

morei was to that of the Irrawaddy. The author finally repeated the statements, as regards the synonymy of this species, which he had published already in Journ. Linn. Soc. Zool. vol. x. p. 16, and in his Catalogue before referred to.

The following papers were read :—

1. On the Fishes of the Andaman Islands.

By FRANCIS DAY, F.Z.S. & F.L.S.

Having been directed by the Government of India to examine into and report upon the capabilities of the fisheries of the Andaman Islands, I propose detailing in the following paper the result of my investigations into the ichthyology of that penal settlement*.

These rocky islands are surrounded to a great extent by coral reefs, whilst the waters are beautifully clear, except during the stormy months of the year. The inquirer is consequently enabled with the greatest facility to perceive, even at considerable depths, the movements of the fishes, crustaceans, and other animals which inhabit those regions. Due most probably to this clearness of the water, the coloration of the fish is much more vivid than along the coasts of India; and other curious results appear to be consequent on the same cause.

Siluroids are very rare; the feelers useful in muddy waters do not appear to be here required; in fact, the only situations where they were at all common were up creeks and in brackish pieces of water. Sea-snakes seemed to be entirely absent.

In those inland portions of the islands investigated by us, the freshwater streams (except during the rainy seasons) are insignificant, whilst large natural tanks are unknown. The aborigines, however, assert that a fine freshwater lake exists a few days' journey inland in the South Andamans. As might be anticipated, the varieties of freshwater fishes are few.

The period of the year I was at the Andamans was from December 29th, 1869, to January 24th, 1870, during which brief stay I received every assistance from the officials in procuring all the various species of fish which could be captured. I likewise went for eight days' fishing with the aborigines, when I was accompanied by Mr. Homfray, their energetic protector, and was fortunate in procuring many species at this time which I did not otherwise obtain.

Even during my brief sojourn, I observed the apparent migration of one species of fish, the beautiful *Acanthurus lineatus*, Linn., which was abundant on my arrival, but could not be obtained at the period I left.

I have included a few species obtained at the Nicobars by a native collector, who was kindly lent to me for that purpose by Dr. Stoliczka.

* For an account of the aborigines of the Andamans, see the author's article, Trans. As. Soc. Beng. 1870.

Family PERCIDÆ.

1. LATES CALCARIFER, Bloch.
- Jo-dah*
- , Andamanese.

Cæc. pyl. 3.

This species was apparently rare.

2. SERRANUS HEXAGONATUS, Forst.

Cæc. pyl. 32.

Common, and takes a bait very freely.

3. SERRANUS SUMMANA, Forsk.

A common species.

4. SERRANUS BONTOO, C. & V.
- Rou-je-dah*
- , Andamanese.

Common, one specimen 24 inches long.

5. SERRANUS ARGUS, Schn.

Cæc. pyl. 8.

Usually found with the *S. hexagonatus*, and taken in the same way.

6. SERRANUS SUILLUS, C. & V.
- Rāb-na-dah*
- , or
- O-ro-tam-dah*
- , And.

Comparatively rare.

7. SERRANUS DISPAR, Playfair.

Very common.

8. SERRANUS GLAUCUS, sp. nov.

B. vii. D. 11/15. P. 17. V. 1/5. A. 3/8. C. 19. Cæc. pyl. 13-14.

Length of head $\frac{2}{7}$, of caudal $\frac{2}{11}$, height of body $\frac{1}{3}$ of the total length.*Eyes.* Diameter $\frac{1}{4}$ of length of head, $1\frac{1}{4}$ diameter from end of snout, 1 diameter apart.

Preopercle serrated, having three strong denticulations at its angle.

Teeth villiform in jaws, vomer, and palate, with one or two canines on either side of the upper jaw.*Fins.* Third dorsal spine rather the longest; second anal spine strongest, third slightly the longest; caudal lunated.*Colours* greyish, becoming dirty white along the abdomen. Head and body rather closely covered with large yellow spots. Pectoral, dorsal, anal, and caudal also spotted. Dorsal, ventral, anal, and caudal with a black margin edged with white.*Hab.* Andamans, where it is not uncommon.

9. SERRANUS HOMFRAYI, sp. nov.

B. vii. D. 9/14. P. 17. V. 1/5. A. 3/9. C. 15.

Length of head $\frac{1}{3}$, of caudal $\frac{2}{9}$, height of body $\frac{1}{3}$ of the total length.

Eyes. Diameter nearly $\frac{1}{4}$ of length of head, 1 diameter from end of snout.

Angle of preopercle slightly rounded and finely serrated.

Teeth villiform, canines small.

Fins. Last dorsal spine longest. The pectoral reaches to above the commencement of the anal. The second anal spine the longest, and much the strongest.

Colours. Whitish, and covered with roseate spots, well defined upon the head, and a few dark ones also along its upper surface. A moderately broad black band over the free portion of the tail, just behind the posterior margin of the dorsal fin, and extending laterally to one-third of its depth. Dorsal and anal fins spotted with red, having a broad margin of the same scarlet colour, edged with white. Caudal with more red than the dorsal or anal, and a very dark margin along its upper portion.

Hab. Port Blair. One specimen obtained, 6 inches in length.

I have named it after J. Homfray, Esq., of the Andamans, who greatly assisted me in my inquiries.

10. *SERRANUS CYANOSTIGMATOIDES*, Blkr.

Cæc. pyl. 16.

11. *GRAMMISTES ORIENTALIS*, Bl. Schn.

12. *GENYOROGA MARGINATA*, C. & V.

13. *GENYOROGA CÆRULEOPUNCTATA*, C. & V.

14. *GENYOROGA AMBOINENSIS*, Bleeker.

B. vii. D. 11/13. P. 17. V. 1/5. A. 3/8. C. 17. L. l. ca. 70.
Cæc. pyl. 0.

The black lateral blotch in this species at the Andamans is a *post-mortem* appearance.

15. *GENYOROGA GRAMMICA*, sp. nov.

B. vii. D. 10/14. P. 17. V. 1/5. A. 3/7. C. 17. L. l. 45.
Cæc. pyl. v.

Length of head $\frac{4}{13}$, of caudal $\frac{1}{5}$, height of body $\frac{1}{3}$ of the total length.

Eyes. Diameter $\frac{2}{7}$ of length of head, $1\frac{1}{2}$ diameter from end of snout, 1 diameter apart.

Preopercle with a deep emargination, serrated on both vertical and horizontal margins, the latter being the coarsest. Interopercular knob well developed.

Teeth villiform, with very small canines in the upper jaw.

Fins. Dorsal spines moderately strong, the third to the sixth being the longest. Pectoral pointed, reaching to above the front margin of the anal. Second anal spine longest and strongest, its length nearly equalling that of the rays. Caudal lunated.

Colours. Yellow, with five blue lines on the body, the three upper going to the dorsal fin, the fourth to the middle of the caudal, and

the fifth to the end of the base of the anal. Four blue lines on the head: two from the eye join second and third body-lines; two from the snout become fourth and fifth on the body. A black finger-mark exists on and above the lateral line, opposite the commencement of the soft dorsal fin.

Hab. Andaman Islands, where it is not rare.

16. *MESOPRION RUSSELLII*, Blkr.

Cæc. pyl. 4-6.

17. *MESOPRION DECUSSATUS*, C. & V. *Jeu-win-dah*, And.

Cæc. pyl. 3.

This is identical with the species I described as *M. therapon*, as pointed out to me by Dr. Günther.

18. *MESOPRION BLEEKERI*, Günther.

19. *MESOPRION RANGUS*, C. & V. *To-go-re-dah*, And.

20. *MESOPRION CHIRTAH*, C. & V. *An-na-kah-ro-dah*, And.

Many of the young (*M. annularis*) were captured, and a few adults (*M. chirtah*).

21. *MESOPRION SILLAOO*, C. & V.

22. *MESOPRION JOHNI*, C. & V.

23. *MESOPRION MULTIDENS*, sp. nov.

B. vii. D. 10/11. P. 16. V. 1/5. A. 3/9. C. 15. L. 1. 52.
L. tr. 7/17. Cæc. pyl. 5.

Length of head $\frac{2}{7}$, of caudal $\frac{1}{4}$, height of body $\frac{1}{4}$ of the total length.

Eyes. Diameter nearly $\frac{1}{3}$ of length of head, 1 diameter from end of snout, $1\frac{1}{4}$ diameter apart.

The distance between the eye and the angle of the mouth equals that of three-fourths of the diameter of the orbit. Seven rows of scales exist between the eye and the angle of the preopercle, which is serrated along both vertical and horizontal margins. Preorbital two-thirds as high as the orbit. Maxilla reaches to below the anterior margin of the orbit.

Teeth. Six canines in the lower jaw, two large and some smaller ones in the upper jaw; villiform on vomer and palate.

Fins. Dorsal spines slender, the fifth the longest, and nearly one-half as long as the height of the body below it. Pectoral reaching to above the posterior margin of the base of the anal. Last dorsal and anal rays elongated. Ventral spine two-thirds as long as the first ray. Caudal deeply forked. Second anal spine strongest, third the longest.

Colours. Rosy, with about six longitudinal yellow bands along the body, and one golden one from the anterior inferior angle of the eye to the snout, and another across the forehead.

Hab. Andamans, where it is common, growing to a large size, and being highly esteemed as food.

24. *AMBASSIS UROTÆNIA*, Blkr.

L. l. 26. L. tr. 4/10.

Found at the Andamans and Nicobars.

25. *AMBASSIS DUSSUMIERI*, C. & V.

Taken in salt water.

26. *AMBASSIS MACRACANTHUS*, Blkr.D. $7\frac{1}{9}$. V. 1/5. A. 3/9. L. l. 27.Length of head $\frac{2}{7}$, of caudal $\frac{2}{7}$, height of body $\frac{1}{5}$ of the total length.

Eyes. Diameter $\frac{1}{5}$ of length of head, $\frac{1}{3}$ of a diameter from end of snout. Anterior margin of orbit serrated, two spines at its posterior superior angle; preorbital serrated. A double serrature at the preopercle. Subopercle with four teeth at its angle. The maxilla extends to below the anterior third of the orbit.

Teeth villiform.

Fins. Second dorsal spine one-half the length of the body; third anal spine the longest in that fin.

Lateral line ceases after a few scales.

Colours. Silvery, without any lateral stripe, except in preserved specimens. Second dorsal spine of a brilliant orange, the interspace between it and the third black.

Hab. Andamans, in the estuaries.

27. *APOGON MULTITÆNIATUS*, Blkr.D. $6\frac{1}{9}$. P. 15. V. 1/5. A. 2/8. C. 17. L. l. 28. L. tr. $2\frac{1}{2}/7\frac{1}{2}$.

Length of head $\frac{1}{3}$, of caudal $\frac{1}{4}$, height of body above $\frac{1}{4}$ of the total length.

Eyes. Diameter $\frac{2}{7}$ of length of head, 1 diameter from end of snout, $\frac{3}{4}$ of a diameter apart.

Lower limb of preopercle crenulated.

Teeth large and widely set; also villiform on vomer and palate.

Fins. Second dorsal spine not $\frac{1}{3}$ of height of body below it. Caudal forked.

Colours. Greyish, with nine dark brown longitudinal bands, three times as wide as the ground-colour, extending from the head nearly to the tail, which has a dark spot at its base. First dorsal black. Ventral nearly black, other fins red. Dorsal, caudal, and anal with dark margins.

28. *APOGON HYALOSOMA*, Blkr.D. $6\frac{1}{9}$. P. 15. V. 1/5. A. 2/8. C. 17. L. l. 24. L. tr. $2\frac{1}{2}/8\frac{1}{2}$.

Very common. Specimens captured up to 6 inches in length.

29. *APOGON ORBICULARIS*, Kuhl & V. Hasselt.D. $6\frac{1}{8}$. P. 12. V. 1/5. A. 2/9. C. 17. L. l. 25. L. tr. 3/7.

Colours. Olive; a dark zone round the body in front of the first

dorsal fin. Head spotted with black. A cloudy band below the second dorsal. Free portion of tail, anterior to the base of the fin, spotted. First dorsal spotted with black; base of second dorsal cloudy. Ventrals nearly black.

30. *APOGON FASCIATUS*, White.

Andamans and Nicobars.

31. *APOGON CHRYSOTÆNIA*, Blkr.?

D. $7\frac{1}{9}$. P. 17. V. $1\frac{1}{5}$. A. $2\frac{1}{8}$. C. 17. L. 1. 26. L. tr. $6\frac{1}{8}$.

Length of head $\frac{2}{7}$, of caudal $\frac{2}{9}$, height of body $\frac{2}{7}$ of the total length.

Eyes. Diameter $\frac{2}{5}$ of length of head, $\frac{1}{2}$ a diameter from end of snout.

Third dorsal spine longest.

Colours. Brilliant golden, with a black head. A silvery-white median band exists along the top of the head, which divides, one branch proceeding along the back on either side to the upper half of the tail; a second goes from above the orbit to the middle of the tail, a third through the orbit to the lower half of the tail, and a fourth from the angle of the mouth to below the base of the pectoral. Fins orange.

This fish is very common amongst the coral-reefs on the Andaman Islands. As soon as the water is splashed they all rush to the coral, concealing themselves amongst its sticks, probably afraid that a large fish is coming to devour them. It is also found at the Nicobars.

32. *APOGONICHTHYS AURITUS*, C. & V.

B. vii. D. $7\frac{1}{9}$. A. $2\frac{1}{7}$. L. 1. 23.

Length of head $\frac{1}{3}$, of caudal $\frac{2}{9}$, height of body $\frac{1}{3}$ of the total length.

Eyes. Diameter $\frac{2}{7}$ of length of head, $\frac{1}{2}$ a diameter from end of snout.

Opercles entire. Maxilla reaches to slightly behind the posterior margin of the orbit.

Teeth villiform on jaws, vomer, and palate.

Fins. Caudal rounded. Third dorsal spine the longest. Lateral line ceases under the middle of the soft dorsal fin.

Colours. Body and head spotted and marbled all over with brown. A round black spot on the opercles having a white lower edging.

Hab. Andamans and Nicobars.

33. *CHEILODIPTERUS QUINQUELINEATUS*, C. & V.

D. $6\frac{1}{9}$. P. 15. V. $1\frac{1}{5}$. A. $2\frac{1}{9}$. L. 1. 25.

Colours. Five black bands along the sides. A black spot at the root of the caudal, with a bright yellow ocellus around it.

Hab. Nicobars.

34. *DULES TÆNIURUS*, C. & V.

Family PRISTIPOMATIDÆ.

35. THERAPON SERVUS, Bloch.

36. THERAPON THERAPS, Cuv. & Val.

37. PRISTIPOMA HASTA, Bl. *Oo-rug-nud-dah*, or *Koor-koo-to-dah*, And.38. PRISTIPOMA MACULATUM, Bl. *Oor-ung-dah*, And.

39. PRISTIPOMA ARGYREUM, Cuv. & Val.

D. 12/13. V. 1/5. A. 3/7. L. 1. 45.

Length of head $\frac{1}{3}$, of caudal $\frac{2}{9}$, height of body $\frac{1}{3}$ of the total length.*Eyes.* Diameter $\frac{1}{3}$ of length of head, $\frac{1}{2}$ a diameter from end of snout.

Angle of preopercle slightly produced, and more coarsely serrated than the other portion.

Fins. Third dorsal spine longest, being $\frac{2}{3}$ of height of body. Second anal spine strong, its length equal to that of the first ray. Caudal cut square.*Colours.* Silvery; a dark blotch on opercle. Membrane of first dorsal fin darkish.

40. DIAGRAMMA NIGRUM, Cuv. & Val.

41. DIAGRAMMA PUNCTATUM, Cuv. & Val.

B. vi. D. 9/25. P. 17. V. 1/5. A. 3/7. C. 17. L. 1. 65.

In examining the Andamanese with the Red-Sea specimen in the British Museum, the differences were but slight.

42. LOBOTES SURINAMENSIS, Bl. *Bur-dā-lah*, or *Ar-aig-dah*, And.

Cæc. pyl. 4.

Not common.

43. SCOLOPSIS CILIATUS, Lacép.

Cæc. pyl. 5.

Colours. Greenish olive, becoming lighter on the abdomen. A silvery-white line extends from between the lateral line to the commencement of the soft dorsal. Scales below the lateral line have a golden central spot. Fins reddish.Three specimens up to $7\frac{1}{2}$ inches in length.

44. SCOLOPSIS BILINEATUS, Bl.

B. v. D. 10/9. P. 17. V. 1/5. A. 3/7. C. 17. L. 1. 46.
L. tr. 4/15. Cæc. pyl. 5.

45. SCOLOPSIS CANCELLATUS, Cuv. & Val.

The foregoing three species of this genus took a bait very readily.

46. DENTEX (SYNAGRIS) NOTATUS, sp. nov.

D. 10/9. P. 15. V. 1/5. A. 3/7. C. 17. L. 1. 48. L. tr. 3/10.

Length of head above $\frac{1}{4}$, of caudal above $\frac{1}{5}$, height of body above $\frac{1}{4}$ of the total length.*Eyes.* Diameter $\frac{2}{7}$ of the length of head, 1 diameter from the end of snout and apart.

Preopercle crenulated. Three rows of scales on the cheeks; lower limb of preopercle scaleless. Preorbital higher than the eye.

Teeth. Four canines in the upper, and six in the lower jaw.*Fins.* Fifth and sixth dorsal spines the longest, and nearly one-third as long as the head. Third anal spine longest, and intermediate in length between the second and the first ray. Caudal forked, upper lobe the longest, the fin covered with small scales.*Colours.* Rosy, with a dark brilliant spot on the first five scales below the lateral line, the upper half red, the lower bright yellow. Five or six yellow longitudinal bands below the lateral line, and three silvery-white ones. A broad purplish band below the eye leading to the shoulder-mark. A yellow band along the base of the dorsal and anal fins.*Hab.* Andamans. Only one specimen captured.

Family SCIÆNIDÆ.

47. CORVINA BELENGERI, Cuv. & Val.

48. OTOLITHUS ANEUS, Bloch. *Chal-burn-dah*, And.

Family SPARIDÆ.

49. LETHRINUS HARAK, Forsk. *Po-tang-dah*, And.

Several specimens were obtained by the Andamanese, who shot them with their arrows.

50. LETHRINUS XANTHOTÆNIA, Blkr.

51. CHRYSOPHRYS CALAMARA, C. & V. *Moo-roo-kee-dah*, And.

52. PIMELEPTERUS CINERASCENS, Forsk.

Common.

Family POLYNEMIDÆ.

53. POLYNEMUS TETRADACTYLUS, Shaw. *To-bro-dah*, And.

Not common.

Family MULLIDÆ.

54. UPENEUS BARBERINUS, Lacép.

Common.

55. UPENEUS SPILURUS, Bleeker.

Eyes. Diameter $\frac{1}{6}$ of length of head, $3\frac{1}{2}$ diameters from end of snout. Interorbital space convex.*Scales* ctenoid.

56. *UPENEUS INDICUS*, Shaw.

57. *UPENEOIDES TRAGULA*, Richardson.

Cæc. pyl. 6.

Barbels of a brilliant orange-colour. A dark streak along the sides, which are spotted. Both caudal lobes barred.

58. *UPENEOIDES BIVITTATUS*, C. & V. *Chah-ti-ing-ud-dah*, And.

59. *MULLOIDES FLAVOLINEATUS*, Lacép.

Family NANDIDÆ.

60. *PLESIOPS CORALLICOLA*, Bleeker.

Colours brownish, each scale with a blue centre. Opercles with a large black ocellus.

Andamans and Nicobars.

Family ATHERINIDÆ.

61. *ATHERINA FORSKÅLII*, C. & V. *Ko-re-dah*, And.

Very numerous.

Family MUGILIDÆ.

62. *MUGIL MACROCHILUS*, Blkr.

The Andamanese procured large numbers of these Mulletts, shooting them with bows and arrows. They are more esteemed as food than any other description of fish.

63. *MUGIL WAIGIENSIS*, C. & V. *Do-dah*, And.

Not uncommon.

64. *MUGIL BONTAH*, Cuv. & Val. *Pa-lă-ke-dah*, And.

Seven long cæcal appendages.

65. *MUGIL SUNDANENSIS*, Q. & G.

66. *MUGIL CÆRULEO-MACULATUS*?, Bleeker.

These specimens agree with Bleeker's description, except that the pectoral fin is not quite so long as the head, instead of being somewhat longer.

Family TRACHINIDÆ*.

67. *PERCIS HEXOPHTHALMA*, Ehrn.

D. 5/21. P. 17. V. 1/5. A. 17. C. 15. L. l. 62. L. tr. 8/21.
Cæc. pyl. 3.

A beautiful specimen, 8 inches long, was taken at Port Blair.

* A specimen apparently of the *Pseudoplesiops typus*, Bleeker, placed by myself in the British Museum, differs from the original description, its ventrals being thoracic and not jugular.

68. SILLAGO SIHAMA, Forsk. *Thol-o-dah*, And.

Cæc. pyl. 4.

69. PSEUDOCROMIS XANTHOCHIR, Bleeker.

L. l. 45.

Family CIRRHITIDÆ.

70. CIRRHITES FORSTERI, Bl. Schn.

Only one specimen was captured.

Family SCORPÆNIDÆ.

71. PTEROIS VOLITANS, Linn. *Cheeb-ta-ta-dah*, And.

This fish is much dreaded, on account of the severe nature of the wounds inflicted by its spines.

Family COTTIDÆ.

72. APISTUS (PROSOPODASYS) NIGER, C. & V. *Pom-tho-cho-rogue-dah*, And.

Wounds from the spines of this fish are likewise greatly feared.

73. PLATYCEPHALUS NEGLECTUS, Trosch.

74. PLATYCEPHALUS INSIDIATOR, Forsk. *A-ra-wud-dah*, or *Chou-ur-dah*, And.

Family BERYCIDÆ.

75. HOLOCENTRUM ANDAMANENSE, sp. nov.

B. viii. D. 11/14. P. 17. V. 1/7. A. 4/9. C. 21. L. l. 42.
L. tr. $3/7\frac{1}{2}$.

Length of head nearly $\frac{1}{3}$ ($\frac{4}{13}$), of caudal $\frac{1}{5}$, height of body nearly $\frac{1}{3}$ ($\frac{4}{13}$) of the total length.

Eyes. Diameter $\frac{2}{7}$ of length of head, 1 diameter from end of snout, $\frac{3}{4}$ of a diameter apart.

Jaws of equal length, vertical and horizontal margins of preopercle rather finely serrated, having a long smooth spine at the angle, the length of which equals that of the diameter of the eye. Opercle with two flat spines, the upper being the longest, and twenty-nine denticulations below; sub- and interopercles serrated. Preorbital with a strong spine descending downwards. Posterior process of intermaxillaries extends backwards to opposite the anterior third of the orbit; the maxilla extends to below the same spot. Shoulder-scale serrated.

Teeth villiform.

Fins. The third to the fifth dorsal spines the longest. Ventrals do not reach nearly to the anus. Third anal spine long and strong, equalling one-sixth of the total length. Caudal forked, lobes of equal extent.

Scales serrated posteriorly, and holes like pin-marks all over them.

Colours. Uniform rosy scarlet.

Length of specimen 8 inches.

Hab. Port Blair.

Family SQUAMIPINNES*.

76. CHÆTODON VAGABUNDUS, Linn. *Pah-noo-dah*, And.

77. CHÆTODON PICTUS, Forsk.

78. CHÆTODON PLEBEJUS, Gmel.

D. 14/17. A. 4/16. L. 1. 50.

Colours. Yellow. Ocular band black, with a white edge. Ocellus at base of caudal black, with a white margin.

79. CHÆTODON DIZOSTER, C. & V.

This species was from the Nicobars.

80. HENIOCHUS MACROLEPIDOTUS, C. & V. *Pah-no-dah*, And.

81. SCATOPHAGUS ARGUS, Linn. *Po-ra-dah*, And.

Cæc. pylori 18.

82. EPHIPPUS ORBIS, Bl. *Kol-lid-dah*, And.

Cæc. pylori 4.

83. DREPANE PUNCTATA, Linn. *Gun-na-to-dah*, And.

84. TOXOTES JACULATOR, Pall. *Chá-ra-wud-dah*, And.

One specimen was 9 inches in length.

Family TEUTHIDÆ.

85. TEUTHIS VIRGATA, C. & V. *Tah-meer-dah*, And.

D. 13/10. P. 15. A. 7/9. C. 17.

Colours. Upper two-thirds of body coppery yellow, covered with

* I obtained some specimens at Madras, $1\frac{1}{10}$ inch long, of a fish which appears to me to belong to the genus termed *Tholichthys* by Dr. Günther, but which seems to be the young form of a genus of this family. I have placed one, however, in the British Museum as *T. osseus*.

D. 12/25. P. 15. V. $1\frac{1}{5}$. A. $3\frac{1}{9}$. C. 17. L. 1. 41.

Length of head nearly $\frac{1}{3}$, of caudal $\frac{1}{3}$, height of body $\frac{1}{2}$ of the total length.

Eyes. Diameter $\frac{1}{2}$ of length of head, 1 diameter apart.

Mouth small. Suprascapular considerably dilated; preopercular angle enlarged, reaching to the ventral fin. Suborbital ring enlarged, descending as low as the gill-opening, and its lower edge with five denticulations.

Lateral line ceases opposite to the middle of the soft dorsal.

Scales ctenoid, none on the head.

Fins. Dorsal notched, third spine the longest. Second anal spine longest and strongest. Ventrals rounded. Caudal cut square.

I cannot resist considering this to be one of the *Squamipinnes*, probably a young *Chætodon* or *Holocanthus*, and, I believe, a *Tholichthys* of a more adult age than Dr. Günther's types.

round blue spots, and having blue lines on the head. A brown band as wide as the orbit extends from before the dorsal fin, through the eye, to below the jaws, a second from sixth and seventh spines to base of pectoral fin, whilst both are edged with blue. Fins yellowish.

86. *TEUTHIS VERMICULATA*, C. & V. *Chow-lud-dah*, And.

87. *TEUTHIS CONCATENATA*, C. & V. *Thar-oar-dah*, And.

Colours. Dark greyish brown, covered all over with light orange spots larger than the interspaces, but decreasing in size towards the abdomen. A blue band extends from below the orbit to the angle of the mouth, whilst another passes along the preopercle.

88. *TEUTHIS MARMORATA*, Q. & G.

89. *TEUTHIS JAVA*, Linn. *Thar-oar-dah*, And.

90. *TEUTHIS LABYRINTHOIDES*, Bleeker.

91. *TEUTHIS ALBOPUNCTATA*, Schleg.?

The spots in this species were blue.

Family ACRONURIDÆ.

92. *ACANTHURUS CTENODON*, Cuv. & Val.

D. 8/29. A. 3/26.

Colours. Lineated all over with blue and yellow lines, the latter somewhat the widest. Numerous red spots about the head, more especially around the eyes. Dorsal and anal fins lineated.

Several specimens taken up to 8 inches in length.

93. *ACANTHURUS TRIOSTEGUS*, Linn.

Many specimens obtained up to $5\frac{1}{2}$ inches.

94. *ACANTHURUS LINEATUS*, Linn.

The coloration in Bennet's 'Fishes of Ceylon' very correctly represents this species, of which many were taken up to 10 inches in length.

95. *ACANTHURUS ANNULARIS*, Cuv. & Val.

Large specimens of this fish were obtained, which induces me to believe that Cuvier was correct in considering it a distinct species, and not the young of *A. java*, which latter form was not taken.

Family CARANGIDÆ.

96. *CARANX HIPPOS*, Linn.

An apparent variety of this species was covered with scattered black spots over the upper half of its body and its sides.

97. *CARANX MELAMPYGUS*, Cuv. & Val.

98. *CARANX BLOCHII*, Cuv. & Val.

99. *CARANX CALLA*, Cuv. & Val.

100. *CARANX DJEDDABA*, Forsk.

101. *CARANX MATE*, Cuv. & Val.

Colours. Deep slate-colour, silvery below. A well-defined opercular spot. Axil not black.

102. *CARANX COMPRESSUS*, sp. nov.

D. $8\frac{1}{22}$. P. 21. V. $1\frac{1}{5}$. A. $2\frac{1}{19}$. C. 21. L. 1. 13.

Length of head $\frac{1}{4}$, of caudal $\frac{1}{5}$, height of body $\frac{2}{7}$ of the total length.

Eyes. Diameter $\frac{1}{4}$ of length of head, $1\frac{1}{2}$ diameter from end of snout, and 1 diameter apart.

Body oblong, compressed, equally convex along both profiles. Occipital crest well developed.

The posterior extremity of the maxilla extends to below the anterior edge of the orbit.

Teeth. Villiform in the upper jaw, and in a narrow band in the lower jaw; also present on vomer, palate, and tongue.

Fins. Pectoral elongated and falciform, reaching to above the ninth anal ray. Dorsal rays, first two elongated, decreasing as far as the twelfth. First three anal rays likewise somewhat elongated.

Scales present on the chest.

Lateral line forms a slight curve anteriorly, ending opposite to the tenth dorsal ray; it is strongly raised on the free portion of the tail, where only plates exist.

Colours. Silvery. A small black opercular spot. A black band along the vertical margin of the preopercle.

Hab. Andamans.

103. *CARANX CILIARIS*, Bl.

104. *CARANX SPECIOSUS*, Forsk.

105. *CARANX OBLONGUS*, Cuv. & Val. *Ro-thul-dah*, And.

106. *CHORINEMUS TALA*, Cuv. & Val.

107. *CHORINEMUS LYSAN*, Forsk.

108. *CHORINEMUS TOOLOO*, Cuv. & Val.

A large specimen was taken absolutely covered with parasites.

109. *TRACHYNOTUS OVATUS*, Linn.

110. *PSETTUS ARGENTEUS*, Linn. *Oo-chra-dah*, And.

111. *EQUULA FASCIATA*, Bl.

112. *EQUULA DUSSUMIERI*, Cuv. & Val.

113. *EQUULA RIVULATA*, Schleg.

114. *EQUULA GERROIDES*, Bleeker.

115. *EQUULA SPLENDENS*, Cuv. & Val.

116. *GAZZA EQUULÆFORMIS*, Rüpp.

Two small specimens were captured.

117. *PLATAX VESPERTILIO*, Bl.

Copper-coloured, having a brown ocular band reticulated with black. Pectoral and caudal white, except their bases, which are brown. Ventral with dark edges.

Specimens up to $3\frac{1}{2}$ inches in length.

118. *PLATAX TEIRA*, Bl.

Family SCOMBRIDÆ*.

119. *SCOMBER REANI*, sp. nov. = *microlepidotus*

B. vi. D. $6\frac{1}{12}$, v. P. 19. V. $1\frac{1}{5}$. A. $1\frac{1}{11}$. C. 19. Vert. $9\frac{1}{22}$.

Length of head $\frac{1}{4}$, of caudal $\frac{1}{5}$, height of body $\frac{1}{4}$ of the total length.

Eyes with wide adipose margins. Diameter $\frac{2}{7}$ of the length of head, 1 diameter from end of snout, $1\frac{1}{2}$ diameter apart.

The maxilla extends to opposite the posterior margin of the orbit. Snout pointed; opercles scaly.

Fins. A groove along the base of the first dorsal fin, extending halfway to the base of the second dorsal. Caudal deeply forked, a keel along either side of its base.

Air-bladder present.

Cæca pylori numerous.

Colours. Back bluish green, becoming silvery white along the abdomen. A darkish longitudinal band along the lateral line, three above it, and two yellow ones below it.

Hab. Andamans, where it is very common up to 12 inches in length. It is said to refuse all baits.

* *CUBICEPS INDICUS*, sp. nov.

D. $10\frac{1}{14}$. P. 22. V. $1\frac{1}{5}$. A. $3\frac{1}{15}$. C. 15. L. 1. 33.

Length of head nearly $\frac{1}{3}$ ($\frac{3}{10}$), of caudal $\frac{2}{13}$, height of body nearly $\frac{1}{2}$ ($\frac{3}{8}$) of the total length.

Eyes. Diameter $\frac{2}{5}$ of length of head, $\frac{1}{2}$ a diameter from end of snout, nearly 1 diameter apart.

Body compressed. Snout rather obtuse. Maxilla extends to below the anterior margin of the orbit. Preopercle crenulated.

Teeth in a fine single row in either jaw.

Fins. Dorsal spines feeble. Pectoral not elongated, its length being rather less than that of the head. Caudal slightly emarginate.

Scales cycloid.

Lateral line consisting of small scales in upper fourth of body.

Colours silvery.

Hab. Several specimens up to 3 inches long were taken at Madras along with the species of *Tholichthys*(?) previously adverted to. I have placed one in the British Museum.

120. *SCOMBER KANAGURTA*, Cuv. & Val. *Look-wa-dah*, And.

Not so numerous as the last species.

121. *ECHENEIS REMORA*, Linn.

122. *STROMATEUS NIGER*, Bl. *Ko-lig-dah*, And.

This fish is rare at the Andamans. On showing one to a convict employed on the fisheries, he stated it was the first that he had seen.

Family GOBIIDÆ.

123. *GOBIOUS GIURIS*, Ham. Buch. *Poo-dah*, And.

Small specimens were taken in the fresh and brackish waters.

124. *GOBIOUS ALBOPUNCTATUS*, Cuv. & Val.

125. *GOBIOUS ACUTIPINNIS*, C. & V. *Mang-moo-goo-da-lah-dah*, And.

126. *GOBIOUS VIRIDIPUNCTATUS*, Cuv. & Val.

127. *GOBIOUS ORNATUS*, sp. nov.

D. $6\frac{1}{10}$. P. 21. V. $1\frac{1}{5}$. A. 11. C. 13. L. l. 26. L. tr. 9.

Length of head $\frac{1}{4}$, of caudal $\frac{1}{5}$, height of body $\frac{1}{5}$ of the total length.

Eyes. Diameter $\frac{1}{3}$ of length of head, 1 diameter from end of snout, $\frac{1}{3}$ of a diameter apart.

Body elongated and compressed; snout obtuse. Head rather broader than high. Jaws of equal length, the posterior extremity of the maxilla extending to below the anterior margin of the orbit.

Fins. Pectoral extends to opposite the end of the ventral, its eight upper rays are silk-like. First dorsal much lower than the second, the posterior rays of which reach the caudal fin. Anal of the same character as the second dorsal. Caudal rounded, central rays somewhat the longest.

Scales in parallel rows; seven between the second dorsal and anal fins. They extend anteriorly as far as the orbit; none on cheeks and opercles.

Colours. Light brown, with three or four horizontal rows of black oblong blotches along the sides, and some fine yellow dots in the centre of some of the scales. Dorsal fin with three black bars or blotches. Second dorsal and anal with many small dots.

Hab. Andamans.

128. *GOBIOUS ANDAMANENSIS*, sp. nov.

B. iv. D. $6\frac{1}{10}$. P. 17. V. $1\frac{1}{5}$. A. 10. C. 11. L. l. 26-29.

Length of head $\frac{2}{9}$, of caudal nearly $\frac{1}{3}$, height of body $\frac{2}{9}$ of the total length.

Eyes. Diameter $\frac{1}{4}$ of length of head, $1\frac{1}{2}$ diameter from end of snout, $\frac{3}{4}$ of a diameter apart.

Upper profile of head rounded, a great rise from the mouth to opposite the upper margin of the orbit; head two-thirds as wide as long.

The posterior margin of the maxilla extends to under the middle third of the orbit.

Teeth villiform; small canines.

Fins. All the dorsal spines flexible and elongated, the first three being the longest. The posterior rays of the second dorsal prolonged, reaching beyond the base of the caudal, which latter is pointed. Posterior anal rays resemble the posterior dorsal ones. Pectoral reaches to beyond the front margin of the anal; the ventral does not extend so far.

Scales ctenoid, nine rows between the commencement of the second dorsal and anal, none before or between the orbits; they are smallest near the nape.

Colours. Olive, spotted all over with rusty. Rays yellow, barred and dotted with purplish red, which, however, in the anal are placed transversely, whilst it has a yellow margin.

Hab. Brackish waters in the Andamans.

129. GobiUS GobiODON, Day.

130. GobiUS STOLICZKÆ, sp. nov.

D. 6/11. P. 15. V. 1/5. A. 11. C. 15. L. 1. 48.

Length of head $\frac{1}{4}$, of caudal $\frac{1}{4}$, height of body $\frac{2}{5}$ of the total length.

Eyes. Diameter $\frac{1}{6}$ of length of head, 2 diameters from end of snout, 1 diameter apart.

Head broader than high, and longer than broad. Snout rather long, and a considerable rise from it to the orbits, which are near the summit of the head; upper jaw longest.

Teeth. Canines absent.

Fins. First dorsal somewhat lower than the second. Caudal cut square. Upper pectoral rays silk-like, the base of the fin not fleshy; the fin reaches to above the commencement of the anal. Membrane of ventral fin well developed.

Scales strongly ctenoid, slightly smaller on the nape than on the body. Fourteen rows between the second dorsal and the anal fins. Cheeks and opercles scaled.

Colours. Olive, marbled with darker. Head spotted with black and marked with short black lines. Both dorsals spotted. A jet-black mark at the posterior portion of the first dorsal fin. Caudal barred. A black mark at the upper part of the base of the pectoral.

Hab. Andamans, in brackish water.

This species is allied to *G. grammepomus*, in which latter, however, the head is scaleless, and the lower jaw somewhat the longest.

I have named it after my esteemed friend Dr. Stoliczka.

131. APOCRYPTES LANCEOLATA, Bl.

132. APOCRYPTES MACROLEPIS, Blkr.

133. *APOCRYPTES CANTORIS*, sp. nov.

D. 6/27. P. 19. A. 26. C. 17.

Height of body $\frac{1}{6}$, length of caudal $\frac{2}{9}$, of head $\frac{2}{9}$ of total length.*Eyes* situated in second fifth of the head, $\frac{2}{3}$ of a diameter apart.

The maxilla extends to below the middle of the orbit.

Teeth. The anterior in the upper jaw enlarged, whilst those in the lower jaw are horizontal. A pair of canines at the symphysis.*Fins*. Ventral disk not adherent to the abdomen. First dorsal some distance from the second; its first three rays rather elongated. Second dorsal with only a notch between it and the caudal, which latter is pointed. Base of pectoral rather fleshy.*Scales* very minute, most visible in the posterior part of the body.*Colours*. Olive. First dorsal dark, with three black bands along it. The upper portion of the caudal dark and spotted. Cheeks and under surface of the head with black spots.134. *EUCTENOGOBIOUS ANDAMANENSIS*, sp. nov.

B. iv. D. 6|13. P. 15. V. 6. A. 13. C. 15. L. r. about 60.

Length of head $\frac{1}{5}$, of caudal $\frac{2}{7}$, height of body $\frac{1}{5}$ of the total length.*Eyes* rather elevated. Diameter $\frac{1}{5}$ of length of head, $1\frac{1}{2}$ diameter from end of snout.

Cleft of mouth oblique. The posterior extremity of the maxilla extends to beneath the middle of the orbit. A longitudinal crest on the nape leads towards the commencement of the dorsal fin.

Teeth conical and fixed, in a single row in the jaws; fine canines in the lower jaw.

Anal papilla present.

Scales largest posteriorly.*Fins*. Pectoral pointed, and reaching to above the commencement of the anal. Dorsal spines flexible and elongated. Caudal pointed. Ventrals not adherent to the abdomen. A notch between the two dorsal fins.*Colours*. Dark green, with a dark mark at the base of the caudal. Fins darkish.

Length of the longest of the three specimens captured 4 inches.

Hab. Andamans, in brackish water.135. *PERIOPHTHALMUS KÆLREUTERI*, Schn. *Chood-mud-dah*, And.136. *BOLEOPHTHALMUS BODDAERTI*, Pall.137. *ELEOTRIS SINENSIS*, Lacép.* *Lee-mee-jo-do-dah*, And.On opening a specimen $4\frac{1}{2}$ inches long, its stomach was found to be full of small crabs. This species lives in brackish water.

* In the 'Proceedings' of this Society for 1869, p. 517, I made a few short remarks upon *Eleotris scintillans*, Blyth, observing its apparent analogy to the *Eleotris ophiocephalus*, C. & V., or *E. cantoris*, Günther, but not redescribing

138. *ELEOTRIS FUSCA*, Bl.139. *ELEOTRIS CAPERATA*, Cantor.

D. $6\frac{1}{8}$. P. 21. V. $\frac{1}{5}$. A. $\frac{1}{8}$. L. 1. 30.

Length of head $\frac{2}{7}$, of caudal $\frac{2}{11}$, height of body $\frac{2}{9}$ of the total length.

Eyes. 1 diameter from end of snout.

Supraorbital margin serrated, likewise a serrated ridge on either side of the posterior limb of the intermaxillary.

Teeth villiform, outer row rather the largest.

Fins. Upper pectoral rays silk-like. Dorsal and anal rays rather produced. Central caudal rays the longest.

Scales ctenoid, nine rows between second dorsal and anal.

140. *ELEOTRIS OPHIOCEPHALUS*, C. & V. *A-rig-dah*, or *Mu-took-dah*, And.

D. $6\frac{1}{8-9}$. P. 16. V. $1/5$. A. $\frac{1}{7}$. C. 15. L. 1. 35. Cæc. pyl. 2.

This species is very common in the brackish and fresh waters of the Andamans. I had a very fine specimen, $9\frac{1}{2}$ inches long, collected for me by Lieut. Protheroe, and which I have placed in the British Museum. Its appearance is very like that of an *Ophiocephalus*; whilst what is more remarkable is that both have two cæcal appendages.

141. *AMBLYOPUS HERMANNIANUS*, Lacép.142. *GOBIODON QUINQUESTRIGATUS*.

Family OPHIOCEPHALIDÆ.

143. *OPHIOCEPHALUS GACHUA*, H. B. *Chad-dah*, And.

Family BLENNIIDÆ.

144. *SALARIAS FASCIATUS*, Bl. *Cha-la-ta*, And.

the species, the type being too damaged for that purpose. However, since then I have obtained at Akyab a fine specimen 3 inches long.

D. $6\frac{1}{8}$. P. 15. A. 8. C. 13. L. 1. 47.

Length of head nearly $\frac{1}{3}$ ($\frac{4}{13}$), of caudal $\frac{1}{5}$, height of body $\frac{2}{9}$ of the total length.

Eyes. Diameter $\frac{1}{2}$ of length of head, $1\frac{1}{4}$ diameter from end of snout and apart.

Head rather obtuse, superiorly flattened; lower jaw longest. Cleft of mouth extends to below the posterior third of the orbit.

Teeth in villiform bands, with the outer row in the lower jaw somewhat enlarged.

Scales ctenoid, those on the upper surface of the head and chest smaller than those on the body. The rows are irregularly arranged; there are thirty-four between the snout and the base of the first dorsal, they extend to before the eyes; there are fifteen rows between the second dorsal and anal.

Colours. Brownish; dorsal, caudal, and anal spotted all over, their edges white.

145. *SALARIAS FUSCUS*, Rüpp.

Nicobars.

146. *SALARIAS BELLUS*, Günther.

147. *SALARIAS LINEATUS*, Blkr.

148. *SALARIAS DUSSUMIERI*, Cuv. & Val.

149. *ANDAMIA EXPANSA*, Blyth.

Andamans and Nicobars.

Family SPHYRÆNIDÆ.

150. *SPHYRÆNA JELLO*, C. & V. *Thal-lib-dah*, And.

Family TRICHIURIDÆ.

151. *TRICHIURUS HAUMELA*, Forsk. *Pa-pa-dah*, And.

152. *TRICHIURUS SAVALA*, Cuv. & Val.

Family FISTULARIDÆ.

153. *FISTULARIA SERRATA*, Bl.

This fish appears to delight in living in the mud.

Order ACANTHOPTERYGII PHARYNGOGNATHI.

Family POMACENTRIDÆ.

154. *AMPHIPRION BIFASCIATUS*, Bloch.

This species was captured in the same localities as the next.

155. *AMPHIPRION PERCULA*, Lacép. *Eá-ole-jo-do-dah*, And.

The literal translation of the Andamanese name is Turtle's stomach. It is generally to be found alive and well inside large specimens of *Actiniæ*, which latter are supposed to be the stomachs of turtles.

156. *AMPHIPRION AKALLOPISUS*, Bleeker.

157. *AMPHIPRION EPHIPPIMUM*, Bloch.

Andamans and Nicobars.

I possess a fine series of this species, leading up from the immature *Amphiprion tricolor* of Günther, with its pearl-coloured band, to the adult *A. ephippium*, in which the band has become completely obsolete. In this series there are the whole of the intermediate colorations.

158. *DASYLLUS ARUANUS*, Linn.

159. *POMACENTRUS BIFASCIATUS*, Bleeker.

160. *POMACENTRUS TRIMACULATUS*, Cuv. & Val.

161. POMACENTRUS TRILINEATUS, Cuv. & Val.

Nicobars.

162. POMACENTRUS PUNCTATUS, Q. & G.

163. POMACENTRUS BANKANENSIS, Bleeker.

Andamans and Nicobars.

164. GLYPHIDODON SORDIDUS, Forsk. *Chák-mud-dah*, And.

This fish was very common, and frequently shot by the Andamanese.

165. GLYPHIDODON COCHINENSIS, Day.

166. GLYPHIDODON AFFINIS, Günther.

167. GLYPHIDODON BENGALIENSIS, Cuv. & Val.

168. GLYPHIDODON ANABATOIDES, Blkr.

D. $\frac{11-12}{10}$. P. 15. V. $1/5$. A. $2/10$. C. 17. L. l. 26. L. tr. $\frac{2\frac{1}{2}}{9}$.

Length of head $\frac{1}{4}$, of caudal $\frac{1}{4}$, height of body $\frac{2}{5}$ of the total length. Eyes $\frac{1}{2}$ a diameter from end of snout.

Width of preorbital $\frac{1}{3}$ of that of orbit; suborbitals very narrow.

Colours. Olive; each scale on the head, along the back, and on the upper half of the sides with a brilliant green-blue centre. Pectoral with a black spot superiorly.

Lives around the coral, hiding itself amongst its branches when in fear.

169. GLYPHIDODON ANTJERIUS, Cuv. & Val.

170. GLYPHIDODON MODESTUS, Schleg.

171. GLYPHIDODON BATJANENSIS, Blkr.

D. $12/15$. A. $2/13$.

Family LABRIDÆ.

172. CHÆROPS ANCHORAGO, Bl.

Colours. Yellow; cheeks with large scarlet spots. A black vertical band extends from the interspace between the fourth dorsal spine and sixth dorsal ray to the middle of the body, divided anteriorly from another by a whitish ground-colour, whilst nearer to the head exists a third dark band. Dorsal and caudal fins margined with orange.

173. CHEILINUS CHLORURUS, Bl.

174. LABRICHTHYS BICOLOR, sp. nov.

D. $9/11$. P. 13. V. $1/5$. A. $3/10$. C. 15. L. l. 26. L. tr. $5/12$.

Length of head nearly $\frac{1}{3}$, of caudal $\frac{1}{6}$, height of body $\frac{1}{3}$ of the total length.

Eyes. Diameter $\frac{1}{4}$ of length of head, $1\frac{1}{2}$ diameter from end of snout, 1 diameter apart.

Teeth in a single row; no posterior canines.

Fins. Posterior dorsal spines the longest. Caudal cut square.

Scales. About three rows of very small ones on the cheeks, and a few on the upper part of the opercles.

Colours. All that portion of the body behind a line from the commencement of the dorsal to the base of the anal dark violet, some of the lower scales being blue-spotted; anterior to this nearly white below, but darker along the top of the head, whilst most of the scales have more or less dark spots.

Length nearly 4 inches in the single specimen obtained.

175. *EPIBULUS STRIATUS*, sp. nov.

D. 9/10. P. 11. V. 1/5. A. 3/8. L. 1. 19. L. tr. 2/7.

Length of head above $\frac{2}{5}$, of caudal $\frac{2}{11}$, height of body $\frac{2}{5}$ of the total length.

Eyes. Diameter $\frac{2}{7}$ of length of head, 1 diameter from end of snout and apart.

The extremity of the lower jaw reaches to opposite the posterior margin of the orbit, and the posterior process of the intermaxillary to opposite the last third of the orbit.

Fins not elongated.

Lateral line interrupted opposite the middle of the soft dorsal.

Colours. A white line between the orbits, and two more on the head, the first of which runs from the eye to the snout; the second descending from the orbit meets with the one from the opposite side. Body greenish brown, with five narrow milk-white vertical bands: the first runs from the opercles to before the ventral fin; the second from the second dorsal spine to the end of the ventral fin; the third from the centre of the dorsal spines to the base of the anal; the fourth from the end of the dorsal fin to the end of the anal; and the fifth round the base of the caudal. Soft dorsal and termination of anal white.

Length of single specimen $1\frac{5}{10}$ inch.

176. *HEMIGYMNUS MELANOPTERUS*, Bl.

The coloration of the caudal fin was darker in the Andamanese specimens than shown in Bleeker, and the scales were dotted with blue.

177. *STETHOJULIS STRIGIVENTER*, Bennett.

178. *PLATYGLOSSUS SCAPULARIS*, Bennett.

179. *PLATYGLOSSUS LEPARENSIS*, Blkr.

Andamans and Nicobars.

180. *PLATYGLOSSUS NOTOPSIS*, K. & v. H.

181. *JULIS LUNARIS*, Linn.

This fish is easily taken by a bait; and the natives appear rather to esteem it as food.

Colours. Pectoral spot reddish violet. Head violet, with several oblique reddish bands. Body green; each scale with a vertical red streak, forming bands. Dorsal fin red, with a blue and yellow margin. Anal violet, with a yellow edge. Caudal yellow, its base and lobes green.

182. *GOMPHOSUS MELANOTUS*, Blkr.

D. 8/13. P. 16. V. $1\frac{1}{5}$. A. $2\frac{1}{11}$. C. 13. L. 1. 26. L. tr. $3\frac{1}{10}$.

Caudal fin cut square in this specimen.

Colours. Upper part of head and back deep brown, becoming lighter on the sides; each scale darkest at its base; cheeks pinkish. Pectoral yellow. Vertical fins dark-coloured, becoming deep brown externally, with a very narrow light edge; caudal the same, with black margin, and a rather wider white edging. Ventrals whitish, the outer ray brown.

183. *CALLYODON VIRIDESCENS*, Rüpp.

Common.

184. *PSEUDOSCARUS RIVULATUS*, C. & V. *Ar-dah*, And.

D. 9/10. P. 14. V. $1\frac{1}{5}$. A. $2\frac{1}{9}$. L. 1. 22. L. tr. $2\frac{1}{7}\frac{1}{2}$.

This beautiful fish is mostly taken near coral-reefs.

185. *PSEUDOSCARUS TROSHELLI*, Blkr. *Poo-eo-dah*, And.

Very common, and eaten by the aborigines.

Family GERRIDÆ.

186. *GERRES FILAMENTOSUS*, C. & V. *Po-ro-chab-dah*, And.187. *GERRES POETI*, C. & V.188. *GERRES ACINACES*, C. & V.189. *GERRES ABBREVIATUS*, Blkr.

One specimen 6 inches long.

Order ANACANTHINI.

Family PLEURONECTIDÆ.

190. *PSEUDORHOMBUS ARSIUS*, H. B.191. *PSEUDORHOMBUS RUSSELLII*, Gray. *Ky-tha-thong-dah*, And.

In some examples of this common species the body and fins were covered with fine black spots.

192. RHOMBOIDICHTHYS LEOPARDINUS, Günther.

D. 80. A. 68. L. 1. 76.

193. PARDACHIRUS PAVONINUS, Lacép.

Order PHYSOSTOMI.

Family SILURIDÆ.

194. PLOTOSUS CANIUS, H. B. *Lee-mee-dah*, or *Bon-dah*, And.

Found in the muddy estuaries in considerable numbers.

195. PLOTOSUS ANGUILLARIS, Bl.

Found in the same localities as the last species.

196. ARIUS SUMATRANUS, Bennett.

Several specimens of this fish were obtained.

197. ARIUS ANDAMANENSIS, sp. nov. *E-roung-ud-dah*, And.

D. $\frac{1}{7}$ | 0. P. $\frac{1}{10}$. V. 7. A. 16. C. 17.

Length of head nearly $\frac{1}{5}$, of caudal $\frac{1}{4}$, height of body nearly $\frac{1}{5}$ of the total length.

Eyes. Diameter $\frac{1}{4}$ of length of head, $1\frac{1}{4}$ diameter from end of snout in the young, but greater in the adult.

Head slightly broader than high. The median longitudinal groove does not extend so far as the base of the occipital process, which last is once and a half as long as it is broad at its base, and strongly keeled; basal bone narrow. Upper surface of head granulated. The maxillary cirri extend to a little beyond the base of the pectoral fin, and the external mandibular ones to its base.

Teeth. Villiform in both jaws and palate, in which latter situation they form a triangular band on either side, converging anteriorly, but slightly separated down the median line.

Fins. Pectoral and dorsal spines serrated on both sides, the former as long as the head without the snout, the latter somewhat longer. Upper lobe of caudal the longest.

Colours. Silvery; the fins stained darker, and a black spot on the adipose dorsal.

Hab. Andamans, where this fish attains a large size, but is far from being common.

198. KETENGUS TYPUS, Blkr.

Family SCOPELIDÆ.

199. SAURIDA TOMBIL, Cuv. & Val.

Family SCOMBRESOCIDÆ.

200. BELONE CAUDIMACULATA, C. & V. *Thook-o-doo-noo-dah*, And.

201. *BELONE CHORAM*, Forsk.

Colours. In a young specimen brown, with eleven dark vertical bands narrower than the ground-colour, also a dark band through the eye.

A common species, growing to a large size.

202. *HEMIRAMPHUS BUFFONIS*, C. & V. *Koo-door rock-o-dah*, And.

Common.

203. *HEMIRAMPHUS UNIFASCIATUS*, Ranz.

Very common.

Family CYPRINODONTIDÆ.

204. *HAPLOCHILUS PANCHAX*, H. B. *Cho-to-dah*, And.

This fish grows to a magnificent size at the Andamans, compared with what it attains in India.

Family CYPRINIDÆ*.

As far as my investigations extended, I was unable to obtain any specimens of true Carps on the Andamans.

Family CLUPEIDÆ.

205. *ENGRAULIS RUSSELLII*, Blkr. *Zoo-roo-cart-dah*, And.206. *ENGRAULIS MALABARICUS*, Bl. *O-pul-dah*, And.207. *ENGRAULIS BÆLAMA*, Forsk.

D. 14. A. 28-30. L. 1. 36.

Eight spinate scales before, and seven behind the ventral fins.

A golden spot behind the opercles.

Large quantities of these fish are captured, dried, and sold; still no one could be found who had ever heard of any deleterious or poisonous results following their employment as food.

208. *ENGRAULIS TELARA*, H. B.209. *CHATOESSUS CHACUNDA*, H. B. *Kore-paig-dah*, And.

* In the 'Proceedings of the Zoological Society,' 1865, p. 296, I described the genus *Platacanthus* as new amongst the Loaches; however, the specimen subsequently turned out to belong to a known genus. Since then I described another species (1867, p. 941), as *Platacanthus maculatus*. As the genus *Platacanthus* is considered a synonym of *Lepidocephalichthys*, it becomes necessary to define and name the genus to which the latter specimen belongs.

Genus JERDONIA, gen. nov.

Body elongated. Barbels eight, one rostral, two maxillary, and one mandibular pairs. A free bifurcated suborbital spine. Dorsal fin elongated (thirty rays). Internal pectoral ray osseous. Origin of anal slightly posterior to the termination of the dorsal.

210. *CLUPEA NEOHOWII*, C. & V.

This species of Sardine existed in abundance at the Andamans ; and on sending out four convicts at Port Mouat with cast-nets to obtain them, they captured 260 lb. weight in four hours, and then had to return, as their boats could hold no more. They asserted they could continue fishing at this rate for months, had they a market for their captures. I tried making oil from these Sardines, but did not succeed ; the reason of which I discovered subsequently at Calicut, on the Malabar coast. There the oil is prepared after the breeding-season of these fishes (namely June and July), subsequent to which period they become fat, and about August are suited for the manufacture of oil, and continue so for four months. Unless the livers are fat, no oil can be made ; and it is either prepared from that gland alone or from the entire fish*.

211. *CLUPEA MELANURA*, C. & V.

I found this species pretty abundant, but not so much so as the last ; they seem to prefer more sheltered localities.

212. *PELLONA DITCHOA*, C. & V. *Poo-nā-no-dah*, And.213. *DUSSUMIERIA ACUTA*, C. & V. *O-pul-lah*, And.214. *DUSSUMIERIA ELOPSOIDES*, Blkr.215. *ELOPS SAURUS*, Linn.216. *MEGALOPS CYPRINOIDES*, Brouss. *O-pul-dah*, And.

Family MURÆNIDÆ.

217. *ANGUILLA LABIATA*, Ptrs. *Pa-lug-dah*, And.

It is remarkable that this species, hitherto recorded from the east coast of Africa, should be found in the Andaman Islands.

218. *ANGUILLA BICOLOR*, McClell.

In possessing this East-Indian species, the Andamans show their similarity to the continent of Hindoostan and the Burmese territory.

219. *ANGUILLA VIRESCENS*, Ptrs. *Jee-tah-dah*, And.

The same remark applies to this East-African species as already made on the *A. labiata*.

220. *MURÆNESOX TELABON*, Cuv.221. *MURÆNICHTHYS SCHULTZII*, Blkr.222. *OPHICHTHYS COLUBRINUS*, Bodd.

* See my paper on "Turtle- and Fish-oils" (Madras Monthly Journal of Med. Science, April 1870).

223. *MURÆNA RÜPPELLII*, M'Clell.

This pretty species of Banded Eel was brought to me by the Andamanese as the only sort of Sea-snake existing there.

224. *MURÆNA TESSELLATA*, Rich.225. *MURÆNA TIGRINA*, Rüppell.226. *MURÆNA UNDULATA*, Lacép.227. *MURÆNA PICTA*, Ahl.228. *MURÆNA NEBULOSA*, Ahl.229. *MURÆNA MACRURUS*, Blkr.

Specimen 36 inches long. Another specimen exists in my collection from Madras.

230. *MURÆNA FLAVOMARGINATA*, Rüpp.231. *MURÆNA NIGRA*, sp. nov.

Length of head $\frac{1}{4}$ of body, tail nearly $\frac{1}{2}$ of the total length.

Eyes small, diameter half that of the snout.

Body and tail slender.

Posterior nostril a circular patent opening; anterior nostril tubular. Gill-openings narrow. Cleft of mouth extending to some distance behind the orbit.

Teeth generally obtuse; the maxillary ones pointed and in two rows; the intermaxillaries in several obtuse rows; the palatines rounded and biserial.

Fins. Dorsal and anal moderately developed; the former commencing just behind a vertical line from the gill-opening, and half as high as the body.

Colour uniform black.

This specimen, 16 inches long, was discovered under a large stone at low water at Port Blair.

Family PEGASIDÆ.

232. *PEGASUS DRACONIS*, Linn.

This specimen was given me by Dr. Rean; a convict picked it up on the shore. I twice saw, but did not obtain, what appeared to be this fish whilst at the Andamans.

Order LOPHOBRANCHII.

Family SYNGNATHIDÆ.

233. *SYNGNATHUS SPICIFER*, Rüpp. *Eă-de*, or *Lah-ă-thă-dah*, And.

Microphis tenuis, Blyth.

The native name of this species signifies a Turtle's tail, which the Pipefish is considered to resemble.

234. *GASTROTOKEUS BIACULEATUS*, Bl.

The tail of the specimen obtained by me at the Andamans has been injured, as pointed out to me by Dr. Günther.

235. *HIPPOCAMPUS COMES*, Cantor.

This specimen was given me by Dr. Rean.

Order PLECTOGNATHI.

Family SCLERODERMI.

236. *TRIACANTHUS BIACULEATUS*, Bl. *Ko-tah-thoo-lay-po-dah*, And.

Very common.

237. *BALISTES VIRIDESCENS*, Bl. Schn.

Colours. A light ring round the muzzle, joining one from below, and dividing the black lip from a black band on the forehead. Body brownish olive, each scale darkest in the centre. A wide blackish band proceeds from the eye to the base of the pectoral fin. Vertical fins yellowish, with dark margins. Large blue blotches on the first dorsal fin.

238. *BALISTES FLAVIMARGINATUS*, Rüpp.239. *BALISTES ACULEATUS*, Linn.

Some beautiful specimens of this fish were brought me by the aborigines, who obtained them with their bows and arrows.

240. *BALISTES UNDULATUS*, Mungo Park.241. *ANACANTHUS BARBATUS*, Gray.242. *OSTRACION TRIGONUS*, Linn.

This specimen was given to me by Dr. Rean.

Family GYMNOBONTES.

243. *TETRODON LUNARIS*, Bl. Schn. *Cha-mo-dah*, And.

The aborigines use both this and other species of *Tetrodon* as food; but it was observed to me that their intestines will assimilate any thing.

244. *TETRODON TESTUDINEUS*, Linn.245. *TETRODON IMMACULATUS*, Bl. Schn.246. *TETRODON SIMULANS*, Cantor.247. *TETRODON RETICULARIS*, Bl. Schn. *Ko-pud-dah*, And.

Subclass CHONDROPTERYGII.

Order PLAGIOSTOMATA.

Family CARCHARIIDÆ.

248. *CARCHARIAS WALBEEHMII*, Blkr. *Ei-dah*, And.249. *CARCHARIAS MELANOPTERUS*, Q. & G.

This is the species from the liver of which most of the medicinal fish-liver-oil is prepared in the Government factory at Calicut. No livers are accepted under 40 lb., and one was received of 290 lb. weight.

The presence or absence of the large marine *Plagiostomes* on the coasts of India greatly depends on the whereabouts of the Oil-Sardines and other shoals of *Clupeidæ* and *Scombridæ*. This is the chief reason why the western coast and Ceylon have so many more Sharks and Sawfishes than the eastern, where the *Clupea neohowii* and shoals of *Clupeidæ* and the *Scomber kanagurta* are comparatively rare. The Andamans, abounding in fish, possess their full complement of Sharks. Where small fish are in plenty as food, the Sharks appear to prefer them to human beings.

250. *ZYGÆNA BLOCHII*, Cuv.

Family PRISTIDÆ.

251. *PRISTIS CUSPIDATUS*, Latham.

The livers of this fish are useful for medicinal oil; a female Saw-fish at Calicut, 14 feet long, had one of these glands weighing 185 lb.

Family RHINOBATIDÆ.

252. *RHYNCHOBATUS DJEDDENSIS*, Forsk.253. *RHINOBATUS GRANULATUS*, Cuv.

Family TRYGONIDÆ.

254. *TRYGON UARNAK*, Forsk.

Family MYLIOBATIDÆ.

255. *AËTOBATIS NARINARI*, Euphr. *Ră-tă-charm-dah*, And.

The foregoing list of 255 species of fish is interesting as demonstrating the enormous numbers of sorts which resort to the almost unfished grounds off the Andaman Islands, where the sea appears alive with the finny tribes. Here the Sharks and Sea-perches find abundance of food; and the aborigines are able to sustain themselves by procuring fish from the sea, merely by the use of spears and bows and arrows.

It must also be remarked that the time I spent there was very little above three weeks; and though it is true that I had every assistance from the local authorities and the aborigines, and spared no personal

exertion, still very many species must have escaped me. However that may be, I am unaware of such a large number of marine species having been collected anywhere in such a short period.

As far as possible the foregoing fish have, when a doubt has arisen, been examined with the specimens at the British Museum, for facilities of doing which, and also for personal assistance, I have to express my obligations to Dr. Günther.

I have placed a considerable number of duplicates in the British Museum, retaining, however, my own large collection intact in this country until such time as I again return from India, when I trust I shall bring with me further additions to it.

2. Note on the Habits of the Pampas Woodpecker (*Colaptes campestris*). By CHARLES DARWIN, F.R.S.

In the last of Mr. Hudson's valuable articles on the Ornithology of Buenos Ayres*, he remarks, with respect to my observations on the *Colaptes campestris*, that it is not possible for a naturalist "to know much of a species from seeing perhaps one or two individuals in the course of a rapid ride across the Pampas." My observations were made in Banda Oriental, on the northern bank of the Plata, where, thirty-seven years ago, this bird was common; and during my successive visits, especially near Maldonado, I repeatedly saw many specimens living on the open and undulating plains, at the distance of many miles from a tree. I was confirmed in my belief, that these birds do not frequent trees, by the beaks of some which I shot being muddy, by their tails being but little abraded, and by their alighting on posts or branches of trees (where such grew) horizontally and crosswise, in the manner of ordinary birds, though, as I have stated, they sometimes alighted vertically. When I wrote these notes, I knew nothing of the works of Azara, who lived for many years in Paraguay, and is generally esteemed as an accurate observer. Now Azara calls this bird the Woodpecker of the plains, and remarks that the name is highly appropriate; for, as he asserts, it never visits woods, or climbs up trees, or searches for insects under the bark†. He describes its manner of feeding on the open ground, and of alighting, sometimes horizontally and sometimes vertically, on trunks, rocks, &c., exactly as I have done. He states that the legs are longer than those of other species of Woodpeckers. The beak, however, is not so straight and strong, nor the tail-feathers so stiff, as in the typical members of the group. Therefore this species appears to have been to a slight extent modified, in accordance with its less arboreal habits. Azara further states that it builds its nest in holes, excavated in old mud walls or in the banks of streams. I may add that the *Colaptes pitius*, which in Chile represents the Pampas species, likewise frequents dry stony hills, where only a few bushes or trees grow, and may be continually seen feeding on the ground. According to Molina, this *Colaptes* also builds its nest in holes in banks.

* P. Z. S. 1870, p. 158.

† Apunt. ii. p. 311 (1802).



Day, Francis. 1870. "On the fishes of the Andaman Islands." *Proceedings of the Zoological Society of London* 1870, 677–705.

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