

REPORTS on the MARINE BIOLOGY of the SUDANESE RED SEA, from Collections made by CYRIL CROSSLAND, M.A., D.Sc., F.L.S.—XXII. THE FISHES. By RUTH C. BAMBER, M.Sc. (Liverpool). (Communicated by Prof. W. A. HERDMAN, F.R.S., F.L.S.)

[PLATE 46.]

[Read 4th February, 1915.]

THE fishes collected by Dr. Crossland from the western coast of the Red Sea, particularly from the vicinities of Suakim and Suez, comprise 238 specimens belonging to 91 species, two of which are new to science. One of these is the type of a new family of Eels. Most of the species are typical Red Sea forms, but several have not been recorded previously from that region.

The collection was sent by Dr. Crossland to the Zoology Department of the University of Liverpool, and was entrusted to me by Professor Herdman for investigation.

The greater part of the work was done in the Zoological Laboratory at Liverpool; but a few specimens that presented special difficulty were taken to the British Museum (Natural History), where Mr. Tate Regan gave me every facility for making use of the collection under his charge, and supervised my work.

When the locality is not stated, it may be taken to be the western shores of the Red Sea between Suez and Suakim.

Most of the fishes of this collection are in the Zoological Museum of the University of Liverpool; but a few, including the types of the two new species, are in the Natural History Museum (South Kensington).

CARCHARIIDÆ.

1. CARCHARIAS BLEEKERI, *Duméril*.

TORPEDINIDÆ.

2. TORPEDO PANTHERA, *Rüpp.*
3. TORPEDO SINUS-PERSICI, *Duméril*.

RHINOBATIDÆ.

4. RHINOBATUS GRANULATUS, *Cuv.*

TRYGONIDÆ.

5. TRYGON UARNAK (*Forsk.*).
6. TRYGON SEPHEN (*Forsk.*).

MYLIOBATIDÆ.

7. AËTOBATIS NARINARI (*Euphr.*).

CLUPEIDÆ.

8. CLUPEA MOLUCCENSIS (*Bleek.*).
9. ENGRAULIS BOELAMA (*Forsk.*).

PLOTOSIDÆ.

10. PLOTOSUS ANGUILLARIS (*Bloch.*).

MURÆNIDÆ.

11. GYMNOTHORAX HEPATICA (*Rüpp.*).

NEENCHELIDÆ, fam. nov.

Dorsal and anal fins continuous with the reduced caudal; pectorals present. Body naked; vent remote from head. Mouth with lateral cleft extending a short distance behind eye; maxillary articulated with ethmoid at a considerable distance behind end of snout, which is not much produced; teeth subconical, pointed, uniserial, well developed in jaws and on vomer. Nostrils lateral. Gill-openings separated. Pharyngeal openings of branchial clefts restricted. Pharyngeals oblong or ovate, covered with small teeth. Frontals ankylosed to form a single bone. Suspensorium vertical. Palato-pterygoid an elongated lamina. Caudal vertebræ without lateral transverse processes.

This family seems to be closely allied to the Murænesocidæ as defined by Regan ("Classification of Order Apodes," *Ann. Mag. Nat. Hist.* (8) vol. x. 1912), but differs in the small pharyngeal openings of the branchial clefts. The latter character suggests affinity with the Murænidæ, which differ notably in the structure of the pharyngeals, the paired frontals, and the vestigial palato-pterygoids. The lateral line also differs from that of the Murænidæ, consisting of long exposed tubules as in the Congridæ and Murænesocidæ.

NEENCHELYS, gen. nov.

Form elongate, subcylindrical. Snout subconical. Nostrils lateral; posterior a long narrow slit in front of eye; anterior tubular. Gill-openings small, widely separated. Teeth few, spaced, slender, and acute. Dorsal fin beginning a short distance behind the gill-opening; origin of anal just behind the vent; pectorals small.

12. NEENCHELYS MICROTRETUS, n. sp. (Plate 46. fig. 3.)

Tail $1\frac{2}{5}$ as long as rest of fish. Depth of body nearly $\frac{1}{3}$ length of head (to gill-opening), which is nearly $\frac{1}{5}$ length of fish. Cleft of mouth extends behind eye for a distance equal to diameter of eye, which is small, about $\frac{1}{3}$ length of snout. Vertical fins low; origin of dorsal as far from gill-opening as latter is from angle of mouth. Pectorals narrow, few-rayed, shorter than snout. Coloration uniform (in spirit).

A single specimen, 185 mm. in total length, from Suez.

ECHELIDÆ.

13. MURÆNICHTHYS SCHULTZII, *Bleek.*

POECILIIDÆ.

14. CYPRINODON DISPAR (*Rüpp.*).

BELONIDÆ.

15. BELONE SCHISMATORHYNCHUS, *Bleek.*

HEMIRAMPHIDÆ.

16. HEMIRAMPHUS DUSSUMIERII, *Cuv. & Val.*

FISTULARIIDÆ.

17. FISTULARIA SERRATA, *Cuv.*

SYNGNATHIDÆ.

18. CORYTHOICHTHYS FASCIATUS (*Gray.*).

One specimen, differing from the description given by Kaup ('Lophobranchii,' p. 25) in having the median crest on the snout undenticulated, and in having the dorsal fin on 6 rings instead of 5.

19. MICROGNATHUS BREVIROSTRIS (*Rüpp.*).

20. *HALICAMPUS MACRORHYNCHUS*, n. sp. (Plate 46. fig. 4.)

Male unknown and position of brood-pouch therefore uncertain, but agreeing in all other respects with Duncker's diagnosis of the genus *Halicampus* (Jahrb. Hamburg. Wissensch. Anst. xxix. 1912, p. 236).

Similar in form to *Halicampus kolomatodon*, Bleek., differing notably as follows :—

- (1) Snout much longer, $1\frac{3}{5}$ rest of head.
- (2) Rings fewer, 14 + 27.
- (3) Dorsal fin with 18 rays on 1 + 3 rings.
- (4) Keels of scutes mostly entire or incompletely divided into two; not definitely serrated.

A single specimen, ♀, 112 mm. in length, from Suez.

21. *DORYRHAMPHUS EXCISUS*, *Kaup.*22. *HIPPOCAMPUS GUTTULATUS*, *Cuv.*23. *HIPPOCAMPUS HISTRIX*, *Kaup.*

HOLOCENTRIDÆ.

24. *HOLOCENTRUS RUBER* (*Forsk.*).

SERRANIDÆ.

25. *EPINEPHELUS HEMISTICTUS* (*Rüpp.*).26. *EPINEPHELUS TAUVINA* (*Forsk.*).27. *PSEUDOCROMIS OLIVACEUS*, *Rüpp.*

CHILODIPTERIDÆ.

28. *APOGON ANNULARIS*, *Rüpp.*29. *APOGON AURITUS* (*Cuv. & Val.*).30. *APOGON VARIEGATUS* (*Val.*).

CARANGIDÆ.

31. *CARANX ARMATUS* (*Forsk.*).32. *CARANX BLEEKERI*, *Klunz.*

LUTIANIDÆ.

33. *LUTIANUS GIBBUS* (*Forsk.*).34. *LUTIANUS BOHAR* (*Forsk.*).

A single specimen, with the two white spots at base of dorsal very distinct. Günther (Cat. Fishes, vol. i. p. 191) says these spots disappear after death.

35. LUTIANUS QUINQUELINEARIS (*Bloch*).

36. CÆSIO LUNARIS, *Cuv. & Val.*

POMADASIDÆ.

37. PLECTORHYNCHUS GATERINA (*Forsk.*).

MULLIDÆ.

38. UPENEUS BARBERINUS (*Lacep.*).

LETHRINIDÆ.

39. LETHRINUS MAHSENA (*Forsk.*).

40. PAGRUS SPINIFER (*Forsk.*).

SPARIDÆ.

41. CHRYSOPHRYS BIFASCIATA (*Forsk.*).

CHÆTODONTIDÆ.

42. CHÆTODON AURIGA, *Forsk.*

Seven specimens, forming a complete series from *C. setifer*, Bloch, with a distinct black spot on soft dorsal, to *C. auriga*, Forskål, with no trace of a spot. The intensity of the spot is not correlated with the size of the fish.

43. CHÆTODON FASCIATUS, *Forsk.*

44. CHÆTODON MESOLEUCUS, *Forsk.*

45. HENIOCHUS ACUMINATUS (*Lin.*).

46. HOLACANTHUS ASFUR (*Forsk.*).

POMACENTRIDÆ.

47. DASYLLUS ARUANUS (*Lin.*).

48. DASYLLUS MARGINATUS (*Rüpp.*).

49. POMACENTRUS CYANOSTIGMA (*Rüpp.*).

50. POMACENTRUS TRIPUNCTATUS, *Cuv. & Val.*

LABRIDÆ.

51. JULIS LUNARIS (*Lin.*).

52. CHEILINUS TRILOBATUS, *Lacep.*

53. CHEILINUS RHODOCHROUS, *Günth.*

Three specimens, which differ from those in the British Museum in having a double dark band passing from the middle of the posterior margin of the eye to the base of the caudal and ending in a black spot on the caudal peduncle. A dark spot also present on the lateral line above the pectorals.

SCARIDÆ.

54. PSEUDOSCARUS HARID, *Forsk.*55. PSEUDOSCARUS NIGER, *Rüpp.*

MUGILIDÆ.

56. MUGIL CUNNESIUS, *Cuv. & Val.*57. MUGIL SMITHII, *Günther.*

A single specimen, agreeing fairly well with examples in the British Museum from Socotra and Natal. The species was originally described from the Cape.

ATHERINIDÆ.

58. ATHERINA PINGUIS, *Lacep.*

SIGANIDÆ.

59. SIGANUS STELLATUS, *Forsk.*

A single specimen, with 14 dorsal and 8 anal spines, one in excess of the number usually found in the genus.

60. SIGANUS NEBULOSA (*Q. & G.*).61. SIGANUS RIVULATUS, *Forsk.*

TEUTHIDIDÆ.

62. TEUTHIS MATOIDES (*Cuv. & Val.*).63. TEUTHIS GUENTHERI, *Jenk.*

(Bull. U.S. Fish. Comm. xxii. 1902, p. 477, fig. 29.)

A single specimen, agreeing exactly with *T. matoides*, except for the marking on dorsal fin—probably the same species.

64. ZEBRASOMA RÜPPELLII (*Benn.*).

Two specimens, one in spirit and one dried skin, differing from Rüppell's and Günther's descriptions in having 4 spines in the dorsal fin. Rüppell's specimen in the British Museum has 4 spines, but the first is very small and was probably overlooked.

GOBIIDÆ.

65. *Gobius echinocephalus*, Rüpp.

Thirteen small specimens, differing from Rüppell's and Günther's descriptions in having a pair of small but well-defined canines in the lower jaw. Canines are present in Rüppell's specimens in the British Museum.

66. *Gobiodon reticulatus*, Günth. & Playf.67. *Gobiodon citrinus* (Rüpp.).68. *Gobiodon ceramensis* (Bleek.).69. *Asterropteryx semipunctatus*, Rüpp.

BLENNIIDÆ.

70. *Petrosirtes ancyloдон*, Rüpp. (Plate 46. fig. 2.)

(N. Wirb., Fische, p. 1, Taf. i. fig. 1.)

As our specimen differs in some particulars from Rüppell's description, it will be well to give the characters in full.

Height of body 4, length of head $3\frac{2}{3}$ in total length (without caudal). Diameter of eye $4\frac{1}{3}$ in head, almost equal to interorbital width. Snout moderate; cleft of mouth extending a short distance behind anterior margin of eye. Canine teeth very large in lower jaw, small in upper. A pair of small barbels present on chin and simple paired tentacles on supraorbital margin, occiput, and above gill-openings. Dorsal 30, undivided, highest anteriorly; last ray attached by a membrane to caudal peduncle anterior to base of caudal rays. Anal 19. Caudal rounded. Pectoral shorter than head, not extending to origin of anal.

Colour in spirit light brown; back with six irregular dark brown cross-bars extending on to dorsal and anal fins. Caudal with opaque white margin.

A single specimen from Suez, 8.5 cm. in length, differing from Rüppell's description and figure in the presence of tentacles on occiput and above gill-openings, barbels on chin, and opaque white margin to caudal.

71. *Petrosirtes mitratus*, Rüpp.72. *Petrosirtes mekranensis*, Regan.

("Fishes of Persian Gulf," Journ. Bomb. Nat. Hist. Soc. xvi. 1905.)

A single specimen from Suez, differing from the type in the shape of the crest, which is bilobed, probably due to injury during life.

73. SALARIAS FRONTALIS (*Ehrenb.*), *Cuv. & Val.* (Plate 46. fig. 1.)

(Hist. Nat. des Poiss. xi. p. 328, 1836.)

Depth of body nearly equal to length of head, which is about $4\frac{1}{2}$ in total length (without caudal). Diameter of eye $3\frac{2}{3}$ in head and $1\frac{1}{2}$ times the interorbital width. Forehead projecting beyond the snout; cleft of mouth extending to below posterior margin of eye. Canine teeth present. Anterior nostrils with a pair of well-developed simple tentacles, which arise at a short distance from the orbital margin in front of the middle of the eye. No supraorbital or occipital tentacles. No occipital crest. Dorsal 12/19, highest posteriorly, the longest rays equal to height of body below them; margin straight, without notch; last ray attached by a membrane to the caudal peduncle anterior to the procurrent caudal rays. Anal 22. Caudal rounded, but with one ray on both dorsal and ventral borders produced. Pectoral shorter than head, not extending to origin of anal.

A single specimen, 6.5 cm. in length, from Suakim.

This species agrees in most characters with *Salaria melanosoma*, Regan*, from Christmas Island, and *Salaria anomalus*, Regan†, from the Persian Gulf, but both of these have the dorsal fin notched.

Günther‡ includes *Salaria frontalis* in the synonymy of *Salaria fuscus* with a query, but it is quite distinct from that species.

74. SALARIAS QUADRIPINNIS, *Rüpp.*

CONGROGADIDÆ.

75. HALIOPHIS GUTTATUS, *Rüpp.*

SCORPÆNIDÆ.

76. SEBASTES POLYLEPIS, *Bleek.*77. SCORPÆNA LONGICORNIS, *Günth. & Playf.*

(Fishes of Zanzibar, p. 47, pl. 8. fig. 1, 1866.)

78. PTEROIS MILES (*Benn.*).79. SYNANCEIA VERRUCOSA, *Schneid.*

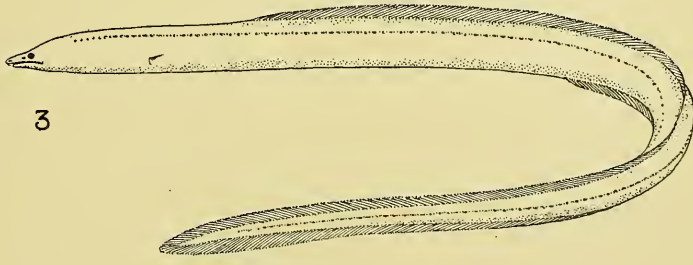
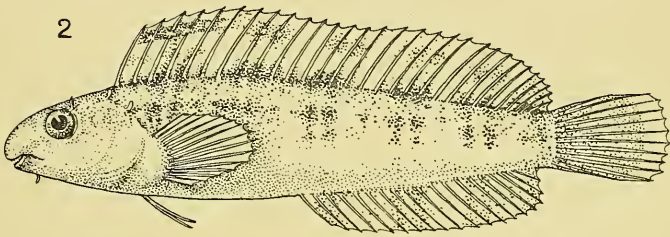
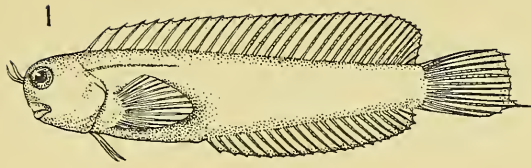
PLATYCEPHALIDÆ.

80. PLATYCEPHALUS INDICUS (*Linn.*).

* Proc. Zool. Soc. 1909, p. 406, pl. 66. fig. 5.

† Journ. Bombay Nat. Hist. Soc. vol. xvi. 1905, p. 327, pl. 2. fig. 4.

‡ Cat. Fish. vol. iii. p. 245.



G. W. del.

SUDAN FISHES.

Grout, sc.