathoms.
6 spec., length 140, 146, 170, 170, 175 and 180 mm.

The living specimens are rose-coloured with blue stripes.

Sparisoma radians CUVIER et VALENCIENNES

Off Bathurst (Senegambia), 10 miles from coast, 15.XI.1935, 10 fathoms.
1 spec., length 217 mm.

Bathygobius soporator (VALENCIENNES)

Conakry (along river, among mangrove) (French Guinea), 20.XI.1935.
3 spec., length 66, 70 and 84 mm.

Bathygobius paganellus (LINNÉ)

Port-Étienne (Mauretania), 6-8.XI.1935.
1 spec., length 82 mm.

Gobius maindroni SAUVAGE

Isle Roumé (rockpool) (French Guinea), 18.XI.1935.
1 spec., length 46 mm.

Gobius senegambiensis METZELAAR

South of Garnet Head (Rio de Oro), 1.XI.1935, 17 fathoms.
1 spec., length 64 mm.

Trachinus draco LINNÉ

South of Garnet Head (Rio de Oro), 31.X-1.XI.1935, 10-14 fathoms.

1 spec., length 103 mm.

Bay of Caballo (Rio de Oro), 2.XI.1935, 12 fathoms.

3 spec. length 125, 135 and 142 mm.

Cape Blanco (Mauretania), 9.XI.1935, 10 fathoms.

1 spec., length 108 mm.

Ammodytes cicerellus RAFINESQUE

Bay of Caballo (Rio de Oro), 2.XI.1935.

4 spec., length 102, 103, 105 and 110 mm.

Uranoscopus scaber LINNÉ

South of Garnet Head (Rio de Oro), 1.XI.1935, 17 fathoms.

1 spec., length 430 mm.

FOWLER says : « reaches 305 mm », so we must be dealing here with a very old specimen. The skin under the pectoral fin is naked unto the anus, behind this naked part I counted 64 scales to the root of the tail. Fine skin folds corresponding to the scale rows form oblique stripes on the whole tail, behind the anus, except on the posterior part of the back. The lateral line was not visible. No spines at all on the head, except a strong humoral spine and a smaller one just in front of latter.

Callionymus lyra LINNÉ

Caballo Bay, 2.XI.1935, 12 fathoms.

1 spec., ♀, length 115 mm.

Blennius pholis LINNÉ

South of Garnet Head (Rio de Oro), 29-30.X.1935.

2 spec., length 108 and 127 mm.

This European species has thus far only once been recorded from the African coast, viz. by BAADER, F. (1) from Mogador.

Rupiscartes textilis (VALENCIENNES)

Isle of Roumé (rockpool) (French Guinea), 18.XI.1935.

1 spec., length 60 mm.

D 12 + 15 A 15 P 14 V 2.

(1) BAADER, F., *Ber. Senckenb. Naturf. Gesellsch.*, p. 182, 1873-1874.

Batrachoides didactylus (SCHNEIDER)

South of Garnet Head (Rio de Oro), 1.XI.1935, 17 fathoms.

1 spec., length 430 mm.

Bay of Caballo (Rio de Oro), 2.XI.1935, 12 fathoms.

2 spec., length 260 and 305 mm, DIII 21 A16.

Among the synonyms FOWLER (p. 1076) mentions *Batrachus liberiensis* Steindachner which, however, has D III 25 A 22; it is identical with and supersedes *B. beninensis* Regan, as shown by Monod ⁽¹⁾ (cf. FOWLER, p. 1332). The figure given by FOWLER on p. 1077 (fig. 451), therefore, does not represent *B. didactylus* but *B. liberiensis* Steindachner, mentioned as *B. beninensis* Regan by FOWLER on the same page.

BLEEKER, P. ⁽²⁾ distinguishes three species : *B. elminensis*, *didactylus* and *güntheri*, with such small differences that FOWLER evidently is right in uniting them as *B. didactylus*.

Lepadogaster lepadogaster (BONATERRE)

Bay of Caballo (Rio de Oro), 2.XI.1935.

1 spec., length 36 mm.

Monacanthus hispidus (LINNÉ)

Cap Rouge (Senegal), 14.XI.1935, 8 fathoms.

1 spec., length 175 mm.

Off Bathurst (Senegambia), 10 miles from coast, 15.XI.1935, 10 fathoms.

4 spec., length 94, 95, 101 and 152 mm.

In these 5 specimens I counted :

DI 29 A30; DI 30 A30; DI 29 A28; DI 30 A30; DI 28 A29.

This is less than indicated by FOWLER who gives DI 32-34 A 32-33, and by JORDAN & EVERMAN who give DI 32 A 32.

MEEK and HILDEBRAND separate the American *Mon. oppositus* Poey with 27-29 dorsal and anal rays from *Mon. hispidus* with 31-35.

In an American specimen from Florida belonging to this same collection I find D 33 A 33, in one from Venezuela D 31 A 30.

None of the 5 East African specimens mentioned above has D₂ elongated, whereas the American specimens have. In the same way FOWLER's fig. 459 differs from fig. 635 of JORDAN & EVERMANN by the absence of the filament.

⁽¹⁾ MONOD, T., 1927, *Faune des Colonies françaises*, I, fasc. 6, p. 737.

⁽²⁾ BLEEKER, P., *Natuurk. Verh. Mij. Wetensch.* (2), XVIII, 1863.

Nevertheless the presence or absence of the filament seems not to constitute a contrast between the American and the African specimens in general. CADENAT ⁽¹⁾, at least, writes :

« La taille des échantillons recueillis par le président THÉODORE TISSIER varie de 60 à 200 mm. Aucun des individus au-dessous de 100 mm. ne présente de modifications du 2^e rayon de la nageoire molle; au-dessus de cette taille certains ont ce rayon de plus en plus allongé jusqu'à atteindre presque la hauteur du corps dans notre plus grand spécimen qui mesure 200 mm. »

I can only say that in my specimens of 175 and 150 mm no elongation whatever of the second dorsal ray can be observed. Perhaps this character may depend upon the sex also.

A. FRASER-BRUNNER, who is making a special study of the Plectognaths, kindly writes me : « I have had some difficulty in dealing with this species and its related forms, as they have been much confused, but I am now satisfied that the South African specimens belong to the same species (*hispidus*) as the North American, whereas those from South America and from the East African coast can be separated from it. The dorsal filament is lacking in nearly all our specimens of *hispidus*, but this is no doubt due in many cases to its having been broken off; certainly I would hesitate to say that it had never been present in the South African specimens, though none of them now have it. On the other hand, the East African forms often have two filaments formed by the second and third rays. »

Evidently FRASER-BRUNNER is right when he observes : « There is no doubt that very numerous specimens are required for a proper study of the Plectognathi. »

***Hemiconiatus guttifer* (BENNETT)**

(Fig. 7.)

Off Gambia-river (Senegambia), 15.XI.1935, 5 fathoms.

Head and photo of a big spec. (stomach filled with shells and crabs).

Coast of Kassa (Isle of Los; French Guinea), 22.XI.1935.

2 spec., length 195 and 240 mm.

***Lagocephalus laevigatus* (LINNÉ)**

Kassa (French Guinea), 22.XI.1935, 4 fathoms.

1 spec., length 400 mm.

BLEEKER, P. ⁽²⁾ gives a figure from which I find the following differences : the tail lobes of my spec. are considerably longer and more pointed. The front border of the spinous area on the belly does not reach the mouth but lies at a distance about = diameter eye beneath it.

⁽¹⁾ *Loc. cit.*, p. 530.

⁽²⁾ *Loc. cit.*, pl. II.

Spheroides spengleri (BLOCH)

Bay of Dakar (Senegal), 13.XI.1935, 4 fathoms.

1 spec., juv., length 46 mm.

Off Bathurst (Senegambia), 15.XI.1935, 10 fathoms.

1 spec., length 130 mm.

Diodon hystrix LINNÉ

Kassa (French Guinea), 24.XI.1935, bought from a fisherman.

1 spec., length 500 mm.

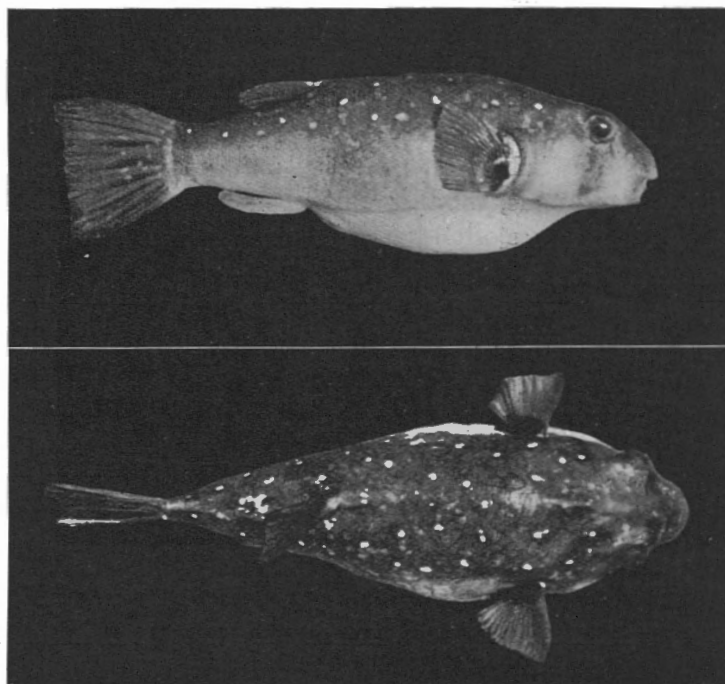


FIG. 7. — *Hemitoniatus guttifer* (BENNETT).

Photo of a specimen from Senegambia, 15.XI.1935.

Length : 430 mm.

AMERICAN FISHES

Raja eglanteria LACÉPÈDE, juv.

15-20 miles off coast of Florida (Miami, Jacksonville), 24-26.III.1936, 20-30 fathoms.
7 spec., length 256, 290, 295, 310, 325, 330 and 420 mm.

Narcine brasiliensis (ÖLFERS), juv.

3 miles W. of Santa Margarita (Venezuela), 10.II.1936, ± 20 fathoms.
5 spec., length 58-62 mm.

Dasybatus guttatus (BLOCH and SCHNEIDER), juv.

Mouth of the Amazone, 1°06'N 47°53'W, 3.II.1935, 25-30 fathoms, bottom muddy.
1 spec., length 635 mm (tail from anus 490 mm), breadth 165 mm.

Urotrygon microphthalmum nov. spec.

(Fig. 8.)

Mouth of the Amazone, 1°06'N 47°53'W, 3.II.1936, 25-30 fathoms, bottom muddy.
1 spec., length 220 (tail from anus 120 mm), breadth 103 mm.
1 spec., length 128 mm.

Disc slightly broader than long. Tip of snout produced. Margins of disc circular. Eyes small, remote, the interspace $2\frac{1}{2}$ in preocular part of snout. Spiracles $3\times$ as large as eyes, situated immediately behind latter. Mouth slightly arched, its width less than $3\times$ distance to snout. Teeth small, pointed. Nostrils with a fringed flap to mouth. Upper surface smooth, brownish gray. Under side whitish in the middle, gray laterally. Tail longer than disk, strongly depressed at base, with slight lateral keel; caudal spine strong, distally serrated, not reaching the origin of the caudal fin fold; length more than 2 in distance of its origin to tip of tail. Caudal fin narrow, dark.

Felichthys felis (LINNÉ)

Bay of Port of Spain, Trinidad, 8.II.1936.

1 spec., length 330 mm.

Rock of Christobal, 23.II.1936.

1 spec., length 330 mm.

Sardinella macrophthalmia (RANZANI)

Porto Bello (Panama), 18.II.1936.

13 spec., average length ± 92 mm, being the contents of the ingluvies of a pelican.

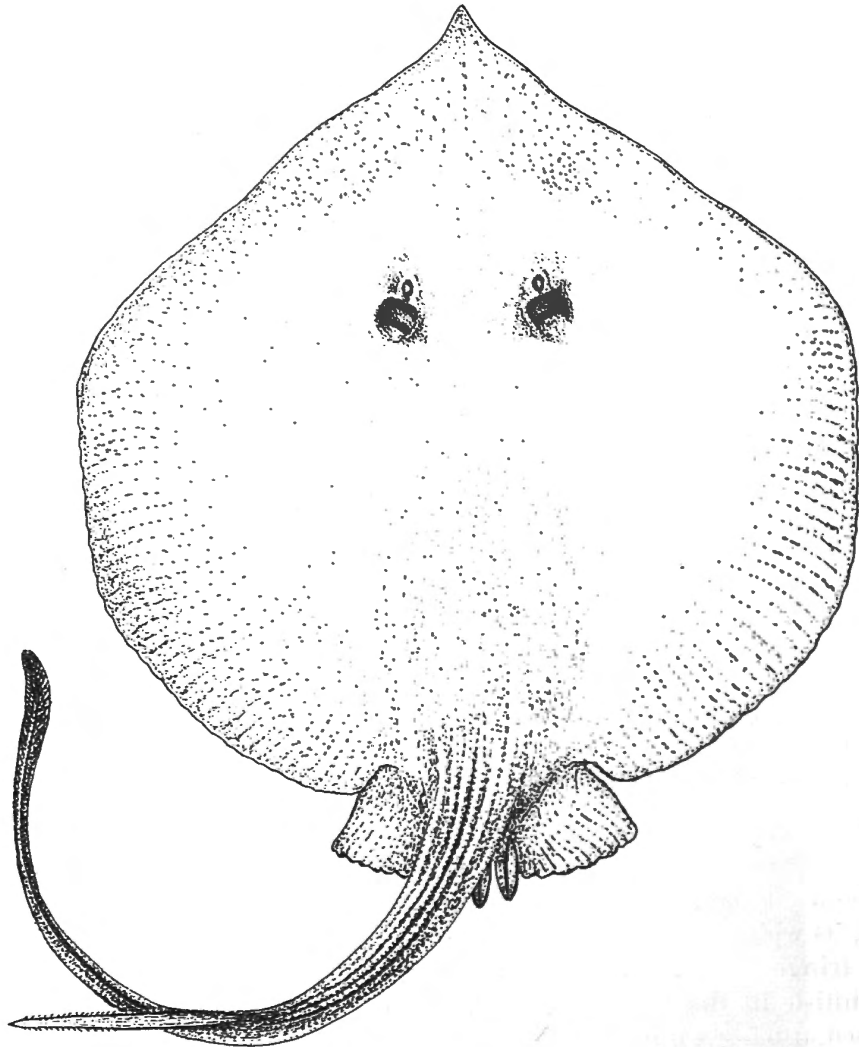


FIG. 8. — *Urotrygon microphthalmum* nov. sp.
Natural size.

Odontognathus mucronatus LACÉPÈDE

Mouth of Amazone-river (1°6'N 47°55'W), 3.II.1936, depth 25-30 fathoms, muddy.

1 spec., length 120 mm.

A±76.

Anchovia brownii (GMELIN)

25 miles northeast of the Ile du Diable, French Guyana, 5.II.1936, depth 12-15 fathoms.

4 spec., length 98, 123, 123 and 175 mm.

Anchovia spinifera (CUVIER and VALENCIENNES)

Mouth of the Amazone (1°6'N 17°53'W), 3.II.1936, depth 25-30 fathoms.

1 spec., length 83 mm.

Synodus foetens (LINNÉ)

4-6 miles off the Isle of Santa Margarita (Venezuela), 10.II.1936, depth about 20 fathoms.

1 spec., length 210 mm.

East coast of Florida (Miami, Jacksonville), 24-26.III.1936, depth 20-30 fathoms, 15 à 20 miles from coast.

1 spec., length 265 mm.

3 heads of bigger specimens, 2 of them with the stomachs, one stomach containing a *Citharichthys macrops* of 160 mm, the other an equally big fish which could not be identified any more.

Parexocoetus brachypterus (RICH.)

Atlantic : 2°10'N 48°25'W, 13-14.XII.1935, flown on board.

1 spec., length 140 mm.

2-3 and 3-4.I.1936.

2 spec., length 123 and 133 mm.

Exocoetus volitans LINNÉ

Atlantic : 0°50'N, 28°26'W—1°4'N, 29°16'W, 30.XI-1.XII.1935.

2 spec., length 82 and 120 mm, and a few very young ones.

Cypselurus heterurus (RAFINESQUE)

± 100 miles S.E. of Trinidad, 7.II.1936.

1 spec., length 235 mm.

Halocypselus evolans (LINNÉ)

Atlantic : 3°14'N 47°7'W, 8.I.1936, flown on board at 20 p. m.

2 spec., length of both 212 (until end of inferior caudal lobe).

Fistularia petimba LACÉPÈDE

4-6 miles off Santa Margarita (Venezuela), 10.II.1936, depth ± 20 fathoms.

1 spec., length 216 mm (excl. tail filament).

Syngnathus poeyi JORDAN and EVERMAN?, juv.

Atlantic Ocean : 0°22'S 38°40'W, 5.XII.1935, pelagic net.

1 spec., length 92 mm.

Rings 19+24, as *poeyi*, but D on 2 ½ trunk- and 6 caudal rings (*poeyi* 1+6). Rays of D could not be counted properly, probably ± 35 (*poeyi* 30).

Sphyaena barracuda (SHAW)

Isle of Cay Sal, 22.III.1936, with a trolling line.

1 spec., length 1140 mm, head and tail only conserved.

Scomberomorus (maculatus [MITCHILL]?)

Cay Sal, 22.III.1936, on sea, with a trolling line.

1 spec., head and tail only conserved.

Trichiurus lepturus LINNÉ

25 miles north-east of the Ile du Diable (French Guyana), 5.II.1936, depth 12-15 fathoms.

4 spec., length 214, 330, 370 and 370 mm.

Caranx latus AGASSIZ?

Fort-de-France (Martinique), 1.I.1936.

1 spec., length 175 mm.

P slightly longer than in MEEK and HILDEBRAND'S figure, no dark cross bands on sides.

Caranx crysos (MITCHILL)

Cay Sal, 22.III.1936, on sea, with a trolling line.

1 spec., only the head and the tail.

Vomer setapinnis (MITCHILL)

4-6 miles off the Isle of Santa Margarita (Venezuela), 10.II.1936, depth \pm 20 fathoms.

3 spec., length 160, 175 and 175 mm.

Chloroscombrus chrysurus (LINNÉ)

4-6 miles off the Isle of Santa Margarita (Venezuela), 10.II.1936, depth + 20 fathoms.

2 spec., length 150 and 180 mm.

Apogon dovii GÜNTHER

15-20 miles off Dry Tortugas, Florida, 15.III.1936, depth 20-22 fathoms.

5 spec., length 44-55 mm.

7-10 miles off Tampa Bay, 16.III.1936, depth 8-10 fathoms.

2 spec., length 53 and 59 mm.

D² I 9, L1 \pm 25.

Petrometopon cruentatus (LACÉPÈDE)

Bay of Georgetown, Isle of Grand Caiman, 7.III.1936, depth 20 m, coral ground.

1 spec., length 220 mm.

***Epinepheles morio* (CUVIER and VALENCIENNES), juv.**

15-20 miles from the Isle of Dry Tortugas, Florida, 15.III.1936, depth 20-22 fathoms.
1 spec., length 135 mm.

***Paralabrax maculatofasciatus* (STEINDACHNER)**

4-6 milles off Santa Margarita (Venezuela), 10.II.1936, depth about 20 fathoms.
1 spec., length 210 mm.

This Pacific species is figured in JORDAN & EVERMANN, fig. 498. In my specimen the tail is truncate, the upper lobe not slightly elongated. No scales on interorbital. P_3 and P_4 are longest, but P_3 not longer than P_4 .

***Centropristis striatus* (LINNÉ) (= *C. rufus* CUVIER and VALENCIENNES?)**

East coast of Florida, 24.III.1936, 15-20 miles from coast, depth 22 fathoms.

5 spec., length 110, 112, 126, 128 and 130 mm.

Ibidem, 24-26.III.1936, depth 20-30 fathoms.

2 spec., length 155 and 185 mm.

The « common sea-bass » (Breder) is one of the common food fishes of the Atlantic coasts of North America.

***Centropristes philadelphicus* (LINNÉ)**

East coast of Florida, 24.III.1936, 15-20 miles from coast, depth 22 fathoms.

5 spec., length 130, 132, 136, 152 and 205 mm.

Ibidem, 24-26.III.1936.

2 spec., length 147 and 148 mm.

***Priacanthus cruentatus* (LACÉPÈDE), juv.**

Great Cayman Island, Bay of Georgetown, 7.III.1936.

1 spec., length 54 mm.

Gill-rakers, 16.

***Lutjanus analis* (CUVIER and VALENCIENNES)**

Guadeloupe, Basse-Terre, 21.XII.1935.

1 spec., length 320 mm, caught by hook.

***Lutjanus aya* (BLOCH)**

Martinique, Fort-de-France, in the bay, 29.XII.1935.

1 spec., length 140 mm.

***Haemulon steindachneri* (JORDAN and GILBERT)**

4-6 miles off the Isle of Santa Margarita (Venezuela), 10.II.1936, depth about 20 fathoms.

4 spec., length 88, 103, 153 and 180 mm.

Orthopristis scapularis FOWLER

4-6 miles off the Isle of Santa Margarita (Venezuela), 10.II.1936, depth about 20 fathoms.

1 spec., length 225 mm.

DXII 15 A III 10 L1 > 70! (hindmost scales small), depth > 2 1/2 in length, head slightly less than 3 in length. Dark blotch on shoulder indistinct, sides above L1 mottled, beneath L1 whit a few indistinct transverse bands. Preopercle hardly denticulated.

Evidently closely related to the Pacific *O. chalceus* (Günther).

1 spec., length 192 mm.

Differs from the bigger one in that the hindborder of the preopercle is finely denticulated. A number (± 9) dark cross bands over the sides more distinct. Above the L1 sides likewise mottled.

Lagodon mercatoris nov. spec.

(Fig. 9.)

15-20 miles off the Isle of Dry Tortugas, 15.III.1936, depth 20-30 fathoms (haul with the net).

1 spec., length 185 mm.

DI+IX 10-11 A III 11-12. Distance antrorse spine to D_2 bigger than diameter eye. Length of D_2 $\frac{2}{3}$ \times next following spines (D_3 - D_5). Shape of the body as in *Lagodon rhomboides* (Linné) (cf. JORDAN & EVERMANN, fig. 552), height 2, 6 in

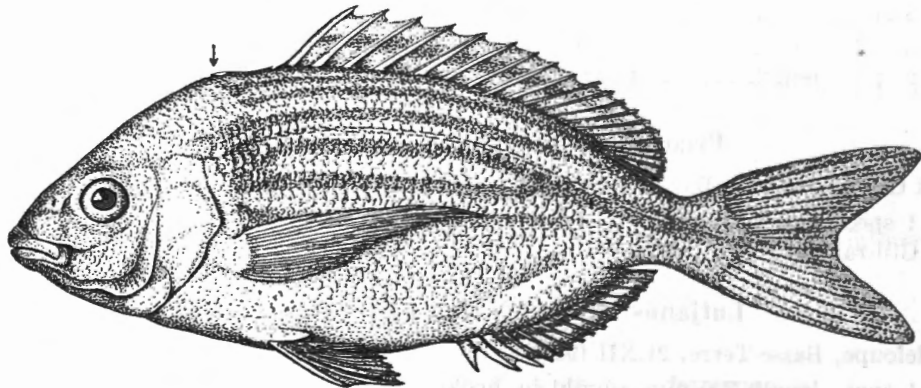


FIG. 9. — *Lagodon mercatoris* nov. sp.
x 2/3.

length, head 3, 6, eye 1 1/2 in snout, 4 in head, 1 3/4 in interorbital. L1 62+5 on tail. Head behind eye slightly concave, no crests. Incisors notched, not deeply. P longer and more pointed, reaches to A_{3-4} . 4-5 dark cross bands (incl. shoulder spot) indistinct; distinct longitudinal stripes, three dark ones above lateral line and a few lighter ones below it. A pigmented stroke along base and one along outer border of A. On spinous part of D between every two spines a roundish

pigment spot, forming a series which continues between the anterior rays of soft part. On soft part a similar series lower, near base. Colours in life probably much brighter.

Lonchurus lanceolatus (BLOCH)

Mouth of the Amazone-river, 1°6'N 47°55'W, 3.II.1936, depth 25-30 fathoms, bottom muddy.

2 spec., length 129 and 145 mm.

Stellifer ericymba (JORDAN and GILBERT)

Ibidem, same date.

3 spec., length 45, 66 and 66 mm.

D XII-I 19 A II 8-9. JORDAN & EIGENMANN ⁽¹⁾ give for this Pacific species D XII-I 23 A II 7-8.

Stellifer microps (STEINDACHNER)

Ibidem, same date.

6 spec., length 79, 90, 92, 95, 95 and 153 mm.

D IX-I 21-22 A II 8-9, gill-rakers VIII + 12 or IX + 11 (JORDAN & EIGENMANN : X + 16!).

The eye seemed to me to be bigger than in STEINDACHNER's figure (Sitz. ber. Wien 49^t [1864]), 4 ½-5 ½ in head.

The small ones have a long and pointed tail (< 3 in length). Chin with 5 pores, in a transverse row.

Stellifer rastrifer JORDAN and EIGENMANN

Ibidem, same date.

7 spec., length 115, 116, 118, 121, 125, 128 and 146 mm.

D XI 21-22 A II 8-9, gill-rakers below angle 25 (Ribeiro : 28-30, EIGENMANN, *Brit. Guyana*, p. 474 : 25).

Stellifer mercatoris nov. spec.

Ibidem, same date.

(Fig. 10.)

D IX-I 27 A II 8, head 3, depth 3 ½, scales very small. Body rather deep anteriorly, tapering to tail, laterally compressed. Head deep and laterally compressed. Mouth oblique, maxillary delated posteriorly, reaching to hindborder eye. Under jaw protruding in front of upper, bluntly knobbed, bearing an outer row of 4-6 dagger-shaped teeth, which reach in front of upper jaw, and an inner row of smaller teeth. In the upper jaw similar smaller teeth with one or two in

(¹) JORDAN, D. S. and EIGENMANN, C. H., *Review Sciaenidae*, Report U. S. Fish Comm., 1886 (1889).

front enlarged. Preoperculum with two or three spines. Gill-rakers about $\frac{1}{2}$ diameter eye, II+7. Eye 5 in head. Middle rays of caudal considerably produced, 3 in length, = head. Anal spines weak, second stronger than first but much shorter than soft rays.

Colour : dorsal side of head and body speckled with small brown pigment spots. Anal pigmented, other fins not.

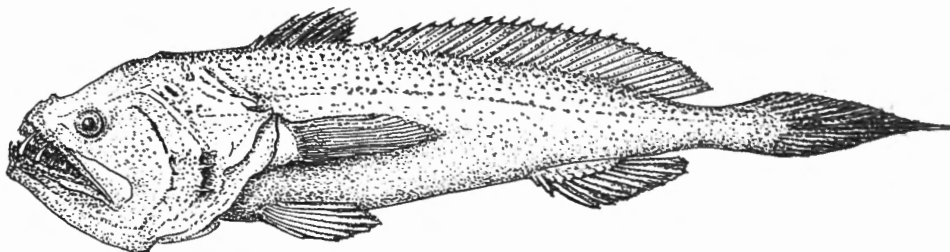


FIG. 10. — *Stellifer mercatoris* nov. sp.
x2.

Macrodon ancylodon (BLOCH and SCHNEIDER)

Ibidem, same date.

3 spec., length 78, 162 and 190 mm.

Eques acuminatus (BLOCH and SCHNEIDER)

15-20 miles off the East coast of Florida (Miami, Jacksonville), 24-26.III.1936, depth 20-30 fathoms.

4 spec., length 118, 120, 120 and 125 mm.

Halichoeres kirschii (JORDAN and EVERMAN)

4-6 miles off Santa Margarita (Venezuela), 10.II.1936, depth 20 fathoms.

1 spec., length 135 mm.

Xyrichtys psittacus (LINNÉ)

Cay Sal Bank, 19-20.III.1936, depth 5-7 fathoms.

1 spec., length 163 mm.

Cryptotomus ustus (CUVIER and VALENCIENNES)

4-6 miles off Santa Margarita (Venezuela), 10.II.1936, depth about 20 fathoms.

1 spec., length 85 mm.

MEEK & HILDEBRAND (III, p. 734) suggest that *C. beryllinus* Jordan & Swain are the young of *C. ustus*. They have no lateral canines yet, as is likewise the case in the specimen at hand which is smaller still than those examined by MEEK & HILDEBRAND.

Chaetodipterus faber (BROUSSONET)

Ibidem, same date.

1 spec., length 240 mm.

Holacanthus tricolor (BLOCH)

Martinique, 30.XII.1935.

1 spec., length 155 mm.

Soft dorsal and anal hardly, caudal fin not at all produced into filaments, the caudal being simply truncate.

Monacanthus ciliatus (MITCHILL)

15-20 miles off the Isle of Dry Tortugas (Florida), 15.III.1936, depth 20-22 fathoms.

2 spec., length 115 and 120 mm.

S. of Elbow Bay, 20.III.1936, near the coast.

1 spec., length 70 mm.

Monacanthus hispidus (LINNÉ)

4-6 miles off Santa Margarita (Venezuela), 10.II.1936.

2 spec., length 99 and 173 mm, in the latter D_2 lengthened.

In the larger specimen I counted $D\ 31\ A\ 30$.

15-20 miles off Dry Tortugas, 15.III.1936, depth 20-22 fathoms.

1 spec., length 140 mm.

$D\ 33\ A\ 33$, D_2 lengthened.

Ostracion tricornis LINNÉ

South of Elbow Cay, 20.III.1936.

1 spec., length 38 mm.

Spheroides spengleri (BLOCH)

Martinique, Fort-de-France, 27.XII.1935.

2 spec., length 21 and 27 mm.

Ibidem, 1.I.1936.

1 spec., length 25 mm.

Cap de la Vela (Columbia), 14.II.1936, depth 8-10 fathoms.

4 spec., length 110, 115, 141 and 160 mm.

Diodon hystrix LINNÉ

East coast of Florida, 24.III.1936, 15-20 miles from coast, depth 22 fathoms.

1 spec., length 390 mm.

Chilomycterus spinosus (LINNÉ)

4-6 miles off Santa Margarita (Venezuela), 10.II.1936, depth \pm 20 fathoms.

1 spec., length 120 mm.

Cap de la Vela, Columbia, 14.II.1936, depth 8-10 fathoms.

1 spec., length 183 mm.

Scorpaena brasiliensis CUVIER and VALENCIENNES

4-6 miles off Santa Margarita (Venezuela), 10.II.1936, depth \pm 20 fathoms.

6 spec., length 82, 130, 138, 140, 170 and 175 mm.

Scorpaena mercatoris nov. spec.

(Fig. 11.)

Cay Sal Bank, 19-20.III.1936, depth 5-7 fathoms.

1 spec., length 120 mm.

D XII 9 A III 5. Head $2\frac{1}{4}$, depth $3\frac{1}{2}$, eye oblong, $4 \times$ in head. P 14-5 (branched)-1. V reaching past vent, P past origin of A. Second ray of anal longer than third and much longer than first.

Head not very spiny, height $>$ breath, without dermal flaps. No occipital pit. Prae-orbital with two small spines, an anterior one, directed forward, and a posterior one, directed downward, below front border of eye. Three small

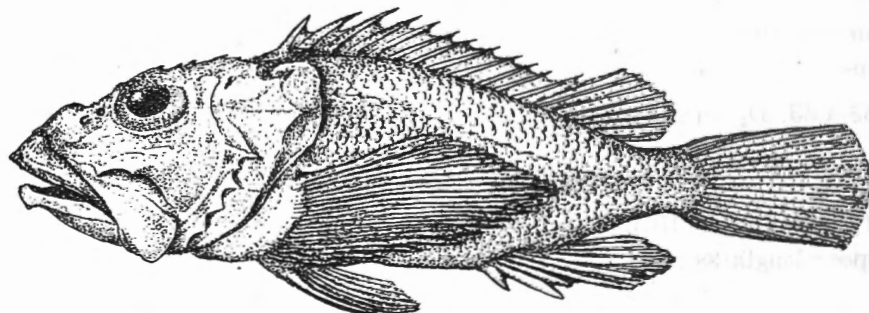


FIG. 11. — *Scorpaena mercatoris* nov. sp.
Natural size.

spines on occipital ridges, none on infra-orbital ridge which ends in a very small spine. One sharper and four blunter spines on edge of preoperculum, two on operculum. Maxillary reaching about hind border of pupil.

Gill-rakers short and far apart, 6 on lower half, 2 on upper.

LI rows of scales 44 (tubes \pm half this number). Breast scaled.

Colour clouded brownish, axil and underside head and trunk not pigmented.

Fins diffusely pigmented, like body, especially base of P.

Dermal flap above base of pectoral, disappearing under gill-cover. No other dermal flaps.

Scorpaena bergii EVERMAN and MARSH

Cape de la Vela (Columbia), 14.II.1936, depth 8-10 fathoms.

4 spec., length 87, 111, 115 and 142 mm.

D XII 10 A III 5 P 11-6 (branched)-1, depth 3 in length. Evidently closely related to *Sc. pannosa* Cramer where, however, P 8-10-1.

Black spot on dorsal between D_4 and D_7 , quite conspicuous. Dermal flaps distributed all over body and head, largest on the Ll. Two flaps above the eye, viz. a smaller one above the anterior border and a longer one ($>$ diameter eye) above posterior border. Uppermost preopercular spine with a small spine at its base. Axil white.

Occipital pit deep, breast with rudimentary scales.

Scorpaena russula JORDAN and BOLLMAN **atlanticus** NICHOLS and BREDER

15-20 miles off east coast of Florida (Miami, Jacksonville), 24-26.III.1936, depth 20-30 fathoms.

6 spec., length 99, 100, 104, 109, 112 and 122 mm.

P 13-6 (branched)-1.

Prionotus scitulus JORDAN

4-6 miles off Santa Margarita (Venezuela), 10.II.1936, depth \pm 20 fathoms.

2 spec., length 207 and 210 mm.

East coast of Florida, 24.III.1936, depth 20-22 fathoms.

2 spec., length 185 and 205 mm.

Prionotus scitulus JORDAN, var. **longipennis** nov. var.

4-6 miles off Santa Margarita (Venezuela), 10.II.1936, depth \pm 20 fathoms.

1 spec., length 178 mm.

15-20 miles off Dry Tortugas, 15.III.1936, depth 20-30 fathoms.

1 spec., length 205 mm.

15-20 miles off east coast of Florida, 24.III.1936, depth 22 fathoms.

7 spec., length 116-175 mm.

D X-12 $\frac{1}{2}$ A 11 $\frac{1}{2}$. Pectorals reaching to second half of soft dorsal, with many round bluish dots. On the lower third part of the pectoral these dots are spread irregularly, on the middle third part they are arranged in transverse rows (sometimes the outer ones fused to transverse bands) and on the upper part indistinct (all this not always equally evident). Head slightly, body distinctly broader and higher than in *Prionotus scitulus*. Anal colourless. Opercular spine stronger. Black spot on spinous dorsal between 4th and 5th spine indistinct or absent.

Prionotus evolans (LINNÉ)

4-6 miles off Santa Margarita (Venezuela), 10.II.1936, depth \pm 20 fathoms.
2 spec., length 175 and 182 mm.

15-20 miles off east coast of Florida (Miami, Jacksonville), 24-26.III.1936.
1 spec., length 174 mm.

Bellator militaris (GOODE and BEAN)

East coast of Florida, 24.III.1936, depth 20-22 fathoms.
1 spec., length 114 mm.

Gerhardinus (Gobiosoma) nudum MEEK and HILDEBRAND

East coast of Florida, 24-26.III.1936, depth 20-30 fathoms.
1 spec., length 36 mm.

Evermannichthys spongiola (RADCLIFFE)

7-10 miles off Tampa Bay, 16.III.1936, depth 8-10 fathoms.
9 spec., length 17-27 mm.

Malacoctenus ocellatus (STEINDACHNER)

15-20 miles off Dry Tortugas, 15.III.1936, depth 20-22 fathoms.
1 spec., length 37 mm.

Citharichthys macrops DRESEL

Found in the stomach of a *Synodus foetens* (cf. above).
1 spec., length 160 mm.

Histrio gibbus (MITCHILL)

0°29,5'N 44°W, 6 ? XII.1935.
1 spec., length 24 mm.
D III 12.

Antennarius ocellatus (BLOCH and SCHNEIDER)

15-20 miles off Dry Tortugas (Florida), 15.III.1936, depth 20-22 fathoms.
1 spec., length 85 mm.

Oncocephalus notatus (CUVIER and VALENCIENNES)
= **Malthaea notata** CUV. and VAL., 1837, t. 12, p. 453.

Mouth of the Amazone-river, 1°6'N 47°53'W, 3.II.1936, depth 25-30 fathoms, bottom muddy.

10 spec., length 72-110 mm.

Closely resembles *O. truncatus* (Cuv. and Val.) as photographed by De Miranda Ribeiro (Arch. Mus. Nac. Rio de Janeiro, vol. XVII, 1915) but with

a short, pointed, snout, much as in *O. radiatus*. Number of round dark spots left and right on dorsal side of head, halfway between eye and gill-opening, varying from 0-6.

***Oncocephalus radiatus* (MITCHILL)**

15-20 miles off east coast of Florida, 24.III.1936, depth 22 fathoms.

23 spec., length 82-193 mm.

Ibidem, 24-26.III.1936, depth 20-30 fathoms.

2 spec., length 92-175 mm.

***Halieutichthys aculeatus* (MITCHILL)**

15-20 miles off the Isle of Dry Tortugas (Florida), 15.III.1936, depth 20-22 fathoms.

1 spec., length 92 mm.

FISHES FROM THE AMAZONE-RIVER

***Bunocephalus dolichurus* nov. spec.**

(Fig. 12.)

Trombetas-river, near Obidos, 14.I.1936.

1 spec., length 78 mm.

D5 A 16 P 15 V 6. The family of the Aspredinidae might thus far be divided into two subfamilies, viz. the Aspredinidae, with a long tail, A 50-60, and distance vent-snout $< \frac{1}{2}$ distance vent-base of caudal, and the Bunocephalinae, with a short tail, A 6-11 (formerly 6-8) and vent nearly equidistant from snout and caudal. The present form is intermediate between the two : the tail is fairly long, A 16, and distance vent-snout : distance vent-caudal as $2 \frac{1}{2}$ -4. In every respect it holds the middle between the genera *Platystacus* and *Bunocephalus*. In order not to be obliged to establish a third genus, nor to unite the two existing genera into one, I will provisionally count this new species to the genus *Bunocephalus* which, then, will be henceforth characterized by : shorter tail, A 5-16 and by : distance snout-vent being $> \frac{1}{2}$ vent-caudal.

Head greatly depressed, narrowed forward. Six barbels, maxillary one reaching past half of P, post-mental one past gill-openings, mentals about $\frac{1}{2}$ post-mentals.

Skin naked, dorsal side light brownish, underside unpigmented, with faint ridges and, on the head, blackish endings of mucous canals, e.g. near the very small eyes and further backward, between the bases of P. From here backward a series of ± 16 along the sides of the trunk and the tail to the caudal fin. Three

(or four?) longitudinal rows of small tubercles along the side of the tail, the third one from above continuing forward to the head. Mostly under it runs the series of mucus pores on both sides of the tail, mentioned above.

P with strong spine, denticulated on both sides.

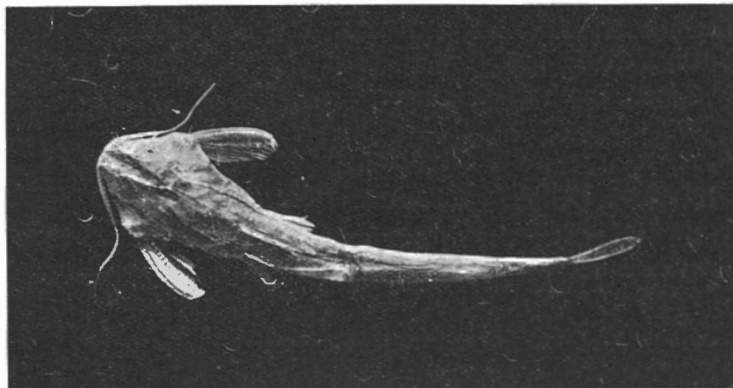


FIG. 12. — *Bunocephalus dolichurus* nov. sp.
Natural size.

Arius spixi (AGASSIZ)

Mouth of the Amazone-river (1°6'N 47°53'W), 3.II.1936, depth 25-30 fathoms, bottom muddy.

5 spec., length 74, 118, 125, 133 and 143 mm.

4-6 miles off the Isle of Santa Margarita (Venezuela), 10.II.1936, depth \pm 20 fathoms.

2 spec., length 212 and 295 mm.

The species does not wholly conform to the descriptions of *Tachisurus* (or *Arius*) *spixi*; e.g. $A \pm 19$ (*spixi* : 21, *Tachisurus agassizii* : 19). Patches of palatine-teeth relatively larger and extending further outward than figured by Ribeiro ⁽¹⁾ (with *T. agassizii*, however, even smaller, cf. EIGENMANN and EIGENMANN, p. 87) ⁽²⁾.

Gill-rakers 6 + 10 (the small ones of 3.II : 6 + 12). For *spixi* Eigenmann ⁽²⁾ gives 6 + 11-13, for *agassizii* Eigenmann and Eigenmann ⁽²⁾ (p. 87) : 8 + 14.

The length of the barbels is given to be greater with *spixi*, e.g. maxillary barbel with *spixi* varying from middle of P to base of V [EIGENMANN ⁽²⁾, p. 146]; in *agassizii* (Eigenmann and Eigenmann, p. 87) ⁽²⁾ about reaching gill-opening (in our specimens to beyond base or even halfway length of P).

⁽¹⁾ RIBEIRO, A. (DE MIRANDA), Fauna brasiliense. Peixes IV. (*Archivos Muceo Nac. Rio de Janeiro*, vol. XVI, 1911, p. 339.)

⁽²⁾ EIGENMANN, C. H., The Fresh-water Fishes of British Guyana. (*Mém. Carn. Mus.*, V, 1912.)

⁽³⁾ IDEM (*Calif. Acad. Sc., Occasional Papers*, I, 1890). Revision of the South Amer. Nematognathi or Cat-fishes.

***Callophysus macropterus* (LICHTENSTEIN)**

Santa Julia, 16.I.1936, in a lake communicating with the Amazone.

3 spec., length 235, 295 and 315 mm.

***Pimelodus agassizi* (STEINDACHNER)**

Ibidem, same date.

1 spec., length 400 mm.

***Pimelodus altipinnis* (STEINDACHNER)**

Trombetas-river, near Obidos, 14.I.1936.

4 spec., length 110, 120, 120 and 185 mm (from tip of snout to extremity of under lobe of tail).

« Mandihy ».

***Brachyplatystoma vaillanti* (CUVIER and VALENCIENNES)**

Trombetas-river, near Obidos, 14.I.1936.

1 spec., length ± 340 mm.

Maxillary barbel reaching to caudal peduncle, post-mental one to posterior half of ventral fins, mental one to base of P. Occipital process not reaching dorsal plate.

DI 6 A 13. « Dourada ».

Manaos (in the harbour), 20.I.1936.

3 spec., length 390, 550 and 590 mm.

As above. In the biggest one, however, the maxillary barbel reaches no further than halfway the adipose fin, the postmental one to beginning of ventral.

***Oxydoras (Rhinodoras) amazonum* (STEINDACHNER)**

Obidos, 13.I.1936.

1 spec., length 300 mm.

Trombetas-river, 14.I.1936.

1 spec., length 60 mm.

***Pseudogeneiosus brevifilis* (CUVIER and VALENCIENNES)**

Santa Julia, 16.I.1936.

1 spec., length 390 mm.

Maxillary barbel very short, hidden in a groove round the proximal end of the maxillare, its length = vertical diameter of eye.

Helogenes amazonae nov. spec.

Manaos, 20.I.1936.

1 spec., length 71 mm.

Much like *Helogenes marmoratus* Günther.

D 5 A 45 (*marmoratus* 37-40), head 6, depth 4, 6. Dorsal nearer to caudal than to occiput (more backward than in *marm.* where it is equidistant or nearly so). Pectorals = length of head or slightly longer (in *marm.* <), reaching past base of ventrals.

Colour dark brown, dorsally darker. Scattered black spots and slight marmoration. Pectorals, ventrals and root of caudal dark, outer part of caudal light, separated from the anterior, dark, part by a straight line. In the drawing of EIGENMANN (*Freshw. F. of Br. Guiana*, pl. XXII, fig. 2) this straight line seems to indicate the root of the tail which, however, at least in my spec., lies right above the end of the anal.

Hypophthalmus edentatus SPIX

Trombetas-river, near Obidos, 14.I.1936.

26 spec., length 35-80 mm.

1 spec., length 115 mm.

Cetopsis caecutiens (LICHTENSTEIN)

Trombetas-river, near Obidos, 14.I.1936.

1 spec., length 175 mm.

Obidos-river.

4 spec., length 148, 180, 240 and 256 mm.

Loricaria apeltogaster BOULENGER, var. **amazonum** nov. var.

Trombetas-river, near Obidos, 14.I.1936.

1 spec., length 100 mm.

Closely related to *Loricaria apeltogaster* Boulenger (from the Paraguay-river, cf. *Transact. Zoöl. Soc. London*, XIV, 1, p. 33). Differences :

Distance tip of snout-beginning of D $3 \times$ in length (without caudal); in *peltogaster* $3\frac{1}{3}$. Mouth broader, more or less rectangular, height ± 2 in breadth. Labial fold shorter and broader, full of papillae, which also on fringes. Only the two outer fringes reaching gill-openings. D16 P16, outer rays less produced than in *peltogaster*, just reaching V. VI5, AI4, LI32. Belly with numerous more or less irregular shields; laterally, between P and V, a series of ± 6 bigger shields. Upper caudal ray, as in *peltogaster*, produced into a long filament. No spines in front of D (cf. also *Loricaria filamentosa* Steind. from Magdalena-river, Mexico, *Denkschr. Akad. Wien*, Bd. 69, 1879).

Eigenmannia troscheli (KAUP)

Trombetas-river, near Obidos, 14.I.1936.

1 spec., length 130 mm.

Steatogenys elegans (STEINDACHNER)

Trombetas-river, near Obidos, 14.I.1936.

3 spec., length 153, ? (damaged) and 183 mm.

« Sarapo pintado ».

Sternarchus bonapartii CASTELNAU

Trombetas-river, near Obidos, 14.I.1936.

5 spec., length 86 (tail damaged), 113, 125, 130 and 160 mm.

Height 9 in length, head = height, $A \pm 175$. The figure given by CASTELNAU evidently represents a mutilated specimen.

« Sarapo ».

Sternarchella schotti (STEINDACHNER)

Trombetas-river, near Obidos, 14.I.1936.

4 spec., length 129, 135 (both with tail damaged), 152 and 155 mm.

« Sarapo ».

Sternarchogiton nattereri (STEINDACHNER)

Trombetas-river, near Obidos, 14.I.1936.

4 spec., length 150, 150 (both damaged), 155 and 160 mm.

« Sarapo ».

Pyrrhulina semifasciata STEINDACHNER (Characinidae)

Santa Julia, 23.I.1936.

10 spec., length 42-56 mm (figure cf. STEIND., *Sitz. ber. Akad. Wien*, 72, 1875).

ATLANTIC DEEP SEA FISHES ⁽¹⁾

Myctophum benoiti (Cocco)

Atlantic Ocean, 0°50'N 28°26'W — 1°4'N 29°16'W, 30.XI-1.XII.1935, pelagic net.
1 spec., length 60 mm.

The shape of the head does not agree with GOODE & BEAN's figure 83. It is deeper and shorter. The mouth cleft makes an angle of slightly more than 45° with the horizontal, being much more directed upwards. Greatest depth of body in head. Super-anal photophores 5+5. Hindmost macula prae-caudalis on lateral line. Further close agreement.

Myctophum coccoi (Cocco)

Ibidem, same date, great pelagic net.

1 spec., length 38 mm.

AO 5+10.

Ibidem, 5.XII.1935, 2-4 a. m., great pelagic net.

4 spec., length 33-40 mm.

OA 5+10 or 6+9.

Myctophum affine (LÜTKEN)

Ibidem, 30.XI-1.XII.1935, pelagic net.

9 spec., length 37-57 mm and many smaller ones.

AO 8-9+5-6.

Myctophum pristilepis (GILBERT and CRAMER)

Ibidem, same date.

5 spec., length 30-34 mm.

AO 7+6 in all specimens (WEBER and DE BEAUFORT : 6-8+3-5, mostly 7+4).

Mandacus maderensis (JOHNSON)

Atlantic Ocean : 0°22'S 38°40'W, 5.XII.1939.

1 spec., length 55 mm.

Head fully 5, depth $7\frac{1}{2}$, D 10; origin of A some distance behind D; D half way between V and A; depth of head $\frac{3}{4}$ in head; L1 ± 58. Lateral photophores 44, ventral photophores in front of P 11, between P and V 18, between V and A 11, over A 24, on tail 3.

Mouth clefts more oblique (directed upwards) than in *Y. blackfordi* Goode & Bean. Tip of lower jaw projecting slightly. Eye = snout, 6 in head. (Figure in *Discovery Reports*, vol. II, p. 294.)

(¹) These deep sea species were taken during the night at the sea surface.