FAUNA OF THE CHILKA LAKE.

FISH

PART IV.

By B. L. CHAUDHURI, D.Sc. (Edin.), F.R.S.E.
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<td>733</td>
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<td>734</td>
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</tbody>
</table>
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 LOBOIDAE.

Genus COIUS Hamilton Buchanan.

Coius quadrifasciatus (Sevastianof).

1822. Coius polota, Hamilton Buchanan, Fish. Ganges, pp. 95 and 370, pl. xxxviii, fig. 2.
1853. Datnioides polota, id., ibid., V, p. 441.
1878. Datnioides polota, Day, Fish. Ind. p. 96, pl. xxiv, fig. 6.

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.

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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:

<table>
<thead>
<tr>
<th>Specimens</th>
<th>Location</th>
<th>Date</th>
<th>Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Mouth of Barkul Bay</td>
<td>18th September, 1914</td>
<td>21—37.</td>
</tr>
<tr>
<td>3</td>
<td>Off Mottapur</td>
<td>14th March, 1918</td>
<td>50—60.</td>
</tr>
<tr>
<td>1</td>
<td>Off Nalbano</td>
<td>18th September, 1914</td>
<td>22.</td>
</tr>
<tr>
<td>2</td>
<td>Rambha</td>
<td>21—31st July, 1913</td>
<td>125—175.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>1st January, 1915</td>
<td>142.</td>
</tr>
</tbody>
</table>

*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).

1822. *Coius vacti*, Hamilton Buchanan, *Fish. Ganges*, pp. 86 and 369, pl. xvi, fig. 28.
1846. *Lates calcarifer*, *id.*, *ibid*.
1923.]

Fauna of the Chilka Lake: Fish.

1876. Lates calcarifer, Day, Fish. Ind., p. 7, pl. i, fig. 1.

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 CHANDA² Hamilton Buchanan.

Chanda ambassis (Lacépède).

1801. ? Perca safgha, Bloch and Schneider, Syst. Ichthyol.

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 Pseodoambassis. 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. Seale, 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 Cotus." (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
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**

*Priopis gymnocephalus* (Lacépède).


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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:—

<table>
<thead>
<tr>
<th>Specimens</th>
<th>Location</th>
<th>Date</th>
<th>Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Off Barkul</td>
<td>18-21st September, 1914</td>
<td>39–48</td>
</tr>
<tr>
<td>16</td>
<td>Off mouth of Barkul Bay</td>
<td>18th September, 1914</td>
<td>35–5–48</td>
</tr>
<tr>
<td>1</td>
<td>Off Barkul (shore collecting)</td>
<td>13th November, 1914</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>Chirriya Island (Towards Samal Point)</td>
<td>17th February, 1914</td>
<td>16·5</td>
</tr>
<tr>
<td>1</td>
<td>Between Chirriya Island and Barkuda Island</td>
<td>17th November, 1914</td>
<td>47</td>
</tr>
<tr>
<td>3</td>
<td>Rambla Bay</td>
<td>February, 1914</td>
<td>46–51</td>
</tr>
<tr>
<td>1</td>
<td>&quot;</td>
<td>March, 1914</td>
<td>44</td>
</tr>
<tr>
<td>1</td>
<td>Satpara (shore collecting)</td>
<td>13th March, 1914</td>
<td>17·5</td>
</tr>
<tr>
<td>2</td>
<td>West of Satpara (tow netting)</td>
<td>20th March, 1914</td>
<td>10–12</td>
</tr>
<tr>
<td>1</td>
<td>Satpara</td>
<td>March, 1914</td>
<td>43</td>
</tr>
<tr>
<td>5</td>
<td>&quot;</td>
<td>12-13th September, 1914</td>
<td>38–50</td>
</tr>
<tr>
<td>3</td>
<td>&quot;</td>
<td>October, 1914</td>
<td>40–43</td>
</tr>
<tr>
<td>1</td>
<td>&quot;</td>
<td></td>
<td>40·5</td>
</tr>
</tbody>
</table>

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.

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 $10 \text{ mm.} \times 8 \text{ mm}$.

The species is only an occasional visitor in the main area of the lake.
Distributión.—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.
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.
1831. Therapon servus, id., ibid., VII, p. 479.
1865. Therapon servus, Kner, Reis. ‘Novara,’ Fisch. p. 45.
1876. Therapon jarbua, Day, Fish. Ind. p. 69, pl. xviii, fig. 4.

1 Therapon, Cuvier, Reg. Anim. Ed. I (1817), p. 295, was a misprint for Therapon and was subsequently corrected in a later edition. Djabub, Forskal, Desc. Anim. (1775), p. 44, though an earlier generic name, is held not eligible.
Hamilton Buchanan has left an excellent figure of this fish in the plate No. 67 of the volume of his manuscript drawings; 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. 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.


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2 Gray, *Illustrations of Indian Zoology from the collection of Major-General Hardwicke*, II, pl. lxxxviii, fig. 1.
1928. *Therapon puta*, *id.*, *Fish. Ind.*, p. 68, pl. xviii, fig. 3.


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.

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Location</th>
<th>Date</th>
<th>Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 specimens</td>
<td>Off Barnikuda</td>
<td>6th September, 1914</td>
<td>54-62</td>
</tr>
<tr>
<td>1 specimen</td>
<td>Cherriakuda towards Samal Point</td>
<td>17th February, 1914</td>
<td>58</td>
</tr>
<tr>
<td>8 specimens</td>
<td>Mahosa (Barhampur Island)</td>
<td>18th March, 1914</td>
<td>26-20</td>
</tr>
<tr>
<td>1 specimen</td>
<td>Rambha Bay</td>
<td>February, 1914</td>
<td>74</td>
</tr>
<tr>
<td>1 specimen</td>
<td>Between Samal Island and mainland</td>
<td>September, 1913</td>
<td>32</td>
</tr>
<tr>
<td>1 specimen</td>
<td>Satpara</td>
<td></td>
<td>77</td>
</tr>
<tr>
<td>7 specimens</td>
<td></td>
<td>March, 1914</td>
<td>68-87</td>
</tr>
<tr>
<td>7 specimens</td>
<td>Satpara Bay</td>
<td>13th March, 1914</td>
<td>15-25</td>
</tr>
<tr>
<td>3 specimens</td>
<td></td>
<td>17th March, 1914</td>
<td>17, 18 &amp; 21</td>
</tr>
<tr>
<td>1 specimen</td>
<td>South side of Satpara Island</td>
<td>13th March, 1914</td>
<td>14</td>
</tr>
<tr>
<td>2 specimens</td>
<td>West of Satpara</td>
<td>20th March, 1914</td>
<td>15 &amp; 17</td>
</tr>
<tr>
<td>1 specimen</td>
<td>Seruanaddi</td>
<td>8th September, 1914</td>
<td>60</td>
</tr>
<tr>
<td>1 specimen</td>
<td>From Seruanaddi going towards Barnikuda</td>
<td>4th September, 1914</td>
<td>67</td>
</tr>
</tbody>
</table>

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** (Forškål).


1801. Sciaena malabarica, id., ibid., p. 18, pl. xix.
1829. Sillago erythroea, id., ibid., p. 409.
1866. Sillago sihama, Playfair, Fish. Zanzibar, p. 69.
1876. Sillago sihama, Day, Fish. Ind., p. 265, pl. lviii, fig. 3.
1907. Sillago sihama, id., ibid., XXVI, p. 25.
1913. Sillago sihama, Tanaka, Fig. Descr. Fish. Japan XIV, p. 241, pl. lxviii.
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 (Forskal), 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:

<table>
<thead>
<tr>
<th>Specimens</th>
<th>Locality</th>
<th>Date</th>
<th>Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 specimens</td>
<td>Balugaon</td>
<td>21-31st July, 1913</td>
<td>112-144</td>
</tr>
<tr>
<td>2 specimens</td>
<td>Parikud</td>
<td>28th November, 1914</td>
<td>115 &amp; 160</td>
</tr>
<tr>
<td>1 specimen</td>
<td>Rambha Bay</td>
<td>February, 1914</td>
<td>135</td>
</tr>
<tr>
<td>3 specimens</td>
<td>(purchased)</td>
<td>19th November, 1914</td>
<td>107-152</td>
</tr>
<tr>
<td>7 specimens</td>
<td>Outer Bar, one mile south-west of the mouth of the lake.</td>
<td>19th March, 1914</td>
<td>25-44</td>
</tr>
</tbody>
</table>

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

\(^5\) 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. 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*, 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* 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 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. This species thus becomes the type of *Sciaena* which replaces the genera *Argyrosomus* of De La Pylaie and *Pseudosciaena* of Bleeker.

**Sciaena coibor** (Hamilton Buchanan).

1876. *Sciaena albida*, *id.*, *Fish. Ind.*, p. 188, pl. xlv, figs. 4 and 6.

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.

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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).


1830. *Umbrina kuhlii*, id., *ibid*.


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. russelii* 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:

<table>
<thead>
<tr>
<th></th>
<th>Localities</th>
<th>Date</th>
<th>Year</th>
<th>Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Barkul</td>
<td>13th November, 1912</td>
<td>135</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Barkul Bay</td>
<td>1st March, 1914</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Chiriya Island</td>
<td>18th February, 1914</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Between Maludaikuda and Kalidai</td>
<td>21st September, 1914</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Samal Island</td>
<td>22nd September, 1913</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Channel between Satpara and Barnikuda</td>
<td>4th September, 1914</td>
<td>55 &amp; 58</td>
<td></td>
</tr>
</tbody>
</table>

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.
1802. Labrus longirostris, id., ibid., p. 468, pl. xix, fig. 1.
1802. Sparus britannus, id., ibid., IV, pp. 132 and 134.

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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 Rég. 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. Schr., p. ix] is pre-occupied in birds and thus could not replace Gerres. [Proc. Acad. Nat. Sci. Philadelphia, LXX p. 338 (1918)].
1908. *Xystaema* õyena, Seale and Bean, *ibid.,* XXXIII, p. 244.

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).

1875. *Gerres* *setifer,* Day, *Fish. Ind.* p. 97, pl. xxv, fig. 1.
1875. *Gerres* *lucidus,* *id.,* *ibid.,* p. 99, pl. xxv, fig. 5.
1899. *Gerres* *setifer,* *id.,* *ibid.,* p. 539.

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\(^3\) 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 lxxvi) in the library of the Asiatic Society of Bengal. 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 photograph. 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. Gerre 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 on the other hand proposed a new genus, which he styled Gerremorpha, 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:

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Location</th>
<th>Date</th>
<th>Number</th>
<th>Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 specimen</td>
<td>Off Barkuda Island</td>
<td>17th February, 1914</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>2 specimens</td>
<td>Off Barkul</td>
<td>1st March, 1914</td>
<td></td>
<td>39 and 44</td>
</tr>
<tr>
<td>17</td>
<td>Barkul Bay</td>
<td>1st March, 1914</td>
<td></td>
<td>32—54</td>
</tr>
<tr>
<td>10</td>
<td>Chilka lake</td>
<td></td>
<td></td>
<td>49—98</td>
</tr>
<tr>
<td>60</td>
<td>Chirriya Island towards Samal Island</td>
<td>17-18th February, 1914</td>
<td>28—56</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Off Kalidai</td>
<td>1st March, 1914</td>
<td></td>
<td>31—43</td>
</tr>
<tr>
<td>1 specimen</td>
<td>Between Kalidai and Samal Island</td>
<td>20th February, 1914</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>6 specimens</td>
<td>Off Patsahanipur</td>
<td>3-9th March, 1914</td>
<td></td>
<td>18—55</td>
</tr>
<tr>
<td>8</td>
<td>From Sankuda towards Samal Island</td>
<td>17th February, 1914</td>
<td>26—43</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Rambha Bay</td>
<td>February, 1914</td>
<td></td>
<td>45—74</td>
</tr>
<tr>
<td>1 specimen</td>
<td>&quot;</td>
<td>March, 1914</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>2 specimens</td>
<td>Satpara</td>
<td>7th March, 1914</td>
<td></td>
<td>33—60</td>
</tr>
</tbody>
</table>

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.

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

Gerres punctatus, Cuvier and Valenciennes.

1803. Zeus sp. (todoreh), id., ibid., p. 53, pl. lxviii.
1830. Gerres filamentosus, id., ibid., p. 482.
1853. Gerres filamentosus, id., ibid., XXV p. 40.
1853. Gerres punctatus, id., ibid.
1859. Gerres punctatus, id., ibid., p. 346.
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.

G. punctatus is evidently the same as G. filamentosus (the depth, 3½ in the total length with caudal, in G. punctatus is true of the very young stage only till 2½ 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.

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

Genus **LEIOGNATHUS**, Lacépède.

**Leiognathus equulus** (Forskal).

1839. *Equula totta*, id., *ibid*.
1871. *Equula edentula*, id., *ibid*.

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 Gmelin² (which is *Scomber equula* of Forskal) 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., Forskal) to that of a genus, substituted the specific name *caballa* for *equula* of Forskal 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 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 Forskal. 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.

⁶ Houttuyn in 1782 reported "*Centrogaster argentatus*" from Nagasaki. (Verh. Hollandsche Maatsch. Westen. 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 ([*Fauna Japonica. Poiss.*], p. 126, pl. lxvii, fig. l), 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. Forskal's name is applicable to the species from the Red 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:

<table>
<thead>
<tr>
<th>Localities</th>
<th>Date of Collection</th>
<th>Specimens</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off barkul</td>
<td>9-13th November, 1912</td>
<td>2</td>
<td>25 &amp; 41</td>
</tr>
<tr>
<td>Barkul Bay</td>
<td>1st March, 1914</td>
<td>2</td>
<td>37 &amp; 38</td>
</tr>
<tr>
<td>East of Barkul bunglow</td>
<td>3rd March, 1914</td>
<td>1</td>
<td>28</td>
</tr>
<tr>
<td>Chirriya Island</td>
<td>18th February, 1914</td>
<td>3</td>
<td>30 &amp; 32</td>
</tr>
<tr>
<td>Rambha Bay</td>
<td>February, 1914</td>
<td>2</td>
<td>50 &amp; 54</td>
</tr>
<tr>
<td>&quot;&quot;</td>
<td>March, 1914</td>
<td>2</td>
<td>47 &amp; 52</td>
</tr>
<tr>
<td>Satpara</td>
<td>10th October, 1914</td>
<td>2</td>
<td>51 &amp; 54</td>
</tr>
</tbody>
</table>

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

**Leiognathus blochii** (Cuvier and Valenciennes).


1835. *Zeus notatus*, id., *ibid.* (from ms. of Bloch).


1876. *Equula blochii*, id., *Fish. India*, p. 241, pl. lii, fig. 3.


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 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, 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:

<table>
<thead>
<tr>
<th>Localities</th>
<th>Date of Collection</th>
<th>Specimens</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barkul Bay</td>
<td>1st March, 1914</td>
<td>3</td>
<td>35, 40 &amp; 41</td>
</tr>
<tr>
<td>Between Kalidai and Samal Island</td>
<td>20th February, 1914</td>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td>South of Kalidai</td>
<td>21st February, 1914</td>
<td>1</td>
<td>26</td>
</tr>
<tr>
<td>Kaluparaghat</td>
<td></td>
<td>1</td>
<td>49</td>
</tr>
<tr>
<td>Satpara</td>
<td>March, 1914</td>
<td>1</td>
<td>57</td>
</tr>
</tbody>
</table>

**Distribution.**—Seas of India.

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Genus GAZZA, Rüppell.

Gazza minuta (Bloch).

1803. Zeus sp. (komah karah), Russell, Fish Vizagapatam I, p. 60. pl. lxii.
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.
1851. Equula minuta, id., ibid.
1860. Gazza equulaeformis, id., ibid.
1860. Gazza argentaria, id., ibid.
1865. Equula dentex, Kner, Reis. 'Novara,' Fisch., p. 170.
1871. Gazza equulaeformis, id., ibid., p. 468.
1876. Gazza minuta, Day, Fish. India, p. 244, pl. liii, fig. 1.
1876. Gazza equulaeformis, id., ibid.
1881. Gazza argentaria, id., ibid., p. 144. pl. xci, fig. B.
1889. Gazza equulaeformis, id., ibid.
1905. Gazza argentaria, id., ibid.
1905. Gazza equulaeformis, id., ibid.
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).

1788. Centrogaster rhomboe, id., ibid., p. 1338.
1802. Centropodus rhomboe, id., ibid., pp. 303 and 304.
1802. Acanthopodus argenteus, id., ibid., pp. 558 and 559.
1831. Psettus commersonii, id., ibid., p. 250.
1834. Psettus rhomboe, Cuvier, Rég. Anim., Poiss., p. 111, pl. xlii, fig. 2.
1860. Psettus falciformis, id., ibid., p. 488.
1865. Psettus falciformis, id., ibid., p. 100.
1923. Fats'lla 01 tile Cihilka La~'e: Fish.
1866. Pseitus argenteus, Playfair, Fish. Zanzibar, p. 64.
1876. Pseitus falcoformis, Day, Fish India, p. 234, pl. li A, fig. 6.
1876. Pseitus argenteus, id., ibid., p. 235, pl. li B, fig. 5.
1880. Pseitus argenteus, Günther, Introd. Study Fish., p. 448, fig. 199.
1876. Pseitus fakifonnis, Day, Fish India, p. 234, pl. li A, fig. 6.
1876. Pseitus argenteus, id., ibid., p. 235, pl. li B, fig. 5.
1880. Pseitus argenteus, Günther, Introd. Study Fish., p. 448, fig. 199.
1876. Pseitus argenteus, id., ibid., p. 235, pl. li B, fig. 5.
1876. Pseitus argenteus, id., ibid., p. 235, pl. li B, fig. 5.
1906. Monodactylus argenteus, Stead, Fish. Australia, p. 133, fig. 49.
1907. Monodactylus argenteus, id., ibid., p. 71.

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 Centropodus4 and Acanthopodas5 erroneously thinking that these had "no teeth in the palate," under the name of Psettus. The mistake is repeated by Günther6 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

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5 Id., op. cit., IV, 558.
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.