FAUNA OF THE CHILKA LAKE.

FISH

PART IV.

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CONTENTS.

FISH (*PART IV*).

By B. L. CHAUDHURI.

This paper contains a systematic treatment of the division Perciformes of the sub-order Acanthopterygii. The total number of specimens examined and recorded is 281. They belong to seventeen known species, to thirteen genera and seven families.

Sub-Order *ACANTHOPTERYGII.*

Division PERCIFORMES.

Family LOBOTIDAE.

Genus **COIUS**[1] Hamilton Buchanan.

Coius quadrifasciatus (Sevastianof).

1809. *Chaetodon quadrifasciatus*, Sevastianof, *Mém. Acad. Imp. Sci. St. Pétersbourg* I, p. 448, tab. xviii, fig. 2.
1822. *Coius polota*, Hamilton Buchanan, *Fish. Ganges*, pp. 95 and 370, pl. xxxviii, fig. 2.
1842. *Anoplus polota*, Temminck and Schlegel, *Faun. Japon.*, p. 17.
1844. *Anoplus polota*, Richardson, *Zool. Voy.* '*Sulpher*,' p. 83.
1849. *Datina polota*, Cantor, *Journ. Asiat. Soc. Bengal*, p. 998.
1851. *Lobotes hexazona*, Bleeker, *Nat. Tijdschr. Ned. Ind.* I, p. 9.
1853. *Datnioides polota*, *id.*, *ibid.*, V, p. 441.
1859. *Datnioides polota*, Günther, *Cat. Fish. Brit. Mus.* I, p. 339.
1876. *Datnioides quadrifasciatus*, Bleeker, *Arch. Néerl. Sc. Nat.* XI, i, p. 272.
1877. *Datnioides quadrifasciatus*, *id.*, *Atl. Ichthyol. Ind. Orient. Néerl.* VIII, p. 32, pl. cccy. fig. 1.
1878. *Datnioides poluta*, Day, *Fish. Ind.* p. 96, pl. xxiv, fig. 6.
1889. *Datnioides quadrifasciatus*, Day, *Faun. Brit. Ind. Fish.* I, p. 535, fig. 162.
1890. *Datnioides polota*, Vinciguerra, *Ann. Civ. Stor. Nat. Genova* (2) IX, p. 162.
1905. *Coius quadrifasciatus*, Fowler, *Proc. Acad. Nat. Sci. Philadelphia* LVII, p. 504.
1907. *Datnioides polota*, Lloyd, *Rec. Ind. Mus.* I, p. 227.

The original specimen of Sevastianof (not Sebastian as given by Day in the Fauna volume) must have been a young one as his figure shows all the three radiating brown bands from the orbit which are conspicuous in the young specimens only. The figure of Sevastianof is apparently life size, measuring 55 mm. in length. In colouration and marking it resembles most of the young specimens in the collection.

[1] ***Coius*** is one of Hamilton Buchanan's composite genera (*Fish. Ganges*, p. 85). As Bleeker's *Datnioides* is the last name proposed, it gives precedence to *Coius*, of which *Coius polota* of Hamilton Buchanan is the type.

Hamilton Buchanan's figure does not show the round marking on the post-opercle. Day's figures—both for *D. polota* in *Fish. Ind.* and for *D. quadrifasciatus* in the Fauna—show these markings, though no mention is made of them in the text. This round marking on the post-opercle is very conspicuous in all the young ones but is not traceable in the larger specimens in the collection. The ventral fin, the base of which is almost directly below the root of the pectoral fin, has one spine and five branching rays; the spine is outermost and of the rays the two next the spine have filiform endings, the inner one having a much more elongated ending than the one next to the spine. The fish is a permanent inhabitant in the main area of the lake, where it breeds at the end of the rainy season.

There are altogether eleven specimens in the collection of which eight are young.

The following list gives the different parts of the lake from which the specimens were collected, together with their number and size :—

			mm.
4 specimens	Mouth of Barkul Bay	18th September, 1914	21—37.
3 ,,	Off Mottapur	14th March, 1918	50—60.
1 specimen	Off Nalbano ...	18th September, 1914	22.
2 specimens	Rambha ...	21—31st July, 1913	125—175.
1 specimen	,, ...	1st January, 1915	142.

Distribution.—The estuaries of the Ganges and the rivers of Burma, Siam, the Malay Peninsula and the Malay Archipelago.

Family SERRANIDAE.

Sub-family *CENTROPOMINAE.*

Genus **LATES** Cuvier and Valenciennes.

Lates calcarifer (Bloch).

1790. *Holocentrus calcarifer*, Bloch, *Ausl. Fisch.* IV, p. 100, pl. ccxliv.
1801. *Perca calcar*, Bloch and Schneider, *Syst. Ichthyol.* I, p. 89.
1802. *Holocentrus heptadactylus*, Lacépède, *Hist. Nat. Poiss.* IV, p. 344.
1803. *Perca* sp. (*pandoomenoo*), Russell, *Fish. Vizagapatam* II, p. 23, pl. cxxxii.
1822. *Coius vacti*, Hamilton Buchanan, *Fish. Ganges*, pp. 86 and 369, pl. xvi, fig. 28.
1828. *Lates nobilis*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* II, p. 96, pl. xiii.
1828. *Lates calcarifer*, *id*, *ibid.*, II, p. 100.
1845. *Lates nobilis*, Bleeker, *Nat. Geneesk. Arch. Ned. Ind.* II, p. 524.
1846. *Lates nobilis*, Richards, *Rep. Brit. Assoc. Adv. Sc.* 1845, p. 222.
1846. *Lates calcarifer*, *id.*, *ibid.*
1849. *Lates nobilis*, Bleeker, *Verh. Batav. Gen.* XXII, p. 27.
1849. *Lates heptadactylus*, Bleeker, *Journ. Asiat. Soc. Bengal*, p. 983.
1853. *Lates nobilis*, Jerdon, *Madras Jour. Lit. Sci.* XVII, p. 128.
1859. *Lates calcarifer*, Günther, *Cat. Fish. Brit. Mus.* I, p. 68.
1865. *Lates calcarifer*, Day, *Fish. Malabar*, p. 2.
1870. *Lates calcarifer*, Günther, *Proc. Zool. Soc. London*, p. 824.

1876. *Lates calcarifer*, Day, *Fish. Ind.*, p. 7, pl. i, fig. 1.
1876. *Plectropoma calcarifer*, Bleeker, *Atl. Ichthyol. Ind. Orient. Néerl.* VII, p. 109, pl. cccxxii, fig. 3.
1877. *Pseudolates cavifrons*, Alleyne and Macleay, *Proc. Linn. Soc. N. S. W.* I, p. 262, pl. iii.
1878. *Lates darwiniensis*, Macleay, *ibid.*, II, p. 345.
1889. *Lates calcarifer*, Day, *Faun. Brit. Ind. Fish.* I, p. 440, fig. 139.
1890. *Lates calcarifer*, Vinciguerra, *Ann. Mus. Civ. Stor. Nat. Genova*, (2) IX, p. 162.
1895. *Lates calcarifer*, Boulenger, *Cat. Perc. Fish. Brit. Mus.* I, p. 363.
1906. *Plectropomus calcarifer*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXV, p. 255.
1907. *Lates calcarifer*, Lloyd, *Rec. Ind. Mus.* I, p. 225.
1907. *Plectropoma calcariferum*, Evermann and Seale, *Bull. U. S. Bur. Fish.* XXVI, p. 78.
1910. *Lates calcarifer*, Jenkins, *Rec. Ind. Mus.* V, p. 131.
1911. *Lates calcarifer*, Willey, *Spol. Zeylanica* VII, p. 100.
1912. *Lates calcarifer*, Jenkins, *Rec. Ind. Mus.* VII, p. 54.
1913. *Lates calcarifer*, Weber, *Siboga-Exped.* LVII, *Fische*, p. 215.
1916. *Lates calcarifer*, Sundara Raj, *Rec. Ind. Mus.* XII, p. 278.

There are two specimens in the collection, both from Satpara ; one measuring 262 mm. in length was secured in March 1914, and the other, measuring 137 mm. in length, was captured on the 10th October. The fish is thus reported only from the outer channel.[1]

Distribution.—Coasts and mouths of rivers of South Eastern Asia from India to Southern China, Malay Archipelago, the Philippine Islands, Australia and New Guinea.

Sub-family *CHANDINAE.*

Genus **CHANDA**[2] Hamilton Buchanan.

Chanda ambassis (Lacépède).

1775. ? *Sciaena safgha*, Forskal, *Descrip. Animal*, p. 53.
1801. ? *Perca safgha*, Bloch and Schneider, *Syst. Ichthyol.*

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[1] It is, however, common in Rambha Bay in the main area. *N. A.*

[2] The generic name *Chanda* of Hamilton Buchanan [*Fish. Ganges*, 1822, pp. 103 and 370] has priority over *Ambassis* of Cuvier and Valenciennes [*Hist. Nat. Poiss.*, II (1828), p. 175]. This was pointed out by M'Clelland and Cantor as well as by Waite, although Fowler (*loc. cit.*), the first reviser of *Chanda*, had regarded its type identical with the type of Bleeker's genus *Pseudoambassis*. *Chanda* of Hamilton Buchanan, which is the same as *Bogoda* of Bleeker, is characterized by the uninterrupted lateral line, small or minute scales and strong curved canines and is distinguished from the related genera by the serrated pre-orbital, small teeth, comparatively larger scales, complete lateral line and the presence of about ten rays in the dorsal fin. A procumbent dorsal spine is always present but in some cases it is small and concealed in the flesh [*The Fishes of Samoa* by Drs. Jordan and A. Seal, *Bull Bur. Fish.* (*U.S.*) xxv, p. 175]. Fowler, and long before him Cuvier and Valenciennes, observed that the two first species under *Chanda* as described by Hamilton Buchanan belonged to a different genus altogether and for this reason Cuvier and Valenciennes suppressed the name *Chanda*, but they often showed themselves zealous in cancelling valid names without any justification. It should be remembered that Hamilton Buchanan clearly expressed his doubts as to the propriety of placing these two species in his genus *Chanda*. The fact that he placed these two admittedly doubtful species under the generic name cannot therefore vitiate it. As to the first doubtful species, Hamilton Buchanan himself proposed to place it in another genus : " This species is ill defined, and might, perhaps, be placed as a *Coius*." (*Fish. Ganges*, p. 105). He further pointed out, " As in the genera already described there are, as it were, certain intermediate species, so in this the two first, which I have described, together with the *Zeus insidiator*, have but little of the transparency, which forms part of the generic character." He further stated that his excuse for including these two

1802. *Centropomus ambassis*, Lacépède, *Hist. Nat. Poiss.* IV, p. 273.
1828. *Ambassis commersonii*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* II, p. 176, pl. xxv.
1837. *Ambassis commersonii*, Rüppell, *Neu. wirbel. Fisch.*, p. 89.
1849. *Ambassis commersonii*, Bleeker, *Verh. Batav. Gen.* XXII, p. 30.
1849. *Ambassis macracanthus*, *id.*, *ibid.*, p. 30.
1859. *Ambasssis commersonii*, Günther, *Cat. Fish. Brit. Mus.* I, p. 223.
1859. *Ambassis macracanthus*, *id.*, *ibid.*, p. 227.
1865. *Ambassis commersonii*, Day, *Fish. Malabar*, p. 15.
1866. *Ambassis productus*, Guichenot, *Mém. Soc. Sci. Cherbourg* XII, p. 130.
1868. *Ambassis commersonii*, Peters, *Reis. Mossamb.* IV, p. 10.
1870. *Ambassis macracanthus*, Day, *Proc. Zool. Soc. London*, p. 681.
1875. *Ambassis commersonii*, *id.*, *Fish. Ind.*, p. 52, pl. xv, fig. 3.
1877. *Ambassis commersonii*, Bleeker, *Atl. Ichthyol. Ind. Orient. Néerl.* VIII, pp. 133 and 136.
1889. *Ambassis commersonii*, Day, *Faun. Brit. Ind. Fish.* I, 488.
1905. *Ambassis ambassis*, Fowler, *Proc. Acad. Nat. Sci. Philadelphia* LVII, p. 500.
1915. *Ambassis commersonii*, Boulenger, *Brit. Mus. Cat. Freshw. Fish. Africa* III, p. 112, fig. 85.
1916. *Ambassis ambassis*, Sundara Raj, *Rec. Ind. Mus.*, XII, p. 279.
1916. *Ambassis commersonii*, Boulenger, *Brit. Mus. Cat. Freshw. Fish. Africa*, IV, p. 326.

There are only two specimens in the collection, both secured from a fisherman at Kalupara Ghat on 7th April 1914; these are 54·6 and 64·5 mm. in length.

Distribution.—East coast of Africa, shores of India and the Malay Archipelago, North coast of Australia. The species ascends rivers and estuaries.

Genus **PRIOPIS**[1] Kuhl and van Hasselt.

Priopis gymnocephalus (Lacépède).

1802. *Lutjanus gymnocephalus*, Lacépède, *Hist. Nat. Poiss.* III, p. 479, pl. xxiii, fig. 3 and IV, p. 216.
1828. *Ambassis dussumieri*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* II, p. 181.
1831. *Lutjanus gymnocephalus*, Lacépède and Desmarest, *Hist. Nat. Poiss.* V, p. 108.
1834. *Ambassis dussumieri*, Quoy and Gaimard, *Voy. "Astrolabe" Poiss.* III, p. 645, pl. i, fig. 3.
1845. *Ambassis dussumieri*, Bleeker, *Nat. Geneesk. Arch. Ned. Ind.*, II, p. 520.
1849. *Chanda dussumieri*, Cantor, *Journ. Asiat. Soc. Bengal*, p. 988.
1849. *Chanda gymnocephala*, *id.*, *ibid.*, p. 989.
1859. *Ambassis dussumieri*, Günther, *Cat. Fish. Brit. Mus.* I, p. 225.
1865. *Ambassis dussumieri*, Day, *Fish. Malabar*, p. 16.

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doubtful species (*viz.*, *C. setifer* and *C. ruconius.*) in his genus *Chanda* was that the name was a common local appellation for all the species he included. A very curious mistake may be noted here. In Agassiz's *Nomenclator Zoologicus* Pisces, p. 15) Hamilton Buchanan's generic name *Chanda* is stated to have been derived from "the Greek word καυδος =hians!" It is in reality a vernacular name. The word is not derived from the Hindi word *Chandi* (=silver), as wrongly supposed by Cantor and Day, but from the Bengali word *Chand*=moon, from the moon-like rounded shape and the moon-like semitranslucent lustre exhibited by these fishes in their sudden sallies to the surface of the water and quick retreat.

[1] The genus *Priopis*, Kuhl and van Hasselt (Cuvier and Valenciennes, *Hist. Nat. Poiss.* VI, *p.* 503) is defined as *Chanda* with the lateral line interrupted (Jordan and Seale, *Proc. U. S. Nat. Mus.* XXVIII, p. 780).

1865. ***Ambassis dussumieri***, Kner, *Reis. Novara' Fisch.*, p. 41.
1869. ***Ambassis vachelli***, Peters, *Monatsb. Königl. Preuss. Akad. Wiss., Berlin* (1868), p. 255.
1870. ***Ambassis dussumieri***, Day, *Proc. Zool. Soc. London*, p. 681.
1874. ***Ambassis gymnocephalus***, Bleeker, *Nat. Verh. Holl. Maatsch. Wetensch.* II, p. 15.
1877. ***Ambassis gymnocephalus***, Bleeker, *Atl. Ichthyol. Ind. Orient. Néerl.* VIII, pp. 133 and 138, pl. ccclii, fig. 3.
1878. ***Ambassis gymnocephalus***, Day, *Fish. Ind.* p. 54, pl. ccclii, fig. 3.
1879. ***Ambassis gymnocephalus***, Bleeker, *Verh. Akad. Amsterdam*, XVIII, p. 13.
1889. ***Ambassis gymnocephalus***, Day, *Faun. Brit. Ind. Fish.* I, p. 489.
1905. ***Priopis gymnocephalus***, Jordan and Seale, *Proc. U. S. Nat. Mus* XXVIII, p. 780.
1905. ***Ambassis gymnocephalus***, Fowler, *Proc. Acad. Nat. Sci. Philadelphia* LVII, p. 501.
1913. ***Ambassis gymnocephalus***, Weber, *Fisch. Siboga'-Exped.*, p. 217.

Lacépède's figure is defective as it does not show that the lateral line is not continuous.

In many specimens there is no external appearance of the horizontal spine in front of the first dorsal fin.

In some specimens the tips of the pelvic fins reach the vent, covering the anal opening. The caudal fin is not tipped with black in some, and in some the skin between the first dorsal fin and the body is black.

There are altogether forty-seven specimens in the collection; the following list gives the distribution of the species in the lake :—

			mm.
9 specimens	Off Barkul	18-21st September, 1914 ...	39—48
16 ,,	Off mouth of Barkul Bay	18th September, 1914 ...	35·5—48
1 specimen	Off Barkul	13th November, 1914 ...	35
1 ,,	Chirriya Island (shore collecting) ...	13th February, 1914 ...	16·5
3 specimens	Chirriya Island (Towards Samal Point) ...	17th February, 1914 ...	42·5—47·5
1 specimen	Between Chirriya Island and Barkuda Island ...	17th November, 1914 ...	47
3 specimens	Rambha Bay ...	February, 1914 ...	46—51
1 specimen	,, ,, ...	March, 1914 ...	44
1 specimen	Satpara (shore collecting)	13th March, 1914 ...	17·5
2 specimens	West of Satpara (tow netting)	20th March, 1914 ...	10—12
1 specimen	Satpara	March, 1914 ...	43
5 specimens	,, ...	12-13th September, 1914 ...	38—50
3 ,,	,, ...	October, 1914 ...	40—43
1 specimen	,, ...	... ...	40·5

The species occurs in the main area of the lake as well as in the outer channel, where it breeds. It is a permanent inhabitant in the lake.

Distribution.—Coasts of Orissa and Malabar, entering rivers and estuaries in India, Seychelles, Penang, Javanese and Chinese seas, Celebes and Isle de France.

Sub-family *LUTJANINAE.*

Genus **LUTJANUS** Bloch.

Lutjanus johnii (Bloch).

1795. *Anthias johnii*, Bloch, *Ichthyol.* IX, p. 97, pl. cccxviii.
1801. *Anthias johnii*, Bloch and Schneider, *Syst. Ichthyol.*, p. 303.
1802. *Lutjanus johnii*, Lacépède, *Hist. Poiss.* IV, p. 235.
1803. *Sparus* sp. (*doondiawah*), Russell, *Fish. Vizagapatam*, I, p. 76, pl. xcvii.
1803. *Sparus* sp. (*mungimupudee*), *id.*, *ibid.*, II, p. 8, pl. cx.
1803. *Sparus tranquebaricus*, Shaw, *Gen. Zool.*, *Pisc.* IV, p. 471.
1822. *Coius catus*, Hamilton Buchanan, *Fish. Ganges*, pp. 90 & 369, pl. 38, fig. 30.
1824. *Mesoprion unimaculatus*, Quoy and Gaimard, *Zool. Freycin.*, pp. 304-441.
1828. *Mesoprion johnii*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* II, p. 443.
1831. *Mesoprion flavipinnis*, *id.*, *ibid.*, VII, p. 475.
1831. *Serranus pavoninus*, *id.*, *ibid.*, VII, p. 443.
1831. *Lutjanus johnii*, Desmarest, *Oeuvres Lacép.*, IX, p. 127.
1834. *Mesoprion unimaculatus*, Quoy and Gaimard, *Voy. de l'Astrolabe.*, *Poiss.* III, p. 665, pl. V, fig. 3.
1836. *Mesoprion unimaculatus*, Cuvier, *Règ. Anim.*, *Poiss.* p. 35.
1846. *Mesoprion unimaculatus*, Richardson, *Rep. Brit. Assoc. Adv. Sc.* (1845), p. 229.
1849. *Mesoprion johnii*, Cantor, *Journ. Asiat. Soc. Bengal*, p. 995.
1849. *Mesoprion unimaculatus*, Bleeker, *Verh. Batav. Gen.* XXII, pp. 4, 20 and 42.
1853. *Mesoprion unimaculatus*, Jerdon, *Madras Journ. Lit. Sci.* XVII, p. 130.
1859. *Serranus pavoninus*, Günther, *Cat. Fish. Brit. Mus.* I, p. 126.
1859. *Mesoprion johnii*, *id.*, *ibid.*, p. 200.
1865. *Mesoprion johnii*, Day, *Fish. Malabar*, p. 11.
1865. *Mesoprion johnii*, Kner, *Reis. 'Novara' Fisch.*, p. 35.
1876. *Lutianis johnii*, Day, *Fish. Ind.*, p. 42, pl. xiii, fig. 1.
1877. *Lutjanus johni*, Bleeker, *Atl. Ichthyol. Ind. Orient. Neérl.* VIII, p. 49, pl. cccxxxviii, fig. 1.
1889. *Lutjanus johnii*, Day, *Faun. Brit. Ind. Fish.* I, p. 476.
1904. *Lutianus johnii*, Fowler, *Journ. Acad. Nat. Sci. Philadelphia* (2) XII, p. 325.
1906. *Lutianus johni*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXV, p. 264.
1907. *Lutianus johnii*, Lloyd, *Rec. Ind. Mus.*, I, p. 226.
1907. *Lutianus johnii*, Evermann and Seale, *Bull. U. S. Bur. Fish.* XXVI, p. 79.
1908. *Lutianus johnii*, Gilchrist and Thomson, *Ann. South African Mus.* VI, p. 213.
1913. *Lutianus johnii*, Weber, *'Siboga'-Exped.* LVII, *Fisch*, p. 247.

There is only one specimen (young) measuring 50 mm. in length, captured on 17th November 1914, when proceeding across the mouth of Rambha Bay between Chirriya Island and Barkuda Island. There are three broad but faint transverse bands; the black ocellus commences at the thirty-fourth scale from the snout and on the twentieth scale of the lateral line; the ocellus measures 10 mm. × 8 mm.

The species is only an occasional visitor in the main area of the lake.

Distribution.—Coasts of Africa, Red Sea, seas of India, ascending some distance up tidal rivers, Malay Archipelago, coasts of China and Australia.

Genus **THERAPON**[1] Cuvier.

Therapon jarbua (Forskal).

1775. *Sciaena jarbua*, Forskal, *Descr. Anim.*, p. 50.
1788. *Sciaena jarbua*, Linnaeus, *Syst. Natur.*, *Gmelin*, Ed. XIII, p. 1303.
1790. *Holocentrus servus*, Bloch, *Ausl. Fisch.* IV, p. 80, pl. ccxxxviii, fig. 1.
1797. *Holocentrus servus*, *id.*, *Ichthyol.*, taf. ccxxxviii, fig. 1.
1801. *Grammistes servus*, Bloch and Schneider, *Syst. Ichthyol.*, I, p. 185.
1802. *Holocentrus jarbua*, Lacépède, *Hist. Nat. Poiss.* IV, pp. 348 and 355.
1817. *Terapon servus*, Cuvier, *Reg. Anim.*, Ed. I, II, p. 295.
1824. *Therapon timoriensis*, Quoy and Gaimard, *Voy. "Uranie" et " Physicienne, "* p. 341.
1829. *Therapon servus*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* III, p. 125.
1831. *Therapon servus*, *id.*, *ibid.*, VII, p. 479.
1836. *Therapon servus*, Cuvier, *Règ. Anim., Poiss.* p. 43.
1846. *Therapon servus*, Richardson, *Rept. Brit. Assoc. Adv. Sc.* (1845), p. 238.
1848. *Therapon servus* Bleeker, *Journ. Ind. Arch.* II, No. IX, p. 632.
1859. *Therapon servus*, Günther, *Cat. Fish. Brit. Mus.* I, p. 278.
1865. *Therapon servus*, Kner, *Reis. 'Novara,' Fisch.* p. 45.
1865. *Therapon servus*, Day, *Fish. Malabar*, p. 17.
1867. *Therapon servus*, Jouan, *Mém. Soc. Imp. Sci. Nat. Cherbourg* XIII, p. 251.
1868. *Therapon servus*, Peters, *Reis. Mossambique*, IV, p. 10.
1870. *Therapon jarbua*, Klunzinger, *Verh. Zool.-bot. Ges. Wien* XX, p. 729.
1873. *Therapon servus*, Günther, *Fisch. Sudsee* I, p. 26.
1873. *Therapon* (*Batnia*) *jarbua*, Bleeker, *Ned. Tijdschr. Dierk.* IV, p. 377.
1875. *Therapon servus*, Bleeker, *Atl. Ichthyol. Ind. Orient. Neérl.* VII, p. 112, pl. xxxiv, fig. 2.
1876. *Therapon jarbua*, Day, *Fish. Ind.* p. 69, pl. xviii, fig. 4.
1876. *Therapon* (*Datnia*) *jarbua*, Bleeker, *Arch. Néerl. Sc. Nat.* XI, I, p. 267.
1878. *Therapon* (*Datnia*) *jarbua*, Bleeker, *Arch. Néerl. Sc. Nat.* XIII, p. 42.
1884. *Therapon jarbua*, Klunzinger, *Fisch. Roth. Meer*, p. 729.
1889. *Therapon jarbua*, Day, *Faun. Brit. Ind. Fish.* I, p. 505, fig. 153.
1903. *Therapon jarbua*, Jordan and Evermann, *Proc. U. S. Nat. Mus.* XXV, p. 348.
1904. *Therapon jarbua*, Fowler, *Journ. Acad. Nat. Sci. Philadelphia* (2) XII, p. 527.
1905. *Terapon servus*, Jordan, *Guide Study Fish.* II, p. 342.
1906. *Terapon jarbua*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXV, p. 266.
1907. *Terapon jarbua*, Smith and Pope, *Proc. U. S. Nat. Mus.* XXXI, p. 476.
1907. *Terapon jarbua*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXVI, p. 23.
1907. *Therapon jarbua*, Lloyd, *Rec. Ind. Mus.* I, p. 226.
1907. *Terapon jarbua*, Evermann and Seale, *Bull. U. S. Bur. Fish.* XXVI, p. 83.
1908. *Therapon jarbua*, Gilchrist and Thomson, *Ann. South Afric. Mus.* VI, p. 150.
1910. *Therapon servus*, Franz, *Abhandl. Akad. Wiss.* IV, p. 46.

[1] ***Terapon***, Cuvier, *Reg. Anim.* Ed. I (1817), p. 295, was a misprint for *Therapon* and was subsequently corrected in a later edition. ***Djabub***, Forskål, *Desc. Anim.* (1775), p. 44, though an earlier generic name, is held not eligible.

1911. *Terapon jarbua*, Jordan and Richardson, *Mem. Carnegie Mus.* IV, p. 187.
1912. *Therapon jarbua*, Bean and Weed, *Proc. U. S. Nat. Mus.* XIII, p. 605.
1913. *Therapon jarbua*, Weber, *'Siboga'-Exped.* LVII, *Fisch.*, p. 254.
1913. *Therapon jarbua*, Sewell, *Journ. Proc. Asiat. Soc. Bengal*, (n. s.) IX, pp. 334 and 344.
1913. *Therapon servus*, Jordan, Tanaka and Snyder, *Journ. Coll. Sci. Imp. Univ. Tokyo*, XXXIII, p. 168.
1915. *Therapon jarbua*, Boulenger, *Cat. Freshw. Fish. Afric. Brit. Mus.* III, p. 113, fig. 114.
1917. *Therapon jarbua*, Hornell, *Madras Fish. Bull.* XI, p. 91.

Hamilton Buchanan has left an excellent figure of this fish in the plate No. 67 of the volume of his manuscript drawings ;[1] the name *"Holocentrus (?) katkaya"* is on the back of the plate in his own handwriting. This drawing is evidently the original of the badly copied figure in Hardwicke's *Illustrations.*[2] The figure was named *Pterapon trivittatus* and was published without any acknowledgment of the source, the name also evidently was borrowed without acknowledgment from Hamilton's *Fishes of the Ganges* (p. 92) on a mistaken identity of the published species with the unpublished manuscript figures.

There are altogether five specimens in the collection, four of which are from Satpara, but no special locality is known for the fifth which measures 88 mm. and was collected at the end of July 1913. Of the Satpara specimens the biggest measures 115 mm. in length and was collected on 12th September 1914 and the remaining three on March, 1914, measuring 83 mm., 85 mm. and 95 mm. The biggest specimen has eleven spines in the first dorsal, the one measuring 95 mm. in length has ten prominent spines and a rudimentary one anteriorly. Of the rest one has a trace of a spine but the other two specimens have only ten prominent spines in the first dorsal fin. These facts satisfactorily explain the differences in the observations of Günther and Klunzinger on the number of spines.

Distribution.—Red Sea, east coast of Africa, seas and estuaries of India, the Malay Archipelago, north coast of Australia, Formosa, Japan, Samoa, Fiji, New Britain, New Guinea and the Solomon Islands.

Therapon puta, Cuvier.

1803. *Perca sp. (keelputa)*, Russell, *Fish. Vizag.* II, p. 19, pl. cxvi.
1817. *Terapon puta*, Cuvier, *Règ. Anim.* Ed. I, II, p. 295.
1822. *Coius trivittatus*, Hamilton Buchanan, *Fish. Ganges*, pp. 92 and 370.
1829. *Therapon puta*, Cuvier and Valenciennes, *Nat. Hist. Poiss.* III, p. 131.
1829. *Therapon ghebul, id., ibid.* III, p. 133.
1836. *Therapon puta*, Cuvier, *Règ. Anim., Poiss.*, p. 43, pl. xii, fig. 2.
1849. *Therapon trivittatus*, M'Clelland, *Journ. Asiat. Soc. Bengal*, p. 1001.
1853. *Therapon puta*, Jerdon, *Madras Journ. Lit. Sci.* XVII, p. 130.
1859. *Therapon trivittatus*, Günther, *Cat. Fish. Brit. Mus.* I, p. 281.
1859. *Therapon ghebul, id., ibid.*, I, p. 281.
1865. *Therapon trivittatus*, Kner, *Reis. 'Novara,' Fisch.*, p. 45.
1865. *Therapon trivittatus*, Day, *Fish. Malabar*, p. 17.
1873. *Therapon (Datina) trivittatus*, Bleeker, *Ned. Tijdschr. Dierk.* IV, p. 375.

[1] Chaudhuri, *Mem. Ind. Mus.* V, p. 444 and foot-note.
[2] Gray, *Illustrations of Indian Zoology from the collection of Major-General Hardwicke*, II, pl. lxxxviii, fig. 1.

1875. *Therapon puta*, *id.*, *Fish. Ind.*, p. 68, pl. xviii, fig. 3.
1884. *Therapon trivittatus*, De Vis, *Proc. Linn. Soc. N. S. W.* VIII, p. 457.
1889. *Therapon puta*, Day, *Faun. Brit. Ind. Fish.* I. p. 505.
1906. *Terapon puta*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXV, p. 266.
1907. *Terapon puta*, Jordan and Seale, *ibid.* XXVI, p. 24.
1907. *Terapon puta*, Evermann and Seale, *ibid.* XXVI, p. 83.
1912. *Therapon puta*, Bean and Weed, *Proc. U. S. Nat. Mus.* XLII, p. 605.
1913. *Therapon puta*, Weber, *'Siboga'-Exped.* LVII, *Fisch.*, p. 91.
1913. *Therapon puta*, Sewell, *Journ. Proc. Asiat. Soc. Bengal* (n. s.) IX, p. 352.
1917. *Therapon puta*, Hornell, *Madras Fish. Bull.* XI, p. 91.

There are altogether thirty-six specimens in the collection, more than twenty of which are young. The list given below will show the time and place of their occurrence in the lake.

			mm.
2 specimens	Off Barnikuda	6th September, 1914,	54—62
1 specimen	Cherriakuda towards Samal Point	17th February, 1914	58
8 specimens	Mahosa (Barhampur Island)	18th March, 1914	26—20
1 specimen	Rambha Bay	February, 1914	74
1 specimen	Between Samal Island and mainland	September, 1913	32
1 specimen	Satpara	...	77
7 specimens	,,	March, 1914	68—87
7 specimens	Satpara Bay	13th March, 1914	15—25
3 specimens	,,	17th March, 1914	17, 18 & 21
1 specimen	South side of Satpara Island	13th March, 1914	14
2 specimens	West of Satpara	20th March, 1914	15 & 17
1 specimen	Seruanaddi	8th September, 1914	60
1 specimen	From Seruanaddi going towards Barnikuda	4th September, 1914	67

The young ones were mostly obtained in shore-collecting in the neighbourhood of Satpara Island. Numerous round light spots are found in these specimens between the horizontal bands. The caudal fin is immaculate in most of the young specimens. In some of the young specimens there is a black spot at the root of the caudal fin.

This fish appears to be a permanent inhabitant in the main area as well as in the outer channel, breeding in the latter area in winter.

Distribution.—Red sea, seas of India, Malay Archipelago, the Philippine Islands, coast of Australia, sea of Timur and South Pacific Ocean (the island of Samoa).

Family SILLAGINIDÆ.

Genus **SILLAGO,** Cuvier.

Sillago sihama (Forskål).

1775. *Atherina sihama*, Forskål, *Descrip. Anim.*, pp. xiii and 70.
1801. *Platycephalus sihamus*, Bloch and Schneider, *Syst. Ichthyol.*, p. 60.

1801. *Sciaena malabarica*, *id.*, *ibid.*, p. 18, pl. xix.
1803. *Sparus sp.* (*soring*), Russell, *Fish. Vizag.* II, p. 9, pl. cxiii.
1817. *Sillago acuta*, Cuvier, *Règ. Anim.* (Ed. I) II, p. 258.
1827. *Sillago sihama*, Rüppell, *Atl. Reis. Nord. Afrik. Fisch. Meer.* p. 9, pl. ii, fig. 1.
1829. *Sillago acuta*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* III, p. 400.
1829. *Sillago erythroea*, *id.*, *ibid.*, p. 409.
1835. *Sillago sihama*, Rüppell, *Neu. Wirbel. Faun. Abyssin. Fisch.*, p. 100.
1836. *Sillago sihama*, Cuvier, *Règ. Anim., Poiss.*, p. 45.
1845. *Sillago acuta*, Bleeker, *Nat. Geneesk. Arch. Ned. Ind.* II, pp. 524 and 527.
1849. *Sillago malabarica*, Cantor, *Journ. Asiat. Soc. Bengal*, p. 1003.
1853. *Sillago acuta*, Jerdon, *Madras Journ. Lit. Sci.* XVII, p. 131.
1860. *Sillago sihama*, Günther, *Cat. Fish. Brit. Mus.* II, p. 243.
1861. *Sillago sihama*, Gill, *Proc. Ac. Nat. Sci. Philadelphia*, p. 504.
1861. *Sillago malabarica*, *id.*, *ibid.*
1865. *Sillago sihama*, Day, *Fish. Malabar*, p. 47.
1866. *Sillago sihama*, Playfair, *Fish. Zanzibar*, p. 69.
1867. *Sillago sihama*, Jouan, *Mém. Soc. Imper. Sci. Nat. Cherbourg* XIII, p. 252.
1868. *Sillago sihama*, Kner, *Reis. Oster. Novar. Fisch.*, p. 128.
1870. *Sillago sihama*, Klunzinger, *Verhandl. Zool.-Bot. Ges. Wien.* XX, p. 818.
1874. *Sillago sihama*, Bleeker, *Verh. Akad. Amsterdam* XIV, p. 67.
1876. *Sillago sihama*, Day, *Fish. Ind.*, p. 265, pl. lvii, fig. 3.
1880. *Sillago sihama*, Günther, *Rep. Voy. H. M. S.* "*Challenger*," *Zool.* I, p. 56.
1885. *Sillago sihama*, Macleay, *Proc. Linn. Soc. N. S. W.* IX, p. 28.
1885. *Sillago sihama*, Steindachner and Doderlein, *Denk. Akad. Wiss. Wien.* XLIX, p. 19.
1889. *Sillago sihama*, Day, *Faun. Brit. Ind. Fish.* II, p. 224.
1902. *Sillago sihama*, Jordan and Snyder, *Proc. U. S. Nat. Mus.* XXIV, p. 486.
1904. *Sillago sihama*, Fowler, *Journ. Acad. Nat. Sci. Philadelphia* XII, p. 549.
1905. *Sillago sihama*, Jordan, *Stud. Fish.* II, p. 358.
1905. *Sillago sihama*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXV, p. 277.
1907. *Sillago sihama*, *id.*, *ibid.*, XXVI, p. 25.
1907. *Sillago sihama*, Smith and Pope, *Proc. U. S. Nat. Mus.* XXII, p. 478.
1908. *Sillago sihama*, Gilchrist and Thomson, *Ann. S. Afric. Mus.* VI, p. 192.
1910. *Sillago sihama*, Jenkins, *Rec. Ind. Mus.* V, pp. 132 and 136.
1910. *Sillago sihama*, Franz, *Abhandl. Bayer. Akad. Wiss.* IV, *suppl.* I, p. 83.
1911. *Sillago sihama*, Jordan and Richardson, *Mem. Carnegie Mus.* IV, p. 192.
1912. *Sillago sihama*, Bean and Weed, *Proc. U. S. Nat. Mus.* XLII, p. 607.
1912. *Sillago sihama*, Jenkins, *Rec. Ind. Mus.* VII, p. 60.
1913. *Sillago sihama*, Tanaka, *Fig. Descrip. Fish. Japan* XIV, p. 241, pl. lxviii.
1913. *Sillago sihama*, Jordan, Tanaka and Snyder, *Journ. Coll. Sci. Imp. Univ. Tokyo* XXXIII, p. 187.
1913. *Sillago sihama*, Jordan and Metz, *Mem. Carnegie Mus.* VI, p. 41.
1913. *Sillago sihama*, Sewell, *Journ. Asiat. Soc. Bengal* (n. s.) IX, pp. 338 and 344.
1913. *Sillago sihama*, Weber, '*Siboga*'-*Exped.. Fisch.*, p. 267.
1914. *Sillago sihama*, Jordan and Thomson, *Mem. Carnegie Mus.* VI, p. 259.
1917. *Sillago sihama*, Hornell, *Madras Fish. Bull.* XI, p. 91.

Dr. Gill separates *S. malabarica* as a distinct species having the soft dorsal spotted.[1] Besides colouration specimens of this species show great variation in the depth of the body, attenuation of the head and snout and height of the spinous dorsal. That M. Leschenault saw "single individuals upwards of three feet in length" was first given currency by Cuvier.[2] Most subsequent writers, including Day, quoted this statement without any corroboration or acknowledgment. The species is, comparatively speaking, a small sized one.[3] As the species is of wide distribution and as no one else has observed it to reach anywhere near the size recorded by Leschenault, it is probable that his observation is erroneous. It is not unlikely that Leschenault mistook some species of *Sphyraena* for *Sillago sihama* as both the genera have two dorsal fins, a long pointed snout as well as a similar nature and arrangement of scales. Cuvier and Valenciennes partly confounded *S. panijus* (Hamilton Buchanan) with *S. sihama* (Forskål), for they remark that the vernacular name for the species in Calcutta is *Panji mas.*[4]

There are altogether seventeen specimens in the collection, seven of which are quite young and were obtained only a mile south-west of the mouth of the lake on the outer bar. The rest are all adult and were found distributed over the main area and collected throughout the year. The caudal fin is in most cases square-cut and in some emarginate but never deeply indented as represented in Russell's figure, which in all probability is defective. Most of the specimens have a broad longitudinal silvery band about the middle of the body not conspicuous in the young specimens. In some there are black blotches on the opercle. There is a horse-shoe shaped black marking on the occiput with white border in front.

The following statement shows the number and size of the specimens in the collection together with the localities in the lake from which they were obtained:—

			mm.
4 specimens	Balugaon	21-31st July, 1913	112—144
2 specimens	Parikud	28th November, 1914	115 & 160
1 specimen	Rambha Bay	February, 1914	135
3 specimens	(purchased)	19th November, 1914	107—152
7 specimens	Outer Bar, one mile south-west of the mouth of the lake.	19th March, 1914	25—44

The species is a permanent inhabitant of the main area of the lake going out to the sea or near the mouth of the lake to breed. In all probability the breeding time is about the month of February.

Distribution.[5]—Coasts of Abyssinia, Zanzibar, North and East Africa, Red Sea, seas of India, Bay of Bengal and estuaries of the Ganges, Malay Archipelago, seas of the

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[1] *Proc. U. S. Nat. Mus.* XXIV, p. 487.

[2] *Hist. Nat. Poiss.* III, p. 407.

[3] "Erreicht fast 30 cm. lange" Weber, *'Siboga'-Exped. Fisch.*, p. 267.

[4] *Hist. Nat. Poiss.* III, p. 401.

[5] Günther in his catalogue enters "one skin (bad state)" of this fish as belonging to Nepal, presented by B. H. Hodgson; this is undoubtedly a mistake. The locality of the donor who was for a long time a resident in Nepal must have been mistaken for that of the fish. Günther has similarly referred a few more marine fish to Nepal which led T. C. Jerdon to contribute his paper "On the extension of certain marine fishes to the freshwater Rivers of India." *Ann. Mag. Nat. Hist.* (3) XVII, p. 153.

Philippines, China. Formosa, Japan and Korea, coast of Queensland and also that of Samoa.

Family SCIAENIDAE.

Genus **SCIAENA** Linnaeus.

The genus *Johnius* (including *Bola*) was restricted to *J. carutta* by Gill.[1] Bleeker proposed to separate those species which had enlarged teeth in the lower jaw from *Sciaena* and wanted to group them under a new genus *Pseudosciaena*,[2] for which he made *S. aquila* (Lacépède) the type. If Bleeker's arrangement be adopted the generic name of the group should for reasons of priority become *Argyrosomus*[3] of De La Pylaie, who founded the latter genus in 1832 on the same species. *Sciaena* is undoubtedly a large genus comprising a great variety of forms which, though differing widely among themselves, form an almost continuous series from one extremity to the other. The inter-relations of these forms have been fully discussed by Jordan and Eigenmann[4] and no useful purpose would be served by upholding the number of these artificial genera. The genus *Sciaena* is now therefore definitely restricted to *Cheilodipterus aquila* of Lacépède.[5] This species thus becomes the type of *Sciaena* which replaces the genera *Argyrosomus* of De La Pylaie and *Pseudosciaena* of Bleeker.[6]

Sciaena coibor (Hamilton Buchanan).

1822. *Bola coibor*, Hamilton Buchanan, *Fish. Ganges*, pp. 78 and 368.
1830. *Corvina albida*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* V, p. 93.
1830. *Corvina anei, id, ibid.*, p. 131.
1834. *Corvina albida*, Belanger, *Voy. Indes-orientales*, p. 355.
1860. *Johnius anei*, Blyth (not Bloch), *Proc. Asiat. Soc. Bengal*, p. 141.
1863. *Pseudosciaena albida*, Bleeker, *Ned. Tijdschr. Dierk.* I, p. 145.
1865. *Corvina albida*, Day, *Fish. Malabar, p.* 54.
1865. *Corvina neilli, id., ibid., p.* 55.
1876. *Sciaena albida, id., Fish. Ind.*, p. 188, pl. xliv, figs. 4 and 6.
1889. *Sciaena albida, id., Faun. Brit. Ind. Fish.* II, p. 117.
1910. *Sciaena albida*, Jenkins, *Rec. Ind. Mus.* V, p. 136.

There is only one specimen in the collection, 462 mm. in length without the caudal fin. It was caught off Barkul Point at the end of November, 1914. Another specimen was reported from Gopkuda in August, 1907. In the Barkul specimen the muciferous pore below the symphysis of the lower jaw (the centrally situated one behind the bluntish knob) is semilunar in shape with a short hanging fold in front, the two lateral pores are deep and elongated and the outer pores are almost slit-like. The barbel between the right corner of the semilunar pore and the right lateral elongated pore is very slender and thin and is only 5 mm. in length

[1] *Proc. Acad. Nat. Sci. Philadelphia*, 1862 (published 1863), pp. 16-18.
[2] *Ned. Tijdschr. Dierk.* I (1863), p. 145., and *Arch. Néerl. Sc. Nat.* XI (1876), p. 329.
[3] *Compt. Rend. Congr. Sci. France* for 1834 (published 1835), p. 534.
[4] *Bull. U. S. Fish Comm.* for 1886 (published 1889), p. 395.
[5] Lacépède, *Hist. Nat. Poiss.*, Nou. Ed., IV, p. 373.
[6] Jordan, *The Genera of Fishes*, 1917, p. 94.

and is contained three times in the short vertical diameter of the eye. There is a minute (but thick) barbel-like growth near the left lateral pore. The eye is oval, the short vertical diameter is contained in the horizontal diameter one and one-third times. The longer diameter of the eye is contained twice in the interorbital distance.

The fish is an occasional visitor to the lake, appearing in the main area during the flood and also soon after the freshets are over. It grows to four feet and more in length.[1]

Distribution.—Seas of India, coast of Malabar, larger estuaries of the Ganges, and the estuary of the Sittang river; seas of China and the Philippine Islands.

Genus **UMBRINA** Cuvier.

Umbrina indica (Kuhl and Hasselt).

1803. *Labrus sp.* (*qualar katchelee*), Russell, *Fish. Vizag.* II, p. 13, pl. cxviii.
1824. *Sciaena indica*, Kuhl and Hasselt, *Bull. Sci. Nat.* (Ferussac), II, pp. 374 and 377.
1830. *Umbrina russelii*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* V, p. 178.
1830. *Sciaena indica*, *id.*, *ibid.*, p. 179.
1830. *Umbrina kuhlii*, *id.*, *ibid.*
1836. *Umbrina russelii*, Cuvier, *Règ. Anim.*, *Poiss.* p. 82.
1846. *Umbrina russelii*, Richardson, *Rep. Brit. Assoc. Adv. Sc.* (1845), p. 226.
1849. *Umbrina russelli*, Cantor, *Journ. Asiat. Soc. Bengal*, p. 1053.
1850. *Umbrina kuhlii*, Bleeker, *Verh. Batavia Gen.* XXIII (5), pp. 4, 5, 11 and 19.
1852. *Umbrina russelli*, Bleeker, *Nat. Tijdschr. Ned. Ind.* III, p. 56.
1853. *Umbrina russelli*, Jerdon, *Madras Journ. Lit. Sci.* XVII, p. 132.
1860. *Umbrina russellii*, Günther, *Cat. Fish. Brit. Mus.* II, p. 278.
1868. *Umbrina russellii*, Kner, *Reis. Novara,' Fisch.* p. 131.
1873. *Umbrina russellii*, Day, *Rep. Sea Fish and Fisher*, p. ccl.
1874. *Sciaena russelli*, Bleeker, *Verh. Akad. Amsterdam* XIV, p. 58.
1876. *Umbrina russelli*, Day, *Fish. Ind.*, p. 183, pl. xliii, fig. 4.
1889. *Umbrina russellii*, *id.*, *Faun. Brit. Ind. Fish.* II, p. 110.
1907. *Umbrina russelli*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXVI, p. 25.
1907. *Umbrina russelli*, Evermann and Seale, *ibid.*, p. 87.
1910. *Umbrina russellii*, Jenkins, *Rec. Ind. Mus.* V, p. 136.

Russell described and figured this fish from Vizagapatam under its local name as a "Labrus with a pentagonal tail." Twenty-one years later Kuhl and van Hasselt redescribed it from a specimen obtained at Java and supplied a name under approved methods and called it *Sciaena indica*. Cuvier and Valenciennes, though acknowledging the name given by them, rechristened the species after the senior author and called it *U. kuhlii* and, thinking it a different species, invented the name *U. russellii* for Russell's species from Vizagapatam. Later writers, finding out the identity of *U. kuhlii* with Russell's species, dropped the name *U. kuhlii*, but did not restore the earlier name. Moreover they copied the inadmissible name with its incorrect spelling. The law of priority demands that the name given by Kuhl and van Hasselt should be restored.

[1] "This is a very beautiful fish, found in the larger estuaries of the Ganges. I saw only one specimen, which was four feet in length; but it is said to grow considerably larger." *Fish. Ganges*, p. 79.

There are altogether eight specimens in the collection. In all the specimens the second ray of the ventral fin ends in a prolonged filamentous extension, similar to that shown in Russell's figure though not mentioned by later authors. The upper ridges over the eyes are black in all the specimens ; the upper two-thirds of the anterior dorsal fin is black or ashy brown in many and in some the membrane joining the spines is covered with minute dark brown spots, the other fins having yellow spots ; a faint black blotch is noticed on the opercle of almost all the specimens.

The following list shows the different localities in the lake from which the specimens were obtained and their number and size :—

			mm.
1 specimen	Barkul	13th November, 1912	135
1 ,,	Barkul Bay	1st March, 1914	86
2 specimens	Chiriya Island	18th February, 1914	78
1 specimen	Between Maludaikuda and Kalidai	21st September, 1914	53
1 ,,	Samal Island	22nd September, 1913	63
2 specimens	Channel between Satpara and Barnikuda	4th September, 1914	55 & 58

The fish appears to be common in the main area and in the outer channel from September to March, the young ones being found in the outer channel after the floods are over. In all probability the fish is a permanent inhabitant of the lake, breeding in the outer channel. Some of the specimens grunted loudly on being removed from the water.

Distribution.—Seas of India, Bay of Bengal, coasts of Ceylon, Penang, Malay Archipelago, seas of China (Canton) and coasts of the Philippine Islands.

Family GERRIDAE.

Genus **GERRES,**[1] Quoy and Gaimard.

Gerres öyena (Forskål).

1775. *Labrus öyena*, Forskål, *Descr. Anim.*, p. 35.
1788. *Labrus öyena*, Linnaeus and Gmelin, *Syst. Natur.*, (Ed. 13th), I, p. 1287.
1802. *Labrus öyena*, Lacépède, *Hist. Nat. Poiss.* III, p. 463.
1802. *Labrus longirostris, id., ibid.*, p. 468, pl. xix, fig. 1.
1802. *Sparus britannus, id., ibid.*, IV, pp. 132 and 134.
1827. *Smaris öyena*, Rüppell, *Atl. Reis. Nord. Afrika*, p. 11, pl. iii, fig. 2.
1829. *Gerres öyena*, Cuvier, *Règ. Anim., Poiss.* (2nd Edit.), p. 104.

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[1] In 1824 the authors (*viz.*, Quoy and Gaimard) published the "*Voyage autour du Monde*" shortly before the second edition of the *Règne Animal.* In this publication (p. 293) they adopted the genus *Gerres* from Cuvier's manuscript. In 1829 in the second edition of *Règ. Anim.* Cuvier established the genus based on seven species, including *G. öyena.* In 1850, thinking *Gerres* pre-occupied by *Gerris* Fabricius—a genus of Hemiptera (1794), Cantor proposed *Catochaenum* in its place. *Gerres*, being spelled differently from *Gerris*, is not pre-occupied (See *Proc. California Acad. Sci.* (2) V, p. 470.) It should be noted here that the new name *Xystaema* created by Jordan for some species of *Gerres* has been withdrawn by the author (*The Genera of Fishes*, p. 118). Jordan further points out that *Gerres* and *Gerris* are words from different roots. *Podager* proposed as a substitute for *Gerres* [*Natur. Thier. Schul.*, p. ix] is pre-occupied in birds and thus could not replace *Gerres.* [*Proc. Acad. Nat. Sci. Philadelphia*, LXX p. 338 (1918)].

1830. *Gerres ōyena*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* VI, p. 355.
1836. *Gerres ōyena*, Cuvier, *Règ. Anim., Poiss.* p. 104.
1845. *Gerres ōyena*, Bleeker, *Nat. Geneesk. Arch. Ned. Ind.* II, p. 521.
1850. *Gerres ōyena*, *id.*, *Verh. Batav. Gen.* XXIII, p. 12.
1859. *Gerres ōyena*, Günther, *Cat. Brit. Mus. Fish.* IV, p. 261.
1863. *Diapterus ōyena*, Bleeker, *Ned. Tijdschr. Dierk.* 1, p. 232.
1866. *Gerres ōyena*, Günther, *Fish. Zanzibar*, p. 111.
1875. *Gerres ōyena*, Day, *Fish. India*, p. 99, pl. xxv, fig. 4.
1877. *Diapterus ōyena*, Bleeker, *Atl. Ichthyol.* VIII, p. 129.
1884. *Gerres ōyena*, Klunzinger, *Synops. Fisch. Roth.-Meer*, p. 49.
1889. *Gerres ōyena*, Day, *Faun. Brit. Ind. Fish.* I, p. 538.
1890. *Gerres ōyena*, Thurston, *Notes Pearl Fish. and Marine Faun. Manaar*, p. 91.
1907. *Xystaema ōyena*, Smith and Pope, *Proc. U. S. Nat. Mus.* XXXI, p. 478.
1908. *Xystaema ōyena*, Seale and Bean, *ibid.*, XXXIII, p. 244.
1913. *Gerres ōeyena*, Weber, *'Siboga'-Exped. Fisch.*, p. 273.
1913. *Gerres ōeyena*, Sewell, *Journ. Asiat. Soc. Bengal* (n. s.) IX, p. 344.

Most of the later authors from Cuvier down to Day and Smith have included under the synonymy of this fish, *Gerres equula* of Temminck and Schlegel,[1] which is a distinct Japanese species.[2] *G. equula* is, however, identical with *G. erythroarum* (Bloch).[3] It was first described from Japanese specimens. Both these names therefore have been excluded from the list of synonymy though they are found included in many of the previous lists.

There are altogether three specimens, more or less damaged, measuring in length 76 mm., 77 mm. and 85 mm. without the caudal fin. They were all obtained at Satpara on the 10th October, 1914.

In all probability the fish is not a permanent inhabitant of the lake, but is a casual visitor to the outer channel after floods.

Distribution.—East coast of Africa, Red Sea, seas of India, Malay Archipelago. the Philippines; the Fiji Islands and Japan.

Gerres setifer (Hamilton Buchanan).

1822. *Chanda (?) setifer*, Hamilton Buchanan, *Fish. Ganges*, pp. 105 and 370.
1830. *Gerres lucidus*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* VI, p. 477.
1849. *Catochaenum lucidum*, Cantor, *Journ. Asiat. Soc. Bengal*, p. 1038.
1853. *Gerres lucidus*, Bleeker, *Verh. Batav. Genoot.*, XXV, p. 40.
1862. *Gerres altipinis* Günther, *Cat. Fish. Brit. Mus.* IV, p. 258.
1867. *Gerres lucidus*, Jouan, *Mém. Soc. Imp. Sci. Nat. Cherbourg* XIII, p. 263.
1875. *Gerres setifer*, Day, *Fish. Ind.* p. 97, pl. xxv, fig. 1.
1875. *Gerres lucidus*, *id.*, *ibid.*, p. 99, pl. xxv, fig. 5.
1889. *Gerres setifer*, *id.*, *Faun. Brit. Ind. Fish.* I, p. 536.
1889. *Gerres setifer*, *id.*, *ibid.*, p. 539.
1910. *Gerres lucidus*, Jenkins, *Rec. Ind. Mus.* V, pp. 131 and 135.
1913. *Gerres lucidus*, Sewell, *Journ. Asiat. Soc. Bengal* (n. s.) IX, p. 344.

[1] Temminck and Schlegel, *Faun. Japon. Poiss.*, p. 76, pl. xl, fig. 1.
[2] Jordan, Tanaka and Snyder, *Journ. Coll. Sci. Imp. Univ. Tokyo* XXXIII, p. 177, fig. 129.
[3] Bloch, *Ichthyologie* VIII, p. 23, pl. cclxi.

Hamilton Buchanan found this fish in the estuaries of the Ganges and had a drawing made of it which is still preserved in the volume of manuscript drawings (Plate lxvi) in the library of the Asiatic Society of Bengal.[1] The name *Katchanda* is written on the page both in Bengali and Roman characters. This is the local name for the fish. In the absence of the type specimen this manuscript plate becomes the protograph. Hamilton Buchanan doubted the propriety of including it under the genus *Chanda* and suggested its removal to the genus *Coius*. In the drawing also, the number of spines in the dorsal fin is ten and that of rays only nine. *Gerres lucidus* of Cuvier and Valenciennes is described from specimens received from Pondicherry having nine spines and ten divided rays. Günther considers *G. lucidus* as a doubtful species and does not recognise *G. setifer* at all. He, however, described this fish as a new species under the name of *G. altipinnis*, from a specimen from the Ganges, which perhaps was Hamilton Buchanan's type as it was out of a collection presented by G. R. Waterhouse which is suspected to contain some of Hamilton Buchanan's types. Day has admitted both the names *G. setifer* and *G. lucidus* though he was strongly of opinion that they referred to the same species. Jordan[2] on the other hand proposed a new genus, which he styled *Gerreomorpha*, for specimens with ten instead of nine dorsal spines (*viz.*, *G. japonica* and *G. setifer*). Though in other respects quite similar, some of the specimens in the present collection have ten and others nine spines. This is, therefore, a variable character in the species.

There are altogether one hundred and twenty-two specimens in the collection, all obtained during the months of February and March. The species is found during this restricted period throughout the main area as well as in the outer channel of the lake. The following statement shows the different localities whence the specimens were obtained and their number and size :—

			mm.
1 specimen	Off Barkuda Island	17th February, 1914	56
2 specimens	Off Barkul ...	1st March, 1914	39 and 44
17 „	Barkul Bay ...	1st March, 1914	32—54
10 „	Chilka lake ...	...	49—98
60 „	Chirriya Island towards Samal Island	17-18th February, 1914	28—56
7 „	Off Kalidai ...	1st March, 1914	31—43
1 specimen	Between Kalidai and Samal Island	20th February, 1914	36
6 specimens	Off Patsahanipur	3-9th March, 1914	18—55
8 „	From Sankuda towards Samal Island	17th February, 1914	26—43
7 „	Rambha Bay	February, 1914	45—74
1 specimen	„ „	March, 1914	45
2 specimens	Satpara ...	7th March, 1914	33—60

The species appears to be a dry-weather visitor to the lake and does not breed in it. It is said to be the most common Indian species, visiting the coasts in enormous numbers and going up the estuaries.

[1] Chaudhuri, *Mem. Ind. Mus.* V, p. 444.

[2] Jordan, The Gerrid fishes of Japan. *Proc. U. S. Nat. Mus.* XXXIII, p. 247 (1908).

Distribution.—Seas and coasts of India including estuaries, the Malay Archipelago and China.

Gerres punctatus, Cuvier and Valenciennes.

1803. *Zeus* sp. (*wodawahah*), Russell, *Fish. Vizag.* I. p. 52. pl. lxvii.
1803. *Zeus* sp. (*woodan*), *id., ibid.*, p. 53, pl. lxviii.
1830. *Gerres punctatus*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* VI. p. 480.
1830. *Gerres filamentosus, id., ibid.*, p. 482.
1849. *Catochaenum filamentosum*, Cantor, *Journ. Asiat. Soc. Bengal*, p. 1038.
1850. *Gerres filamentosus*, Bleeker, *Verh. Batav. Gen.* XXIII, p. 10.
1853. *Gerres filamentosus, id., ibid.*, XXV p. 40.
1853. *Gerres punctatus, id., ibid.*
1859. *Gerres filamentosus*, Günther, *Cat. Fish. Brit. Mus.* I, p. 345.
1859. *Gerres punctatus, id., ibid.*, p. 346.
1862. *Gerres punctatus, id., ibid.*, IV, p. 260.
1862. *Gerres filamentosus, id., ibid.*, p. 261.
1863. *Diapterus filamentosus*, Bleeker, *Ned. Tijd. Dierk.* I, p. 231.
1867. *Gerres filamentosus*, Jouan, *Mém. Soc. Imp. Sci. Nat. Cherbourg* XIII (Ser. 20), p. 263.
1873. *Diapterus punctatus*, Bleeker, *Ned. Tijds., Dierk.* IV, p. 140.
1875. *Gerres filamentosus*, Day, *Fish. Ind.*, p. 98, pl. xxv, fig. 3.
1877. *Diapterus filamentosus*, Bleeker, *Atl. Ichthyol.* VIII, p. 124, pl. ccclxii, fig. 31.
1889. *Gerres filamentosus*, Day, *Faun. Brit. Ind.* I, p. 98, fig. 163.
1903. *Xystaema filamentosus*, Jordan and Evermann, *Proc. U. S. Nat. Mus.* XXV, p. 352.
1904. *Gerres filamentosus*, Fowler, *Journ. Acad. Nat. Sci., Philadelphia* (2) XII, p. 530.
1905. *Xystaema filamentosum*, Jordan, *Stud. Fish.* II, p. 348.
1905. *Xystaema punctatum*, Jordan and Seale, *Proc. U. S. Nat. Mus.* XXVIII, p. 782.
1906. *Xystaema punctatum, id., Bull. U. S. Bur. Fish.* XXV, p. 272.
1907. *Xystaema punctatum*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXVI, p. 24.
1908. *Xystaema punctatum*, Seale and Bean, *Proc. U. S. Nat. Mus.* XXXIII, p. 244.
1911. *Xystaema punctatum*, Jordan and Richardson, *Mem. Carnegie Mus.* IV, p. 190.
1912. *Gerres filamentosus*, Snyder, *Proc. U. S. Nat. Mus.* XLII, p. 501.
1913. *Gerres filamentosus*, Weber, *'Siboga'-Exped. Fisch.*, p. 271.
1913. *Gerres filamentosus*, Gilchrist and Thompson, *Ann. S. Afric. Mus.* XI, p. 33.
1917. *Gerres filamentosus*, Hornell, *Madras Fish. Bull.* XI, p. 93.

G. punctatus is evidently the same as *G. filamentosus* (the depth, $3\frac{1}{2}$ in the total length with caudal, in *G. punctatus* is true of the very young stage only till $2\frac{1}{2}$ inches long—in the adult it is 3 or a little less). The name *punctatus* appears in the same work as *filamentosus*, but, being on an earlier page, has priority.[1]

There is only one specimen in the collection, 76 mm. in length, caught near Satpara in October, 1914. The dorsum is brown and the fins are dull yellow (in spirit) and the snout is not black. The specimen possesses an adipose eye-lid.

The species is only a casual visitor to the lake, and does not proceed further inwards than the outer channel.

[1] Jordan and Seale, *Bull. U. S. Bur. Fisher.* XXV, p. 272.

Distribution.—Red Sea, seas of India, Malay Archipelago, Indo-Australian Archipelago, China, Philippines and Formosa.

Genus **LEIOGNATHUS,** Lacépède.

Leiognathus equulus (Forskål).

1758. *Scomber flavescens latitudine ad longitudinem dimidea denticulis piliformibus*, Artedi, ***Descrip.*** *Exac. Princ. Curios. Natur. Cab. Seba*, III, p. 75, pl. xxvii, fig. 4.
1775. *Scomber equula*, Forskål, *Descrip. Anim. Pisc.* p. 58.
1785. *Scomber edentulus*, Bloch, *Allgem. Natur. Fisch.*, pl. ccccxxviii.
1788. *Centrogaster equula*, Linnaeus and Gmelin, *Syst. Natur.* (Ed. xiii), I, p. 1337.
1801. *Scomber edentulus*, Bloch and Schneider, *Syst. Ichthyol.* p. 36.
1802. *Caeses equulus*, Lacépède, *Hist. Natur. Poiss.* III, pp. 85, 90.
1803. *Leiognathus argenteus*, *id.*, *ibid.*, IV, pp. 448 and 449.
1803. *Zeus* sp. (*tottal karah*), Russell, *Fish. Vizagapatam*, I, p. 49. pl. lxii.
1804. *Scomber equula*, Shaw, *Gener. Zool.* IV, p. 596.
1835. *Equula ensifera*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* X, p. 66.
1835. *Equula caballa*, *id.*, *ibid.*, p. 73.
1836. *Equula ensifera*, Cuvier, *Règ. Anim., Poiss.*, p. 139.
1836. *Equula totta*, *id.*, *ibid.*
1838. *Equula caballa*, Rüppell, *Neu. Wirbel. Faun. Abyssinien Gehör. Fisch.* (*Roth.-Meer*), pp. 51 and 52.
1848. *Equula serrulifera*, Richardson, *Zool. Voy. 'Erebus' and 'Terror'* II, *Ichthyol.* p. 137, pl. lix, figs. 12 to 14.
1849. *Equula caballa*, Cantor, *Journ. Asiat. Soc. Bengal*, p. 1128.
1851. *Equula caballa*, Jerdon, *Madras Journ. Lit. Sci.*, p. 138.
1852. *Equula ensifera*, Bleeker, *Verh. Bat. Gen.* XXIV, p. 8.
1860. *Equula edentula*, Günther, *Cat. Fish. Brit. Mus.* II, p. 498.
1860. *Equula caballa*, *id.*, *ibid.*, p. 499.
1863. *Leiognathus edentulus*, Bleeker, *Ned. Tijdsch. Dierk.* I, p. 235.
1865. *Leiognathus edentulus*, *id.*, *ibid.*, II, p. 148.
1865. *Equula ensifera*, Kner, *Reis. Novara,' Fisch.*, p. 166.
1865. *Equula edentula*, Day, *Fish. Malabar*, p. 103.
1866. *Equula edentula*, Playfair, *Fish. Zanzibar*, p. 65.
1869. *Equula ruconius*, Day (not Hamilton Buchanan), *Proc. Zool. Soc. London*, p. 302.
1871. *Equula caballa*, Klunzinger, *Verh. Zool.-Bot. Ges. Wien*, p. 467.
1871. *Equula edentula*, *id.*, *ibid.*
1873. *Leiognathus edentulus*, Bleeker, *Versl. Akad. Amsterdam* (2) VII, p. 37.
1875. *Leiognathus edentulus*, *id.*, *Poiss. Madagascar et Réunion*, p. 98.
1876. *Equula edentula*, Day, *Fish. Ind.*, p. 238, pl. lii, fig. 1.
1879. *Leiognathus edentulus*, *Verh. Akad. Amsterdam* XVIII, p. 18.
1885. *Equula edentula*, Vinciguerra, *Ann. Mus. Civ. Stor. Nat. Genova* (2) II, XXII, p. 88.
1889. *Equula edentula*, Day, *Faun. Brit. India, Fish.* II, p. 186, fig. 65.
1890. *Equula edentula*, Vinciguerra, *Ann. Mus. Civ. Stor. Nat. Genova* (2) IX, p. 171.
1903. *Leiognathus edentulum*, Jordan and Evermann, *Proc. U. S. Nat. Mus.* XXV, p. 338.
1905. *Leiognathus edentulus*, Fowler, *Proc. Acad. Nat. Sci. Philadelphia* LVII, p. 510.

1906. *Leiognathus edentulus*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXV, p. 273.
1906. *Leiognathus equula*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXV, p. 273.
1907. *Leiognathus edentula*, Evermann and Seale, *Bull. U. S. Bur. Fish.* XXVI, p. 69.
1907. *Equula edentula* Lloyd, *Rec. Ind. Mus.*, I, p. 228.
1908. *Leiognathus edentulus*, Seale and Bean, *Proc. U. S. Nat. Mus.* XXXIII, p. 242.
1908. *Equula edentula*, Gilchrist and Thompson, *Ann. S. Afric. Mus.* VI, p. 188.
1911. *Leiognathus edentulum*, Jordan and Richardson, *Mem. Carnegie Mus.* IV, p. 180.
1912. *Leiognathus argentium*, Snyder, *Proc. U. S. Nat. Mus.*, XLII, p. 412.
1912. *Leiognathus edentulus*, Bean and Weed, *Proc. U. S. Nat. Mus.* XLII, p. 604.

Artedi's specific name, although the earliest, being polynomial in form is inadmissible. Cuvier created the genus *Equula*[1], taking *Centrogaster equula* of Linnaeus and Gmelin[2] (which is *Scomber equula* of Forskål) as its type and named his newly created genus, as was his wont, after the specific name of the type, at the same time supplying a new name for the already named species by dropping the old and earliest specific name. Therefore the name of the species should have been *Equula equula*, even if there were any justification for the newly created Cuvierian generic name. Cuvier's objection to "*Leiognathus*" of Lacépède was its etymological meaning, *i. e.*, "toothless." Lacépède in separating the new genus *Leiognathus* from the old genus "*Scomber*" meant to take out all those species which did not possess any conspicuous teeth.[3] Cuvier and Valenciennes contended that as the group thus taken out actually possessed teeth, though minute, the name *Leiognathus* was not only inappropriate but also ineligible and therefore must go.[4] Thus Lacépède's generic name was discarded and Cuvier, after raising the specific name of the first author (*i.e.*, Forskål) to that of a genus, substituted the specific name *caballa* for *equula* of Forskål and *ensifera* for *edentulus* of Bloch, considering these two to be two distinct species and paying no regard to the law of priority. Günther, though he remarked that he had no hesitation [5] in considering the two species as identical, recorded them under different names as distinct species. He, however, restored Bloch's name *edentulus* in place of *ensifera*, but left the Cuvierian name *caballa* for *equula* of Forskål. The argument against the earlier name *Leiognathus* is no longer considered valid, hence the generic name *Equula* is ineligible. It is regrettable that the familiar name of a well-known species must be altered.[6]

There are altogether thirteen specimens in the collection. The fish is found all over the lake, including the outer channel, throughout the year. It is a permanent inhabitant, probably breeding in the lake during the flood-season.

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[1] Cuvier, *Règ. Anim.* (Ed. I), II, p. 323 (1817).

[2] Linnaeus and Gmelin, *Sys. Nat.* III, p. 1337 (1788).

[3] Lacépède, *Hist. Nat. Poiss.* IV, 449.

[4] Cuvier and Valenciennes, *Hist. Nat. Poiss.* X, pp. 60, 61, and 67.

[5] Günther, *Cat. Fish. Brit. Mus.* II, p. 499.

[6] Houttuyn in 1782 reported "*Centrogaster argentatus*" from Nagasaki. (*Verh. Hollandsche Maatsch. Weelen. Haarlem* XX, pp. 311—346). As Houttuyn's descriptions represent the earliest record of Japanese fishes his names must have precedence over all others when his descriptions can be identified. Jordan and Snyder in their "List of Japanese Fishes" point out that it is identical with *Equula nuchale* of Temminck and Schlegel (*Faun. Japonica, Poiss.*, p. 126, pl. lxvii, fig. i), which is one of the commonest of Japanese fishes; but the name should be *Leiognathus argentatum* (*Proc. U. S. Nat. Mus.* XXIII (1901), p. 747) and the name should be restricted to Japanese species. Forskål's name is applicable to the species from the Rea Sea and the Seas of India.

The following statement shows the different localities in the lake whence the specimens were obtained, and their number and size :—

				mm.
2 specimens	Off Barkul ...	9-13th November, 1912	...	25 and 41
2 ,,	Barkul Bay ...	1st March, 1914	...	37 and 38
1 specimen	East of Barkul bungalow ...	3rd March, 1914	...	28
2 specimens	Chirriya Island	18th February, 1914	...	30 and 32
2 ,,	Rambha Bay	February, 1914	...	50 and 54
2 ,,	,, ,,	March, 1914	...	47 and 52
2 ,,	Satpara ...	10th October, 1914	...	51 and 54

Distribution.—Red Sea, seas of India, Malay Archipelago, Australian coasts, New Guinea, Formosa and Japan.

Leiognathus blochii (Cuvier and Valenciennes).

1835. *Equula blochii*, Cuvier and Valenciennes, *Hist. Nat. Poiss.* X, p. 84.
1835. *Zeus notatus, id., ibid.*, (from ms. of Bloch).
1853. *Equula blochii* Bleeker, *Verh. Bat. Gen.* XXV, p. 46.
1865. *Equula blochii*, Day, *Fish. Malabar*, p. 105.
1876. *Equula blochii, id., Fish. India*, p. 241, pl. lii, fig. 3.
1889. *Equula blochii, id., Faun. Brit. India Fish.* II, p. 189.

Bloch named this fish *Zeus notatus* from specimens sent to him from Tranquebar. This name, however, remained in manuscript until it was noticed by Cuvier and Valenciennes [1] who identified Bloch's species with specimens from Malabar. But Cuvier and Valenciennes renamed it, as was usual with them, out of respect for the author who first named the species. Cuvier and Valenciennes were the first to publish Bloch's name along with the new name they substituted for it. Bloch only named the species but did not describe it ; moreover, Bloch's name in its first publication is printed after the name given by Cuvier and Valenciennes. Günther recorded it as a doubtful species,[2] but it is generally regarded to be a valid one and is believed to be restricted to Indian waters. The name given to it by Cuvier and Valenciennes must stand though it is regrettable that Bloch's original name was not adopted.

There are altogether seven specimens in the collection. This fish appears to be a permanent resident in the lake and is found throughout the main area as well as in the outer channel during the dry months.

The following statement shows the different localities where the specimens were obtained and their number and size :—

				mm.
3 specimens	Barkul Bay ...	1st March, 1914	...	35, 40 & 41
1 specimen	Between Kalidai and Samal Island ...	20th February, 1914	...	32
1 ,,	South of Kalidai	21st February, 1914	...	26
1 ,,	Kaluparaghat ...	...	...	49
1 ,,	Satpara ...	March, 1914	...	57

Distribution.—Seas of India.

[1] Cuvier and Valenciennes, *Hist. Nat. Poiss.* X, p. 84.
[2] Günther, *Cat. Fish. Brit. Mus.* II, p. 498.

Genus **GAZZA,** Rüppell.

Gazza minuta (Bloch).

1788. ***Zeus argentarius***, Forster, *Descrip. Animal. Mar. Australis* (ms.)
1795. ***Scomber minutus***, Bloch, *Natur. Ausl. Fische*, pl. cccexxix, fig. 2.
1801. ***Zeus argentarius***, Bloch and Schneider, *Syst. Ichthyol.* I, p. 95.
1803. ***Zeus*** sp. (***komah karah***), Russell, *Fish Vizagapatam* I, p. 60. pl. lxiii.
1835. ***Equula coma***, Cuvier and Valenciennes, *Hist. Nat. Poiss.* X, p. 76.
1835. ***Equula minuta***, *id.*, *ibid.*, p. 88.
1835. ***Equula dentex***, *id.*, *ibid.*, p. 91.
1835. ***Gazza equulaeformis***, Rüppell, *Neu.-Wirbelth. Fische*, p. 4, pl. i, fig. 3.
1844. ***Zeus argentarius***, Forster and Lichtenstein, *Descr. Anim.*, p. 288.
1845. ***Gazza equulaeformis***, Bleeker, *Nat. Geneesk. Arch. Ned. India* II, p. 518.
1849. ***Gazza equulaeformis***, Cantor, *Journ. Asiat. Soc. Bengal*, p. 1135.
1851. ***Gazza minuta***, Bleeker, *Nat. Tijdsch. Ned. India* II, p. 213.
1851. ***Equula coma***, Jerdon, *Madras Journ. Lit. Sci.*, p. 138.
1851. ***Equula minuta***, *id.*, *ibid.*
1853. ***Gazza tapeinosoma***, Bleeker, *Nat. Tijdschr. Ned. India* IV, p. 260.
1860. ***Gazza minuta***, Günther, *Cat. Fish. Brit. Mus.* II, p. 506.
1860. ***Gazza equulaeformis***, *id.*, *ibid.*
1860. ***Gazza argentaria***, *id.*, *ibid.*
1863. ***Gazza argentarius***, Bleeker, *Ned. Tijdschr. Dierk.* I, p. 242.
1865. ***Equula dentex***, Kner, *Reis. 'Novara,' Fisch.*, p. 170.
1866. ***Gazza equulaeformis***, Playfair, *Fish. Zanzibar*, p. 65.
1871. ***Gazza argentaria***, Klunzinger, *Verh. Zool.-Bot. Ges. Wien* XXI, p. 467.
1871. ***Gazza equulaeformis***, *id.*, *ibid.*, p. 468.
1876. ***Gazza minuta***, Day, *Fish. India*, p. 244, pl. liii, fig. 1.
1876. ***Gazza aequulaeformis***, *id.*, *ibid.*
1881. ***Gazza equulaeformis***, Günther, *Journ. Mus. Godeff.* IV, p. 144.
1881. ***Gazza argentaria***, *id.*, *ibid.*, p. 144. pl. xci, fig. B.
1888. ***Gazza argentaria***, Day, *Fish. Ind. Suppl.*, p. 790.
1889. ***Gazza minuta***, *id.*, *Faun. Brit. India, Fish.*, p. 194, fig. 66.
1889. ***Gazza equulaeformis***, *id.*, *ibid.*
1889. ***Gazza argentaria***, *id.*, *ibid.*, p. 195.
1903. ***Gazza equulaeformis***, Jordan and Evermann, *Proc. U. S. Nat. Mus.* XXV, p. 338.
1905. ***Gazza minuta***, Jordan and Seale, *Proc. U. S. Nat. Mus.* XXVIII, p. 777.
1905. ***Gazza minuta***, *id.*, *Bull. U. S. Bur. Fisher.* XXV, p. 273.
1905. ***Gazza argentaria***, *id.*, *ibid.*
1905. ***Gazza equulaeformis***, *id.*, *ibid.*
1905. ***Gazza minuta***, Jordan, *Guid. Stud. Fish.* II, 287.
1907. ***Gazza minuta***, Smith and Seale, *Proc. Biol. Soc. Washington*, XIX, p. 77.
1911. ***Gazza equulaeformis***, Jordan and Richardson, *Mem. Carnegie Mus.* IV, p. 181.
1912. ***Gazza minuta***, Bean and Weed, *Proc. U. S. Nat. Mus.* XLII, p. 604.
1913. ***Gazza argentaria***, Weber, *'Siboga'-Exped. Fisch.*, p. 270.
1917. ***Gazza minuta***, Jordan and Starks, *Ann. Carnegie Mus.* XI, p. 444.
1917. ***Gazza equulaeformis***, Hornell, *Madras Fish. Bull.* XI, p. 92.

Weber sinks *G. minuta*, *G. equulaeformis* and *G. tapeinosoma*, in the synonymy of *G. argentaria*, J. R. Forster (1729–1798), described by him in his *Descriptiones Animalium*. But this work remained in manuscript till 1844 in which year it was published by Lichtenstein. In 1801, Schneider published Bloch's *Ichthyology*, in which Forster's name, *Zeus argentarius*, was first published with his description. Thus the name "*Scomber minuta*" was the earliest, being published in 1795, and has therefore priority.

There is only one specimen in the collection 69 mm. in length. It was secured near Nalbano on 25th November, 1914. Probably the fish is only a casual visitor to the lake.

Distribution.—Zanzibar, Red Sea, East Indian seas, Malay Archipelago, Indo-Australian Archipelago, Polynesia (Samoa), New Hebrides and the Philippines.

Family SCORPIDIDAE.

Genus **MONODACTYLUS** Lacépède.

Monodactylus argenteus (Linnaeus).

1754. *Chaetodon argenteus*, Linnaeus, *Chinens. Lagerstorm. Amoen. Acad.* IV, p. 249, No. 26.
1758. *Chaetodon argenteus*, *id.*, *Syst. Natur. Ed.* X, p. 272.
1775. *Scomber rhombeus*, Forskål, *Descrip. Animal. Pisc.*, p. 58.
1788. *Chaetodon argenteus*, Linnaeus, *Syst. Natur.* (*Gmelin*), I, p. 1242.
1788. *Centrogaster rhombeus*, *id.*, *ibid.*, p. 1338.
1800. *Monodactylus falciformis*, Lacépède, *Hist. Nat. Poiss.* II, pl. V, fig. 4.
1801. *Chaetodon argenteus*, Bloch and Schneider, *Syst. Ichthyol.*, p. 230.
1802. *Monodactylus falciformis*, Lacépède, *Hist. Natur. Poiss.* III, pp. 131 and 132.
1802. *Centropodus rhombeus*, *id.*, *ibid.*, pp. 303 and 304.
1802. *Acanthopodus argenteus*, *id.*, *ibid.*, pp. 558 and 559.
1803. *Zeus* sp. (*kanki sandwa*), Russell, *Fish. Vizagapatam* I, p. 47, pl. lix.
1803. *Scomber rhombeus*, Shaw, *Gen. Zool.* IV, p. 595.
1830. *Centropodus rhombeus*, Desmarest, *Oeuv. Lacép.* VIII, p. 132.
1831. *Psettus rhombeus*, Cuvier and Valenciennes, *Hist. Natur. Poiss.* VII, p. 245.
1831. *Psettus commersonii*, *id.*, *ibid.*, p. 250.
1834. *Psettus rhombeus*, Cuvier, *Règ. Anim., Poiss.*, p. 111, pl. xlii, fig. 2.
1834. *Monodactylus rhombeus*, Griffith, *Cuv. Anim. K ngdom* X, pl. lv, fig. 2.
1839. *Monodactylus rhombeus*, Swainson, *Nat. Hist. Fish. Amphib. Rep.* II, p. 212.
1846. *Psettus argenteus*, Richardson, *Rep. Brit. Assoc· Adv. Sci.* (1845), p. 246.
1848. *Psettus argenteus*, *id.*, *Zool. Voy. 'Erebus' and 'Terror,' Fish.*, p. 57, pl. xxxv, figs. 1-3.
1849. *Monodactylus rhombeus*, Cantor, *Journ. Asiat. Soc. Bengal*, p. 1154.
1853. *Psettus rhombeus*, Bleeker, *Verh. Batav. Genoot.* XXV, p. 40.
1855. *Psettus argenteus*, *id.*, *Verh. Akad. Amsterdam* II, p. 10.
1855. *Psettus argenteus*, Peters, *Arch. Naturgesch.* p. 247.
1860. *Psettus argenteus*, Günther, *Cat. Fish. Brit. Mus.* II, p. 487.
1860. *Psettus falciformis*, *id.*, *ibid.*, p. 488.
1863. *Monodactylus argenteus*, Bleeker, *Ned. Tijdschr. Dierk.* I, p. 242.
1865. *Psettus argenteus*, Kner, *Reis. 'Novara,' Fisch.*, p. 164.
1865. *Psettus argenteus*, Day, *Fish. Malabar*, p. 99.
1865. *Psettus falciformis*, *id.*, *ibid.*, p. 100.

1866. *Psettus argenteus*, Playfair, *Fish. Zanzibar*, p. 64.
1871. *Psettus argenteus*, Klunzinger, *Verh. Zool.-Bot. Ges. Wien* XX, p. 794.
1875. *Monodactylus argenteus*, Bleeker, *Poiss. Madagascar*, p. 65.
1876. *Psettus falciformis*, Day, *Fish India*, p. 234, pl. li A, fig. 6.
1876. *Psettus argenteus*, *id.*, *ibid.*, p. 235, pl. li B, fig. 5.
1876. *Psettus argenteus*, Günther, *Journ. Mus. Godeffroy, Fisch.*, p. 140.
1879. *Psettus argenteus*, Bleeker, *Verh. Akad. Amsterdam*, p. 18.
1880. *Psettus argenteus*, Günther, *Introd. Study Fish.*, p. 448, fig. 199.
1889. *Psettus falciformis*, Day, *Faun. Brit. India, Fish.* II, p. 180.
1889. *Psettus argenteus*, *id.*, *ibid.*, fig. 62.
1905. *Monodactylus argenteus*, Jordan, *Guide Study Fish.* II, p. 398.
1906. *Monodactylus argenteus*, Stead, *Fish. Australia*, p. 133, fig. 49.
1906. *Monodactylus argenteus*, Jordan and Seale, *Bull. U. S. Bur. Fish.* XXV, pp. 178 and 237, fig. 30.
1907. *Psettus argenteus*, Lloyd, *Rec. Ind. Mus.* I, p. 227.
1907. *Monodactylus argenteus*, Evermann and Seale, *Bull. U. S. Bur. Fish.* XXVI, p. 32.
1907. *Monodactylus argenteus*, *id.*, *ibid.*, p. 71.
1909. *Psettus argenteus*, Goodrich, *Treat. Zool. Cyclost. Fish.*, p. 432, fig. 440.
1917. *Psettus argenteus*, Hornell, *Madras Fish. Bull.* XI, p. 91.

Jordan and Fowler proposed a new family Platicidae to include the genera *Monodactylus*, *Platax* and *Psettias* (a new genus created by Jordan). This is a small group of fishes of the Asiatic seas related to the Chaetodontidae, but showing differences in the skeleton.[1] In *Monodactylus* and *Psettias* the ventral fins are rudimentary and the body is still deeper in both than in *Platax*. In *Monodactylus* it is less deep than in *Psettias* and is not deeper than long, whereas in *Psettias* it is deeper than long.[2] Commerson proposed to unite three genera of Lacépède, *viz.*, *Monodactylus*,[3] *Centropodus*[4] and *Acanthopodas*,[5] erroneously thinking that these had "no teeth in the palate," under the name of *Psettus*. The mistake is repeated by Günther[6] and Day. Commerson's description of the genus was in manuscript until it was published by Cuvier and Valenciennes in 1831.[7] Moreover, *Monodactylus* has priority, having been created by Lacépède as early as 1802.

There are three specimens in the collection, all caught off the coast of Parikud. The dates of their capture are, however, not recorded. Three specimens measure respectively 85 mm., 89 mm. and 97 mm. in length and all are evidently young as the full grown adults of this bat fish are said to reach a length from 180 mm. to 250 mm. and over. All the three specimens show the orbicular and the opercular dark-brown or black bands characteristic of the young. The disappearance of these in more mature forms and the alteration of proportion of parts consequent on growth have led to the creation of a very large number of species and even a few genera out of this one single fish, as the long list of its synonymy

[1] Jordan and Fowler, *Proc. U. S. Nat. Mus.* XXV. p. 525.
[2] Jordan and Seale, *Bull. U. S. Bur. Fish.* XXV, p. 236.
[3] Lacépède, *Hist. Nat. Poiss.* III, p. 131.
[4] *Id.*, *op. cit.*, III, p. 303.
[5] *Id.*, *op. cit.*, IV, 558.
[6] Günther, *Introd. Study Fish.*, p. 447 and *Cat. Fish. Brit. Mus.*, II, p. 486.
[7] Cuvier and Valenciennes, *Hist. Nat. Poiss.* VII, p. 240.

proves. The colour of the curved portions of the free anterior ends of the dorsal and the anal fins is dark brown in all the three specimens and that of the pectoral and the caudal fins is dull yellow. The fish is an occasional visitor to the main area of the lake and does not appear to breed in it.

Distribution.—The geographical range of this fish is very extensive; from the Red Sea through the east coast of Africa, Zanzibar and Aden to Indian seas, the Malay Peninsula, the Malay Archipelago, Polynesia (Samoa), seas of Australia and China and the Philippines. It is reported to be most common in Malabar and Coromandel during monsoon months and rather abundant in the harbour of Apia, Port Jackson and Singapore.