

- Fig. 8. Left accessory lobe (external or periphallidic lobe or paramere) of *H. fulvicollis*, Er. Inner side.
 Fig. 9. Ditto of *H. furcatus*, Seidl. Inner side.
 Fig. 10. Right accessory lobe, which varies but little in all the above species.
 Fig. 11. Basal segment of right median tarsus of *H. apicalis*, Thoms.
 Fig. 12. Ditto of *H. fluviatilis*, Aubé.
 Fig. 13. Ditto of *H. nomax*, mihi.
 Fig. 13 a. Ditto of *H. nomax*, var. *brownianus*, Sharp.
 Fig. 14. Ditto of *H. wehnckeii*, Gerh.
 Fig. 15. Ditto of *H. ruficollis*, Deb.
 Fig. 16. Ditto of *H. heydeni*, Wehncke.
 Fig. 17. Ditto of *H. immaculatus*, Gerh.

V.—A Collection of Fishes from Lagos.

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THE collection here reported on has been made and presented to the British Museum by Mr. J. Cadman, of the Western Fisheries, Ltd. The majority of the fishes were trawled off Lagos at a depth of 10 to 35 fathoms, and this was certainly the case for the seven species described below as new. Some of the coast-fishes of West Africa are identical with those of the Mediterranean, others are known from the Cape, and there is a certain proportion of species found so far away as the coast of Brazil and the Indian Ocean; to illustrate this the known distribution of the species, other than those restricted to West Africa, is given.

1. *Squatina africana*, Regan.

Ann. Natal Mus. i. pt. 3, 1908, p. 248, pl. xxxviii.

This species was originally described from Natal; it would be of interest to ascertain whether either of the Mediterranean species of *Squatina* occurs at Lagos.

2. *Rhynchobatus atlanticus*, sp. n.

Very similar in form, structure, and coloration to the Indian *R. djeddensis*, Forsk. First dorsal fin farther back, originating behind base of pelvics; distance from end of snout to origin of first dorsal more than four times the interspace between dorsals. Spines stronger and fewer, similarly distributed except for the presence of a series on each side of the rostral cartilage and the absence of a median series

between the dorsal fins. Mouth less undulated, straight except for a median prominence in the lower jaw fitting an emargination in the upper. Upper nasal valve less extended, ending at the middle of the length of the nostril.

A single specimen, an immature male, 700 mm. in total length.

3. *Platyrrhina schoenleini*, Müll. & Henle.

This species is known from the coasts of India and West Africa, but has not been recorded from South Africa.

4. *Trygon margarita*, Günth.

5. *Elops lacerta*, Cuv. & Val.

6. *Clupea dorsalis*, Cuv. & Val.

7. *Pellonula vorax*, Günth.

8. *Arius heudeloti*, Cuv. & Val.

A specimen of 300 mm. is the first example of this species to reach the British Museum. According to the original description, "Les plaques palatines sont très-écartées et très-petites"; in the present example there is a very small patch of teeth on one side of the palate, but none on the other. A related species, *A. parkii*, Günth., has been placed in the synonymy of *A. heudeloti* by Boulenger (Cat. Afr. Fish. ii. p. 387), but differs from it notably in having two comparatively large patches of teeth on the palate, separated by an interspace much less than their own width. In addition the mouth is narrower (præmaxillary band of teeth four times as long as broad in *A. parkii*, seven times in *A. heudeloti*), the skull is less coarsely granular, &c.

9. *Heterenchelys microphthalmus*, Regan.

Ann. & Mag. Nat. Hist. (8) x. 1912, p. 324; Pellegrin, Ann. Inst. Océan. Monaco, vi. fasc. 4, 1914, p. 23, pl. i. fig. 4.

10. *Muraenesox ferox*, Costa.

Two examples, 800 and 1200 mm. in total length, show that this species, originally described from the Mediterranean, is quite distinct from the American *M. savanna*, Cuv. The vomer is armed with a series of 11 to 13 teeth, which ends posteriorly nearly at the level of the anterior edge of the eye;

the teeth are long and slender, but little compressed and very feebly tricuspid at their apices. In *M. savanna* the vomerine series ends below the posterior edge of the eye, and includes 17 or 18 teeth, which are short, compressed, and distinctly tricuspid. Other noteworthy differences are that the anterior canines of the lower jaw are much stronger and the pectoral fins are longer in *M. ferox* than in *M. savanna*.

11. *Hoplunnis punctatus*, sp. n.

Depth of body, at origin of anal fin, about 50 times in its length; tail $3\frac{2}{5}$ as long as rest of fish. Snout $2\frac{4}{5}$ diameter of eye, which is nearly twice the interorbital width. Maxillary extending well behind eye. Præmaxillary with 2 pairs of canines and 2 median teeth behind them; vomer with a series of 5 spaced canines; maxillary teeth small, biserial; mandibular teeth biserial, the outer series small except for 2 pairs of canines anteriorly, the inner series small posteriorly, of about 9 stronger spaced teeth laterally. Dorsal origin in advance of gill-opening, a little farther from eye than latter from end of snout; pectoral $\frac{1}{2}$ length of snout. Olivaceous above, silvery below; upper parts with numerous small dark spots forming irregular longitudinal series; end of tail blackish.

A single specimen, 370 mm. in total length.

Hoplunnis schmidtii, described in 1859 * from an example from Puerto Cabello, appears to differ especially in the more numerous teeth (10 on the vomer, 17 enlarged teeth in the inner mandibular series). *H. diomedianus*, Goode & Bean †, is based on a single specimen from the Gulf of Mexico; it appears to resemble *H. africanus* in having only 6 vomerine teeth, but seems to have a longer tail, the origin of the dorsal fin farther back, &c. Possibly further material may show that neither *H. diomedianus* nor *H. africanus* is distinct from *H. schmidtii*.

12. *Vomer setipinnis*, Mitch.

Both coasts of America; W. Africa.

13. *Pomadasys jubelini*, Cuv. & Val.

14. *Larimus peli*, Bleek.

* Kaup, Abhandl. Naturw. Ver. Hamburg, iv. Abh. 2, p. 20, pl. ii. fig. 4.

† Mem. Mus. Comp. Zool. xxii. 1896, p. 146, fig. 163.

15. *Sciæna nigripinnis*, Günth.
16. *Otolithus macrognathus*, Bleek.
17. *Otolithus brachygnathus*, Bleek.
18. *Otolithus senegalensis*, Bleek.
19. *Uranoscopus albesca*, sp. n.

Depth of body about 4 in the length, length of head (with lower jaw) about 3. Diameter of eye $5\frac{1}{2}$ in length of head, equal to length of snout or to interorbital width. Head as broad as deep; upper surface flattish, without prominent ridges or tubercles; interorbital depression twice as long as broad; one subopercular and four præopercular spines. Oral membrane of lower jaw produced into a flap with entire edges, about as broad as long, rounded distally. Præmaxillary teeth triserial anteriorly, uniserial laterally; mandibular teeth biserial anteriorly, the inner series stronger; laterally only 2 or 3 canines. Post-temporal spine weak; humeral spine strong, half as long as pectoral fin. 55 scales in a longitudinal series. Dorsal III, 13-14; spinous dorsal low; soft dorsal emarginate, third or fourth ray longest, $\frac{1}{2}$ length of head. Anal 13. Pectoral 18-rayed, $\frac{2}{3}$ length of head, extending to origin of anal. Caudal subtruncate. Greyish-violet; spinous dorsal black; oral flap white, conspicuous.

Two specimens, 175 and 195 mm. in total length.

The white membranous flap that can be protruded from the mouth of this species is the homologue of the vermiform or filamentous process found in related forms.

20. *Uranoscopus scaber*, Linn.

A Mediterranean species, previously unrecorded south of the Canaries.

21. *Trichiurus lepturus*, Linn.

Atlantic.

22. *Mugil cephalus*, Linn.

Mediterranean to S. Africa; also both coasts of America.

23. *Mugil falcipinnis*, Cuv. & Val.

24. *Sphyræna guachancho*, Cuv. & Val.

Tropical Atlantic, on both coasts.

25. *Galeoides decadactylus*, Bloch.26. *Pentanemus quinquarius*, Linn.

Tropical Atlantic, on both coasts.

27. *Gobius schlegeli*, Bleek.28. *Brotula barbata*, Schneid.

After careful comparison of two examples collected by Mr. Cadman with one from the Bermudas, I am unable to recognize specific differences; even the number of fin-rays is exactly the same. This is the first record of this species from the Eastern Atlantic.

29. *Lepidotrigla cadmani*, sp. n.

Depth of body about 4 in the length, length of head about 3. Diameter of eye $3\frac{1}{2}$ to $3\frac{2}{3}$ in length of head, interorbital width 4 to $4\frac{1}{2}$. Bones of head finely granulated; præ-orbital rounded or truncated anteriorly, with 4 to 8 small spines; 1 to 3 small spines above anterior part of eye; no continuous transverse groove behind the concave interorbital region. Chest scaly; 54 to 56 scales in lateral line; 21 to 24 spiny plates at base of dorsal fins. Dorsal IX, 13-14; spines not serrated, second or third longest, $\frac{1}{2}$ or a little more than $\frac{1}{2}$ length of head. Anal 13-14. Pectoral nearly as long as head; uppermost free ray as long as rest of fin, extending to third or fourth ray of anal. Pelvics extending to origin of anal. Caudal slightly emarginate. Traces of a dusky spot on spinous dorsal between fourth and seventh spines; membrane of upper $\frac{3}{4}$ of pectoral fin, and on inner side rays also, blackish.

Five specimens, 130 to 170 mm. in total length.

L. cavillone, Lacep., of the Mediterranean, is rather similar, but differs notably in the rougher head, serrated first dorsal spine, naked chest, shorter pectoral filaments, &c.

30. *Platycephalus gruveli*, Pellegr.31. *Dactylopterus volitans*, Linn.

Tropical Atlantic.

32. *Psettodes erumei*, Schneid.

An Indian and West-African species not yet recorded from South Africa.

33. *Hemirhombus guineensis*, Bleek.34. *Solea chirophthalmus*, sp. n.

Depth of body $2\frac{2}{3}$ to $2\frac{4}{5}$ in the length, length of head about $4\frac{1}{2}$. Upper eye somewhat in advance of lower; diameter equal to or less than length of snout, 5 or 6 in length of head and about twice interocular width. Maxillary extending to below posterior $\frac{1}{4}$ of eye. No dilated nostril on blind side. 65 to 72 scales in a longitudinal series. Dorsal 69-77. Anal 56-60. Caudal rounded, contiguous to dorsal and anal. Right pectoral 9-rayed, nearly $\frac{1}{3}$ length of head; left pectoral 7- or 8-rayed, not more than $\frac{1}{4}$ length of head. Vertebrae 8+32. Greyish, with traces of darker spots on body, series of 5 or 6 near bases of dorsal and anal apparently alternating with a series on lateral line; pectoral with a blackish ocellus.

Five specimens, 170-200 mm. in total length.

35. *Cynoglossus lagoensis*, sp. n.

Depth of body 4 in the length, length of head $4\frac{1}{2}$ to $4\frac{4}{5}$. Interocular width $\frac{2}{3}$ or $\frac{3}{4}$ diameter of upper eye, which is 3 to 4 in length of snout and 10 to 12 in length of head. Two nostrils, the posterior midway between the anterior margins of the eyes. Cleft of mouth extending behind lower eye. Dorsal 120-126. Anal 95-98. Three lateral lines on left side, one on right; 80 to 85 scales in a lateral series from above gill-opening to base of caudal; 12 scales between upper and middle lateral lines at their widest distance apart. Brownish grey.

Three specimens, 380 mm. in total length.

Related to *C. canariensis*, Steind. (Denkschr. Akad. Wien, xlv. 1882, p. 13, pl. ii. fig. 2), in which the cleft of the mouth ends below the middle of the eye, the head is smaller, the scales are more numerous, &c.

36. *Cynoglossus goreensis*, Steind.37. *Echeneis naucrates*, Linn.

Temperate and tropical seas.

38. *Batrachoides beninensis*, sp. n.

Depth of body about 6 in length, length of head about 3. Diameter of eye 10 to 12 in length of head. A horizontal fold of skin from below eye to præoperculum. Two opercular and two subopercular spines. Teeth on vomer and palatines uniserial, obtusely conical; 11 to 13 on vomer; lower jaw with a series of similar teeth and anteriorly a patch of villiform teeth; præmaxillaries with a narrow band of villiform teeth. Head naked, covered with small filiform papillæ; no scales on occiput or on throat; snout and lower jaw with fringes. Body scaly, the scales comparatively large, 10 between origin of second dorsal and lateral line. Dorsal III, 25. Anal 22-23. Pectoral 19-20, extending to origin of anal; no axillary foramen or pores. Greyish; head ornamented with irregular transverse dark bands with darker edges; body with irregular dark cross-bars and spots; dorsal and anal fins with oblique stripes; pectoral with series of spots; caudal dark at the base and also posteriorly.

Three specimens, 160 to 210 mm. in total length.

Related to *B. surinamensis*, Schneid., of the Atlantic coast of America, differing especially in the completely naked head, the larger scales, and the fewer dorsal and anal rays.

VI.—*Ants from North and Central Australia, collected by G. F. Hill.*—Part I. By W. C. CRAWLEY, B.A.

I. Subfam. *PONERINÆ*.

No. 2. *Odontomachus ruficeps*, Sm., subsp. *acutidens*, Forel.

Darwin, N.T., 15. iv. 13. ♀.

No. 21. *Odontomachus septentrionalis*, sp. n.

♀.—L. 14.8 mm. (with mandibles).

Mandibles long (2 mm.), dentate all along their inner margin; apical tooth long, rounded at point, subapical very small and pointed, preapical nearly as long as apical, broad and truncated. Head 3.5 mm. long, maximum breadth 2.5 mm., minimum (at back) 1.8 mm. Frontal area distinct; clypeus long, prolonged to a point between the frontal carinæ, anterior border truncate. Head much narrower behind and deeply emarginate. Node of pedicel very high, merging



Regan, C. Tate. 1915. "A collection of fishes from Lagos." *The Annals and magazine of natural history; zoology, botany, and geology* 15, 124–130.

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