

## GOBIOID FISHES OF INDIA.

By F. P. KOUMANS, D.Sc., *Rijksmuseum van Natuurlijke Historie, Leiden* (Holland).

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## INTRODUCTION.

The collection of the Gobioid fishes of the Indian Museum, Calcutta, was entrusted to me for study and identification, and for this I wish to express my thanks to the Director of the Zoological Survey of India and to Dr. S. L. Hora for his assistance in this matter. I am also very thankful for their kindness and help during my visit to Calcutta.

The collection is very interesting, as it contains many specimens which were collected within recent years and includes several species which previously were not known to occur in India. Since Hamilton's and Day's work on the Indian fishes, some new species were described by Alcock, Regan, Hora, Mukerji and others, but a comprehensive revision of the Gobies of India has not so far been published.

In the present paper are included the identifications of all the specimens which I found in the collection of the Indian Museum; these comprised material from Southern Asia, extending from the Persian Gulf to the Mergui Archipelago, and including the Andaman and Nicobar Islands. In addition I include in this paper an account of some of the species which I found in the Madras Museum, the Colombo Museum and the Leiden Museum. To the Directors of these institutions I am very thankful for the courtesy of allowing me to study the collections when I visited their respective institutions.

As no material of some of the previously described species has been available, I am unable to define definitely their specific limits and these have, therefore, been omitted from the present account. For all other species detailed descriptions and their known distributions are given. I have included all the known synonyms so far as possible for the various species, but have given only the more important Indian references.

For notes on the ecology and bionomics of the Gobies reference may be made to Hora's paper in *Extrait des Comptes rendus XIIe Congr. Lisbonne, 1935, 1936.*

#### SYSTEMATIC ACCOUNT.

The system of classification adopted is the same as followed by me in 'A preliminary revision of the Gobioid Fishes with united ventral fins' (1931).

#### *Synopsis of the families of Gobioidae represented in India.*

- |  |         |                       |
|--|---------|-----------------------|
| 1a. Ventral fins united, two dorsal fins, separate or connected at their bases | .. .. . | Gobiidae, p. 207.     |
| 1b. Ventral fins united, one dorsal fin, which is very elongate. Body eel-like |         | Taenioididae, p. 298. |
| 1c. Ventral fins separate  | .. .. . | Eleotridae, p. 309.   |

#### Family GOBIIDAE.

Gobioidae with united ventral fins, which are sometimes totally or posteriorly incised; basal membrane present or absent. Two dorsal fins, separate or connected at their bases; the first dorsal may be absent. Body scaled with ctenoid or cycloid scales, sometimes partly or totally naked.

#### *Synopsis of the subfamilies.*

- |   |         |                           |
|---|---------|---------------------------|
| 1a. Body oval, strongly compressed. Teeth in several rows                     |         | Gobiodontinae, p. 208.    |
| 1b. Body more elongate.   |         | 2                         |
| 2a. Teeth of lower jaw in several rows  |         | Gobiinae, p. 212.         |
| 2b. Teeth of lower jaw in one row   | ..      | 3                         |
| 3a. Second dorsal fin not elongated.  | ..      | 4                         |
| 3b. Second dorsal fin elongated. Teeth of lower jaw sub-horizontal.           |         |                           |
| Scales cycloid  | ..      | Apocrypteinae, p. 271.    |
| 4a. Eye prominent, free lower eyelid developed. Base of pectoral fin muscular | .. .. . | Periophthalminae, p. 286. |
| 4b. Eye not prominent, free eyelid wanting                                    | .. .. . | Sicydiaphiinae, p. 293.   |

Subfamily *GOBIODONTINAE*.

Body compressed, oval, head blunt, naked, mouth narrow, curved, teeth in several rows, simple. Gill openings about as long as the breadth of base of pectoral fin. Second dorsal and anal short. Ventrals united and only attached to the belly by their bases. Caudal rounded.

*Synopsis of the Indian genera.*

- 1a. Body with large scales .. *Paragobiodon*, p. 208.  
 1b. Body without scales, covered by a thick naked skin .. *Gobiodon*, p. 209.

**Paragobiodon** Bleeker.

1839. *Ruppellia* and *Rupellia*, Swainson, *Nat. Hist. Class. Amph. Rept. Fish.* II, pp. 184, 281, (preocc.).  
 1873. *Paragobiodon*, Bleeker, *Ned. Tijds. Dierk.* IV, p. 129.  
 1874. *Paragobiodon*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 309.

Body compressed, covered with 22-24 strong ctenoid scales. Head nearly globular, less than twice as high as wide, naked, covered with papillary appendices. Some open pores above on head, behind eye and along the margin of preoperculum. Nostrils in short tubes. No barbels. Mouth very oblique, jaws subequal. A band of filiform teeth in each jaw, outer row enlarged. In lower jaw 1 or 2 canines on each side of the symphysis at the inner margin of the teeth-band. Tongue rounded. Isthmus broad. Dorsal fins close together; 1st dorsal with 6 rays, 2nd dorsal I/9-10. Anal similar to 2nd dorsal. Pectorals without free rays. Caudal rounded.

**Paragobiodon echinocephalus** (Rüppel).

1828. *Gobius echinocephalus*, Rüppel, *Atl. Reise N. Afr.*, p. 136.  
 1837. *Gobius amiciensis*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 135.  
 1852. *Gobius xanthosoma*, Bleeker, *Nat. Tijds. Ned. Indie* III, p. 703.  
 1852. *Gobius melanosoma*, Bleeker, *ibid.*, p. 703.  
 1869. *Gobius gobiodon*, Day, *Proc. Zool. Soc. London*, p. 516.  
 1876. *Gobius melanosoma*, Day, *Fish. India*, p. 297, pl. lxiv, fig. 1.  
 1889. *Gobius melanosoma*, Day, *Faun. Brit. India, Fishes* II, p. 269.  
 1903. *Gobiodon waitii*, Garman, *Bull. Mus. Comp. Zool.* XXXIX, p. 234, pl. iii, fig. 3.  
 1911. *Ruppellia lacunicola*, Kendall & Goldsborough, *Mem. Mus. Comp. Zool.* XXVI, p. 318, pl. vi, fig. 1.  
 1932. *Paragobiodon kerri*, H. M. Smith, *Proc. U. S. Nat. Mus.* LXXIX, p. 42, fig. 20.

D. 1. VI; D. 2. I/9-10; A. I/8-9; P. 18-22; L. 1. 22-27; L. tr. 9-10 (11).

Body oblong, compressed, height 3 in length,  $3\frac{1}{3}$ -4 in total length. Head very obtuse, convex, 3 to more than 3 in length, 4 in total length, covered with small papillae, as long as high. Eye 3-4 in head; interorbital more than 1 eye-diameter. Snout very obtuse, shorter than eye, or as long as eye. Mouth oblique, curved. Jaws subequal. Maxillary extends to below anterior border of eye or to middle of eye. Teeth in many rows, outer row enlarged. In lower jaw on each side of symphysis an erect canine. Open pores on front, round the orbits, on opercle and 2-3 rows on preopercle. Gill openings extend to before the undermost rays of pectoral. Head naked, neck and breast naked; back naked to 2nd

or 6th ray of first dorsal. Scales of body ctenoid. Bases of dorsal fins continuous. First dorsal lower than second dorsal, obtuse, middle rays are the longest. Second dorsal obtuse, convex. Pectoral obtusely rounded, a little shorter than head, or as long as head. Ventral not shorter than postorbital part of head, basal membrane emarginate. Anal similar to second dorsal. Caudal obtuse, shorter than head.

*Colour.*—Head red-orange to yellowish, body of the same colour or darkish to black. Iris orange-greenish to violet. Fins a little darker than body.

*Length.*—35 mm.

*Habitat.*—Red Sea to the Pacific.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Nicobars	..	..	.. J. Wood-Mason.
Port Blair, Andaman Islands	..	..	.. Andaman Fisheries.
Off Colombo, Ceylon	..	..	.. Marine Survey.
Camorta Island, Nicobars, Coral Reef on Eastside	..	..	.. Marine Survey.
Coral reef, northeast of Octavia Bay, Nicobars.	..	..	.. Marine Survey.

**Gobiodon** Bleeker.

1856. *Gobiodon*, Bleeker, *Nat. Tijds. Ned. Ind.* XI, p. 407.

1873. *Elerya*, Castelnau, *Proc. Zool. Soc. Vict.* II, p. 95.

Body strongly compressed, oval, covered by a thick, granulous, slimy skin. Head compressed, much higher than wide (about twice). Tubiform pores around the margin of preoperculum ; the lower margin of preoperculum and mandible with small papillae. Mouth a little oblique, jaws subequal. Teeth in both jaws in several rows, the outer a little enlarged. In lower jaw on both sides of symphysis at the inner side of the band of teeth one or some canines. Tongue truncate to rounded. Isthmus broad. Dorsal fins close together. First dorsal with 6 rays. Second dorsal I/8-12. Anal similar to second dorsal. Ventrals short. Caudal and pectorals rounded.

*Synopsis of the Indian species.*

- 1a. D. 2. I/10-11. In lower jaw on each side 1-2 canines. D. 1. lower than D. 2., foremost ray the shortest .. .. 2
- 1b. D. 2. I/10-11. In lower jaw on each side 3-4 canines. Height of dorsal fins equal. Foremost ray of D. 1. the longest *G. citrinus*, p. 210.
- 2a. Gill opening extends below the lower rays of pectoral. Head deeper than long. Upper part of opercle with brown spot *G. erythrospilus*, p. 210.
- 2b. Gill opening does not extend below to lower rays of pectoral. Head longer than deep. Upper part of opercle without brown spot *G. quinquestrigatus*, p. 211.

**Gobiodon citrinus** (Rüppell).

1838. *Gobius citrinus*, Rüppell, *Neue Wirbelthiere Fische*, p. 139.

1856. *Gobiodon erythrophaios*, Bleeker, *Nat. Tijds. Ned. Ind.* XI, p. 409 (*ex parte*).

1875. *Gobiodon hypselopterus*, Bleeker, *Arch. neerl. sc. ex. nat.* X, p. 120.

1876. *Gobiodon citrinus*, Day, *Fish, India*, p. 298, pl. lxiv, fig. 2.

1889. *Gobiodon citrinus*, Day, *Faun. Brit. India, Fish.* II, p. 271, fig. 91.

D. 1. VI ; D. 2. I/10 ; A. I/9 ; P. 19-21.

Body oblong, compressed, height  $2\frac{1}{3}$  in length,  $3-3\frac{1}{4}$  in total length. Head obtuse,  $3-3\frac{3}{4}$  in length,  $4-4\frac{1}{2}$  in total length, as deep as long. Eye  $3-3\frac{1}{3}$  in head, interorbital less than 1 eye-diameter. Snout obtuse, shorter than eye. Mouth curved, jaws equal. Maxillary extends to below anterior half of eye. In lower jaw on each side of symphysis 3-4 canines. Gill opening does not extend below to before undermost rays of pectoral. First dorsal not lower than second dorsal about half as high as body, pointed, the foremost rays are the longest. Second dorsal obtuse. Pectoral obtuse, a little longer than head. Ventral not shorter than postorbital part of head. Caudal obtusely rounded, about as long as head.

*Colour*.—Body and fins blackish to orange. Iris violet to greenish. Upper part of opercle with black spot. Four blue transverse bands on anterior part of body. Base of second dorsal and anal with longitudinal blue band, bordered with violet or black.

*Length*.—51 mm.

*Habitat*.—Red Sea to the Pacific.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Nicobars	..	Purchased from F. Day.
Muthivaratu Paar		?
Pamban, Ramnad Dist. (From coral reefs.)	∴	S. W. Kemp.
Camorta Island, Nicobars	..	Marine Survey.

*Leiden Museum Collection.*

Nicobars	...	..	..	...	F. Day.
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**Gobiodon erythrospilus** Bleeker.

1849. *Gobius quinquestrigatus*, Bleeker (*nec* Cuvier & Valenciennes), *Verh. Bat. Gen.* XXII, p. 29.  
 1875. *Gobiodon erythrospilus*, Bleeker, *Arch. neerl. sc. ex. nat.* X, p. 122.  
 1876. *Gobiodon erythrospilus*, Day, *Fish. India*, p. 298.  
 1877. *Gobiodon verticalis*, Alleyne & Macleay, *Proc. Linn. Soc. N. S. Wales* I, p. 333.  
 1889. *Gobiodon erythrospilus*, Day, *Faun. Brit. India, Fish.* II, p. 271.  
 1893. *Gobius douglasi*, Kent, *Great Barrier Reef*, p. 310.  
 1903. *Gobiodon atrangulatus*, Garman, *Bull. Mus. Comp. Zool.* XXXIX, p. 234, pl. ii, fig. 3.  
 1927. *Gobiodon fulvus*, Herre, *Monogr. 23 Bur. Sc. Manila*, p. 292.

D. 1. VI; D. 2. I/10-11; A. I/9; P. 19-21.

Body compressed, oblong, height  $2\frac{1}{2}$  in length,  $3-3\frac{1}{3}$  in total length. Head obtuse,  $3\frac{1}{2}$  in length,  $4\frac{1}{4}-4\frac{1}{2}$  in total length, deeper than long. Eye  $4-4\frac{1}{2}$  in head, interorbital  $\frac{3}{4}-1$  eye-diameter. Snout obtuse, shorter than eye. Mouth curved, jaws subequal. Maxillary extends to below anterior half of eye. In lower jaw on each side of symphysis a canine tooth. Gill opening extends to before the undermost ray of pectoral. First dorsal much lower than second dorsal, obtuse convex, the posterior rays are the longest. Second dorsal obtuse, half as high as body. Pectoral obtuse, as long as or a little shorter than head. Ventral a little shorter than postorbital part of head. Caudal obtusely rounded, shorter than head.

*Colour.*—Yellow to orange. Iris greenish with golden margin of pupil. Head and anterior part of body with purple transverse bands. Over body 7 longitudinal rows of purple spots. Vertical fins with violet margin. Dark spot on upper part of opercle.

*Length.*—48 mm.

*Habitat.*—India to the Pacific.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Andamans	.. ..	.. F. Day.
Galle ?	..	J. Anderson.
Andamans		J. Wood-Mason.
Andamans	..	Marine Survey.
Muthivaratu Paar		?
Camorta Island, Nicobars ; Coral Reef		Marine Survey.
Port Blair, Andaman Islands	..	Andaman Fisheries.
Pamban, Ramnad Dist. (From coral reefs)		S. W. Kemp.
Porites Bay, Krusadai Is. (Among coral)		S. L. Hora.

*Madras Museum Collection.*

Pulli Reef, Krusadai Is., Gulf of Manaar	..	F. H. Gravely.
Shingle Is., Gulf of Manaar	..	F. H. Gravely.

**Gobiodon quinquestrigatus** (Cuvier & Valenciennes).

1837. *Gobius quinquestrigatus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 134.

1849. *Gobius erythrophaios*, Bleeker, *Verh. Bat. Gen.* XXII, p. 29.

1852. *Gobius ceramensis*, Bleeker, *Nat. Tijds. Ned. Ind.* III, p. 704.

1876. *Gobiodon quinquestrigatus*, Day, *Fish. India*, p. 297.

1888. *Gobiodon rivulatus*, Day, *Fish. India Suppl.*, p. 794.

1889. *Gobiodon rivulatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 270.

D. 1. VI ; D. 2. I/10 ; A. I/8-9 ; P. 17-19.

Body oblong, compressed, height  $3-3\frac{1}{2}$  in length. Head obtuse convex,  $3\frac{1}{2}$  in length,  $4-4\frac{2}{3}$  in total length, as deep as long or longer than deep. Eye 3-4 in head, interorbital  $\frac{1}{2}$ -1 eye-diameter. Snout obtuse, shorter than eye. Mouth curved, jaws subequal. Maxillary extends to below middle of eye or not so far. In lower jaw on each side of symphysis 1-2 canines. Gill opening does not extend to before the undermost ray of pectoral. First dorsal much lower than second dorsal, obtuse ; the posterior rays are the longest. Second dorsal half as high as body, obtuse. Pectoral obtuse, scarcely longer than head. Ventral shorter than postorbital part of head. Caudal obtusely rounded, shorter than head.

*Colour.*—Blackish to blackish-orange. Iris greenish with golden margin of pupil. No black spot on upper part of opercle. Fins blackish to reddish. On head and anterior part of body bluish transverse lines.

*Length.*—46 mm.

*Habitat.*—Red Sea to the Pacific.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Galle ?				J. Anderson.
Muthivaratu Paar	..	..	..	?
Lagoon reef near Sam Is., Malikudu	..	..	..	Marine Survey.
Lagoon reef east of Maradu	..	..	..	Marine Survey.
Henry Lawrence Is., Andamans	..	..	..	H. S. Rao.

*Leiden Museum Collection.*

Andamans	..	..	..	F. Day.
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Subfamily *GOBIINÆ*.

Body oblong to elongate. Head naked between and before the eyes. Teeth simple, top of teeth not incised. Teeth in upper jaw in one to several rows, in lower jaw in two to several rows. The second dorsal fin is longer than the first, which is wanting in a few genera. Ventral fins totally or almost totally united, only attached in their bases to the belly, basal membrane sometimes wanting. Gill openings moderate to wide.

*Synopsis of the Indian genera.*

1a. First ray of both dorsal fins strong and bony, preopercle armed with some teeth behind	..	..	..	<i>Oplopomus</i> , p. 214.
1b. First ray of both dorsal fins not strong and bony, preopercle unarmed	..	..	..	2
2a. Caudal fin long, pointed or lanceolate, longer than head	..	..	..	3
2b. Caudal fin short, obtuse, rounded or oblong, shorter than head	..	..	..	10
3a. Some fleshy flaps on inner edge of shoulder girdle	..	..	..	<i>Stenogobius</i> , p. 216.
3b. No fleshy flaps on inner edge of shoulder girdle	..	..	..	4
4a. Barbels on head	..	..	..	5
4b. No barbels on head	..	..	..	6
5a. Barbels only along ramus of lower jaw. Gill openings not continued forward below, isthmus wide. About 30 scales in L. l.	..	..	..	<i>Parachaeturichthys</i> , p. 217.
5b. Barbels along ramus of lower jaw and on the cheeks. Gill openings far continued forward below, isthmus narrow. Caudal obliquely pointed. About 24 scales in L. l.	..	..	..	<i>Obliquogobius</i> , p. 219.
6a. Teeth in upper jaw in one row	..	..	..	<i>Oxyurichthys</i> , p. 220.
6b. Teeth in upper jaw in several rows	..	..	..	7
7a. Head scaled above and behind eyes	..	..	..	8
7b. Head naked above and behind eyes	..	..	..	9
8a. Head compressed, 25-45 ctenoid scales in L. l. Basal membrane of ventral fins normal. No papillae on head	..	..	..	<i>Acentrogobius</i> , p. 223.
8b. Head depressed, 25-75 scales in L. l. Basal membrane of ventral fins weak or absent. Head with ridges of papillae	..	..	..	<i>Callogobius</i> , p. 235.
9a. 25-75 scales in L. l. Head depressed	..	..	..	<i>Callogobius</i> , p. 235.
9b. 25-30 scales in L. l. Head compressed, nape partly scaled	..	..	..	<i>Oligolepis</i> , p. 236.
9c. 85 to more than 140 scales in L. l.	..	..	..	<i>Cryptocentrus</i> , p. 239.
10a. Maxillary prolonged posteriorly	..	..	..	11
10b. Maxillary not prolonged posteriorly	..	..	..	13



11a. Barbels on head. About 34 scales in L. 1. ; D. 2. I/10 ; A. I/9	<i>Barbatogobius</i> , p. 241.
11b. No barbels on head	12
12a. 26-28 scales in L. 1. ; D. 2. I/6-7 ; A. I/6	<i>Pseudogobiopsis</i> , p. 243.
12b. About 33 scales in L. 1. ; D. 2. I/10 ; A. I/9	<i>Gobiopsis</i> , p. 244.
12c. 38-40 scales in L. 1. ; D. 2. I/9 ; A. I/9. Upper rays of pectoral silk-like	<i>Paragobiopsis</i> , p. 245.
13a. Barbels on head	14
13b. No barbels on head	17
14a. Scales cycloid	15
14b. Scales ctenoid	16
15a. About 39 scales in L. 1. ; D. 2. I/8 ; A. I/8	<i>Pipidonia</i> , p. 247.
15b. About 45 scales in L. 1. ; D. 2. I/8-9 ; A. I/8-9	<i>Callogobius</i> , p. 235.
16a. About 46 scales in L. 1. ; D. 2. I/9-10 ; A. I/9-10	<i>Pogonogobius</i> , p. 246.
16b. About 32-33 scales in L. 1. ; D. 2. I/10 ; A. I/9	<i>Parachaeturichthys</i> , p. 217.
17a. Teeth in upper jaw in two rows	18
17b. Teeth in upper jaw in several rows	19
18a. 25-32 ctenoid scales in L. 1. ; D. 2. I/8-11 ; A. I/8-9	<i>Quisquilius</i> , p. 248.
18b. 50-75 ctenoid scales in L. 1. ; D. 2. I/13-16 ; A. I/13-16	<i>Amblygobius</i> , p. 249.
19a. Basal membrane of ventral fins weak or absent	20
19b. Basal membrane of ventral fins normally developed	22
20a. Ridges of papillae on head	<i>Callogobius</i> , p. 235.
20b. No ridges on head	21
21a. 50-75 scales in L. 1.	<i>Amblygobius</i> , p. 249.
21b. 25-32 scales in L. 1. Head scaled above and behind eye	<i>Quisquilius</i> , p. 248.
21c. 22-30 scales in L. 1. Head naked above behind eye	<i>Zonogobius</i> , p. 250.
22a. Tongue emarginate to bilobate	23
22b. Tongue rounded to truncate	28
23a. Some fleshy flaps on inner edge of shoulder girdle	<i>Awaous</i> , p. 251.
23b. No fleshy flaps	24
24a. Gill openings continued forward below, isthmus narrow	<i>Glossogobius</i> , p. 255.
24b. Gill openings not continued forward below, isthmus wide	25
24c. Gill openings continued forward below, gill membranes united across isthmus	<i>Cottogobius</i> , p. 253.
25a. Anterior scale on nape enlarged, about 30 scales in L. 1.	<i>Stigmatogobius</i> , p. 259.
25b. If nape scaled, anterior scale not enlarged	26
26a. Nape naked	<i>Ctenogobius</i> , p. 265.
26b. Nape scaled	27
27a. Upper rays of pectorals free, silk-like	<i>Bathygobius</i> , p. 266.
27b. Upper rays of pectorals not silk-like	<i>Acentrogobius</i> , p. 223.
28a. Cheek and opercle scaled with large cycloid scales	29
28b. Cheek and opercle, if scaled, not with large scales	31
28c. Cheek naked, opercle with large ctenoid scales. Head scaled from a little behind eye with thin cycloid scales which fall out readily	<i>Brachygobius</i> , p. 269.
29a. Foremost scale in median line behind eye enlarged	<i>Stigmatogobius</i> , p. 259.
29b. Foremost scale in median line not enlarged	30
30a. Cheek and opercle scaled	<i>Acentrogobius</i> , p. 223.
30b. Cheek naked, opercle scaled	<i>Mugilogobius</i> , p. 271.
31a. Some fleshy flaps on inner edge of shoulder girdle	<i>Stenogobius</i> , p. 216

- 31b. No fleshy flaps  
 32a. Head scaled above behind eye  
 32b. Head naked above behind eye

32

*Acentrogobius*, p. 223.*Ctenogobius*, p. 265.

### **Oplopomus** (Ehrenberg) Cuvier & Valenciennes.

- ? *Oplopomus*, Ehrenberg, *Zool. pisc.*, pl. ix, fig. 6.  
 1837. *Oplopomus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 66.  
 1874. *Centrogobius*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 321.  
 1908. *Hoplopomus*, Regan, *Trans. Linn. Soc. London* XII, pp. 241, 242.

Body elongate, compressed, covered with about 30 ctenoid scales, which become cycloid on nape and breast. Head compressed, obtuse, scaled above behind eyes, preopercle sometimes with some longitudinal rows of scales, opercle with some scales along upper margin. Bony interorbital less than  $\frac{1}{2}$  eye-diameter. Snout obtuse, shorter than eye. Nostrils not tubular. Mouth nearly horizontal, jaws subequal. Teeth in both jaws in several rows, the outer of which is enlarged. In lower jaw the outer row extends only to the half of the jaw, the last teeth on each side are canines. Tongue truncate. Preopercle armed with one or two short spines at the lower end of the posterior margin. Gill openings not very wide, isthmus moderate. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins separate, the first ray of both fins is strong, bony. First dorsal with 6 rays. Second dorsal I/8-10. Anal I/9-11. Ventral united, oblong. Pectoral without free silk-like rays, base scaled. Caudal obtuse.

#### *Synopsis of the Indian species.*

- 1a. Cheek and opercle naked. Fourth and 5th ray of D. 1. filiform.  
 Eye 3 in head *O. oplopomus*, p. 214.  
 1b. Cheek and opercle scaled. No ray of D. 1. filiform. Eye  $3\frac{1}{2}$ -4 in  
 head *O. caninoides*, p. 215.

### **Oplopomus oplopomus** Cuvier & Valenciennes.

1837. *Gobius oplopomus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 66.  
 1837. *Gobius bitelatus*, Cuvier & Valenciennes, *op. cit.* p. 89.  
 1858. *Gobius notacanthus*, Bleeker, *Nat. Tijds. Ned. Ind.* XV, p. 210.  
 1861. *Gobius gemmatus*, (Heckel Ms.) Steindachner, *Sitz. ber. Ak. Wien* XLII, p. 290.  
 1908. *Hoplopomus acanthistius*, Regan, *Trans. Linn. Soc. London* XII, p. 242, pl. xxix, fig. 3.  
 1908. *Hoplopomus caninoides*, Regan, *op. cit.* p. 241 (*ex parte*).

D. 1. VI; D. 2. I/9-10; A. I/10; P. 18; L. l. 30; L. tr. 7-8; Predorsal scales 6-12.

Body elongate, compressed, height  $4\frac{1}{3}$  in length,  $5\frac{1}{2}$  in total length. Head compressed,  $3\frac{2}{3}$  in length,  $4\frac{2}{3}$  in total length, profile convex. Eye 3 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout obtuse convex, shorter than eye, tip before inferior part of eye. Mouth oblique, lower jaw a little prominent. Maxillary extends to below anterior part of eye. Teeth in upper jaw outer row enlarged. In lower jaw outer row enlarged, on each side a curved canine. Preopercle with 2 serrations at the posterior margin. Mucous canals longitudinal. In interorbital an open pore. Behind eye at the beginning of supraopercular groove an open pore. Head scaled from a little behind eye, rest naked. Nape, breast and belly scaled. First dorsal higher than body, 1st ray longer than eye, 4th and 5th ray prolonged. First ray of second dorsal is a pungent spine, not shorter than the 1st spine of first dorsal. Second

dorsal and anal about as high as body, pointed posteriorly. Pectoral obtuse, rounded, shorter than head. Caudal obtuse, a little longer than head.

*Colour.*—Upper parts reddish green, pearl-red below. Cheek and opercle with pearl-like spots and short streaks, which are bordered with violet. Laterally a row of blackish spots. Each scale of body with some minute pearl-like spots. Fins yellowish-orange. First dorsal with oblique violet streak. Second dorsal with small ocelli. Pectoral with minute spots. Anal with short pearl-coloured streaks. Ventral blackish posteriorly. Base of anal blackish. Caudal in middle of base and halfway on upper rays some blackish spots.

*Length.*—79 mm.

*Habitat.*—Red Sea, Colombo, Maldives, Singapore, Philippines, Goram.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Octavia Bay, Nancouri Harbour

Marine Survey.

*Leiden Museum Collection.*

Colombo Harbour

P. Buitendijk.

***Oplopomus caninoides*** (Bleeker).

1852. *Gobius caninoides*, Bleeker, *Nat. Tijds. Ned. Ind.* III, p. 274.

1907. *Oplopomus vergens*, Jordan & Seale, *Bull. Bur. Fisheries* XXVI, p. 44, fig. 17.

1908. *Hoplopomus caninoides*, Regan, *Trans. Linn. Soc. London* XII, p. 241 (*ex parte*).

D. 1. VI ; D. 2. I/10 ; A. I/10 ; P. 17-19 ; L. 1. 30 ; L. tr. 7-8 ; Predorsal scales 12.

Body elongate, compressed, height  $4\frac{1}{4}$ - $4\frac{3}{4}$  in length, 5-6 in total length. Head obtuse convex, compressed, height  $3\frac{4}{5}$ -4 in length,  $4\frac{2}{3}$ -5 in total length. Eye  $3\frac{1}{2}$ -4 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout obtuse convex, shorter than eye, tip before inferior margin of eye. Mouth oblique, lower jaw a little prominent. Maxillary extends to below anterior part of eye. Teeth in upper jaw outer row enlarged. In lower jaw on each side a canine. Preopercle with 1-2 serrations. Mucous canals longitudinal. In interorbital an open pore. Behind each eye at beginning of supraopercular groove an open pore. Head scaled above behind eye, some rows of scales on cheek, opercle scaled. Scales of head, nape, breast and belly cycloid, other scales ctenoid. First dorsal lower than body, 1st ray about as long as eye, 2nd, 3rd and 4th rays the longest. First ray of second dorsal is a pungent spine, not shorter than the 1st ray of first dorsal, second dorsal and anal lower than body. Pectoral obtuse, shorter than head. Caudal obtuse, shorter than head.

*Colour.*—Upper parts olivaceous-reddish green, lower parts greenish-pearl coloured. No pearl-like spots on head. Laterally on body many blackish pearl-like coloured points and blackish spots and a longitudinal row of larger blackish spots. Fins yellowish. Dorsal fins and caudal with rows of black spots. First dorsal with 2 rows, second dorsal with 3 rows, caudal with 4-5 transverse rows. Caudal posteriorly and base of anal violet. Base of caudal with 3 larger blackish spots in 2 vertical rows.

*Length.*—85 mm.

*Habitat.*—Persian Gulf, Philippines, Indo-Australian Archipelago. No specimens seen in the Indian Museum.

**Stenogobius** Bleeker.

1874. *Stenogobius*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 317.

Body elongate, compressed, covered with 45-55 scales, which are ctenoid on the most parts of the body, becoming cycloid on neck and belly. Head compressed, obtuse, scaled above behind eyes, rest of head generally naked, sometimes a patch of scales above on cheek and opercle. Bony interorbital  $\frac{1}{2}$  eye-diameter. Snout generally as long as eye, blunt. Nostrils not tubular. Mouth oblique, jaws subequal or lower jaw a little prominent. Teeth in both jaws in several rows, the outer is enlarged, pointed. Outer row of teeth in lower jaw extends only to the half of the jaw. No canines. Tongue truncate, not emarginate. Some transverse and longitudinal mucous canals on cheek. Gill openings not very wide, isthmus broad. Inner edge of shoulder girdle with some fleshy flaps. Dorsal fins separate. First dorsal with 6 rays, second dorsal I/10-12. Anal I/10-12.

Ventral united, oblong. Pectoral without free silk-like rays. Caudal obtuse to lanceolate.

*Synopsis of the Indian species.*

- 1a. Head and nape naked in median line. L. tr. 11 .. .. *S. gymnopomus*, p. 216.  
 1b. Head and nape scaled in median line? L. tr. 9-10 .. .. *S. malabaricus*, p. 217.

**Stenogobius gymnopomus** (Bleeker).

1853. *Gobius gymnopomus*, Bleeker, *Nat. Tijds. Ned. Ind.* IV, p. 270.

1853. *Gobius richardsonii*, Bleeker, *ibid.* V, p. 508.

D. 1. VI; D. 2. I/10; A. I/10; L. 1. 50; L. tr. 11; Predorsal scales 18.

Body elongate, compressed, height  $4\frac{1}{2}$ -5 in length, 6-7 in total length. Head a little compressed,  $4-4\frac{1}{2}$  in length,  $5-6\frac{1}{2}$  in total length, profile convex. Eye  $3\frac{1}{2}$ -4 in head, interorbital  $\frac{1}{2}$  eye-diameter. Snout obtuse, about as long as eye or a little shorter, tip below lower margin of eye. Anterior nostril in a rim. Jaws subequal. Maxillary extends to middle of eye or not so far. Teeth of outer row enlarged. Cheek with transverse mucous canals under eye. On each side anteriorly in interorbital an open pore. An open pore behind each eye at the beginning of supraopercular groove. Head scaled above behind eye, but median line naked, rest of head naked. Nape in median line and breast naked. Scales of head, nape and belly cycloid, other scales ctenoid. First dorsal lower or higher than body, in male the middle rays the longest. Second dorsal and anal lower or higher (in male) than body, pointed posteriorly. Pectoral about as long as head. Ventral about as long as head. Caudal rounded to lanceolate, longer than head.

*Colour*.—Male reddish green above, yellow below. Anal broad violet band from eye to behind maxillary. Snout and cheek with irregular dark streaks. Back and sides with small dark spots. Laterally on body 3 transverse bands, curved backward. Base of first dorsal violet, outer half reddish with yellow spots, basal half with longitudinal oblique yellow stripe. Second dorsal, caudal and anal violet, basal half with violet spots, outer half with longitudinal rows of yellow spots, fins bordered with yellow. Pectoral yellowish, base above with dark spot. Ventral violet. Upper half of caudal with violet spots. The colour of the female is much weaker.

*Length*.—135 mm.

*Habitat*.—India, Indo-Australian Archipelago.

I have examined 2 specimens from Travancore in the Madras Museum collection.

**Stenogobius malabaricus** (Day).

1865. *Gobius malabaricus*, Day, *Proc. Zool. Soc. London*, p. 27.

1865. *Gobius malabaricus*, Day, *Fish. Malabar*, p. 111, pl. vii, fig. 2.

1876. *Gobius malabaricus*, Day, *Fish. India*, p. 293.

1889. *Gobius malabaricus*, Day, *Faun. Brit. Ind. Fish.* II, p. 263.

D. 1. VI ; D. 2. I/10 ; A. I/10 ; L. 1. 50 ; L. tr. 9-10 ; Predorsal scales ?

Body elongate, compressed, height 4 in length,  $5\frac{1}{4}$  in total length. Head a little compressed,  $3\frac{3}{4}$ -4 in length, 5 in total length. Eye 4 in head, interorbital  $\frac{1}{2}$  eye-diameter. Snout obtuse, about as long as eye, tip before lower margin of eye. Mouth oblique, lower jaw prominent. Maxillary extends to below anterior part of eye. Teeth in several rows, outer enlarged, no canines. Some mucous canals longitudinally and transversely over cheek. On each side an open pore in interorbital space. Some fleshy flaps on inner edge of shoulder girdle. Head scaled above behind eye, scaled in the median line ? Scales of body ctenoid. First dorsal lower than body, 2nd ray is the longest. Caudal lanceolate, a little longer than head. Ventral a little shorter than head.

*Colour.*—According to Day : “ light brown, with irregular dusky bands on the back and sides, a dark band descends from the eye, and some brown blotches about the head. A deep black crescentic mark on first dorsal, commencing between second and third spines and continued to the last, above this is a white curved band bordered with black. Second dorsal, anal and caudal brownish, barred with several rows of darker spots.”

*Length.*—102 mm.

*Habitat.*—Backwaters of Madras, some rivers of Malabar, Mormugao Bay.

I have examined a specimen from Mormugao Bay Port, India, collected by S. W. Kemp.

This species is closely allied to *S. gymnopomus* (Blkr.). I am not certain whether the median line of head and nape is scaled or not. As mentioned above, I have only seen one specimen.

**Parachaeturichthys** Bleeker.

1874. *Parachaeturichthys*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 325.

Body elongate, a little compressed, covered with about 30 ctenoid scales, breast and belly scaled (more or less cycloid ?). Head subcylindrical to a little depressed, scaled on snout, above behind the eyes and on preopercle and opercle. Bony interorbital about  $\frac{1}{2}$  eye-diameter. Snout about as long as eye. Mouth oblique, lower jaw a little prominent. Ramus of lower jaw with many short barbels or only 2 barbels under chin. Teeth in both jaws in several rows, the outer one enlarged, caninoid. In lower jaw the outer row extends only to the half of the jaw. Tongue subtruncate. Gill openings wide, not continued forward below, isthmus wide. Inner edge of shoulder girdle without fleshy flaps. First dorsal with 6 rays. Second dorsal I/9-11. Anal I/9-10. Ventral united, oblong. Pectoral without free silk-like rays, base scaled. Caudal pointed, much longer than head or about as long as head, with a black ocellus on the dorsal margin.

*Synopsis of the Indian species.*

1a. Some short barbels under chin, numerous along ventral side of head.

Scales in L. 1. 28-30 ; L. tr. 7-8 ; Predorsal scales 12-13

*P. polynema*, p. 218.

1b. A pair of short barbels under chin. Scales in L. 1. 32-33 ; L. tr. 9 ;

Predorsal scales 25

*P. ocellatus*, p. 218.

**Parachaeturichthys polynema** (Bleeker).

1853. *Chaeturichthys polynema*, Bleeker, *Verh. Bat. Gen.* XXV, p. 44, text-fig. 4.

1876. *Gobius polynema*, Day, *Fish. India*, p. 286, pl. lxi, fig. 8.

1889. *Gobius polynema*, Day, *Faun. Brit. Ind. Fish.* II, p. 252, text-fig. 89.

D. 1. VI ; D. 2. I/9-10 ; A. I/9 ; P. 20-21 ; L. l. 28-30 ; L. tr. 7-8 ; Predorsal scales 12-13.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5-6 in length, 7-8 in total length. Head a little depressed, about 4 in length,  $5\frac{1}{2}$ -6 in total length, profile convex. Eye  $3\frac{1}{3}$ - $3\frac{1}{2}$  in head, interorbital  $\frac{1}{3}$ - $\frac{1}{2}$  eye-diameter. Snout obtuse, shorter than eye, tip before or a little below lower margin of eye. Anterior nostril in a short tube. Mouth oblique, jaws subequal or lower jaw a little prominent. Maxillary extends to below middle of eye. Lower jaw with some short barbels under chin and numerous barbels on the ventral side of head in two longitudinal rows. Outer row of teeth in lower jaw enlarged, extends to halfway the jaw, last tooth is a weak canine. In upper jaw on each side anteriorly 4-5 caninoid teeth. Tongue rounded to truncate. Three longitudinal mucous canals over cheek. An open pore behind each eye at the beginning of supraopercular groove, 2 pores along this groove, 1 medially in interorbital space, 3 open pores on posterior margin of preopercle. Head scaled above between and behind the eyes, cheek and opercle totally scaled. Scales of head, nape, breast and belly cycloid, other scales ctenoid. Bases of dorsal fins subcontinuous. First dorsal lower than body, middle rays are the longest. Second dorsal and anal anteriorly lower than body, posteriorly higher and pointed. Pectoral pointed, a little longer than head. Ventral a little shorter than head. Caudal lanceolate, much longer than head.

*Colour*.—Darkish green above, lighter below. Fins violet to purple. Caudal with black margin below, above at the base a large oblong ocellus, bordered with black and yellow.

*Habitat*.—India, Japan, China, Ambon, North Queensland.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Off Vizagapatam Coast, Madras Presidency  
Mouth of River Hooghly

Marine Survey.  
P.V. "Lady Fraser".

*Collections of the Zoology Department, Madras University.*

Madras Coast

?

**Parachaeturichthys ocellatus** (Day).

1873. *Gobius ocellatus*, Day, *Proc. Zool. Soc. London*, p. 107.

1876. *Gobius ocellatus*, Day, *Fish. India*, p. 287, pl. lxi, fig. 7.

1889. *Gobius ocellatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 253.

D. 1. VI ; D. 2. I/10 ; A. I/9 ; P. 20 ; L. l. 32-33 ; L. tr. 9 ; Predorsal scales 25 to eye, 33 to tip of snout.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5-6 in length, 6-7 in total length. Head a little depressed,  $3\frac{1}{2}$ - $3\frac{3}{4}$  in length,  $4\frac{1}{3}$ - $4\frac{1}{2}$  in total length. Eye 5-6 in head, interorbital  $\frac{1}{2}$ - $\frac{3}{4}$  eye-diameter. Snout pointed,  $1\frac{1}{2}$  eye-diameter, tip before lower margin of eye. Mouth a little oblique, lower jaw prominent. Maxillary extends to below middle of eye. Teeth in several rows, outer one enlarged. In upper jaw on each side 4-5

caninoid teeth of outer row. In lower jaw outer row extends to halfway the jaw, last tooth a recurved canine, inner row enlarged. Tongue truncate. Three longitudinal mucous canals over cheek. One along the ramus of lower jaw, continued to along posterior margin of preopercle. Some open pores along supraopercular groove and posterior margin of preopercle. A pair of short barbels under chin. Scales ctenoid, becoming cycloid on head. Head scaled on snout, between the eyes and above behind eyes. Cheek scaled in the lower half with longitudinal rows of scales. Opercle scaled. First dorsal about as high as body, 2nd ray is the longest, sometimes prolonged. Second dorsal and anal about as high as body. Pectoral as long as postorbital part of head. Ventral a little shorter than pectoral. Caudal oblong, about as long as head.

*Colour.*—Olive, a green spot above the margin of opercle. About 6 blotches on the side of the body. Dorsal fins and caudal spotted. An ocellus at the top of the caudal fin. Anal whitish, with fine black dots on basal half. Ventral yellowish.

*Length.*—156 mm.

*Habitat.*—Bombay and Sind.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Bombay

Kosamba Creek near Bulsan, Western a Coast

Purchased from F. Day.

J. J. Asana.

*Leiden Museum Collection.*

Bombay

F. Day.

**Obliquogobius**, gen. nov.

Body elongate, compressed, covered with 23-24 scales, which are ctenoid posteriorly, cycloid anteriorly; breast and belly scaled. Head compressed, scaled above behind the eyes, but median line naked to the insertion of first dorsal. Preopercle partly scaled with large cycloid scales in a row along lower and posterior margin. Opercle naked. Eye large, interorbital very narrow. Snout a little shorter than eye. Anterior nostril tubular. Mouth oblique, lower jaw a little prominent. At the lower side of the head on each side 2 rows of short barbels, continued on posterior margin of preopercle. From the nostrils a row of short barbels to edge of mouth, from here 2 rows longitudinally over cheek. Teeth in both jaws in several rows, outer row enlarged, no canines. Tongue feebly emarginate. Gill openings continued far forward below, isthmus narrow. Dorsal fins separate. First dorsal with 6 rays. Second dorsal and anal I/9. Ventral united, oblong. Pectoral without free silk-like rays, base scaled. Caudal obliquely pointed, longer than head, the uppermost rays are the longest.

*Genotype.*—*Gobius cometes* Alcock.

This genus shows in its characters some resemblance with *Parachaeturichthys*. It differs, however, in having barbels on the cheek, in the squamation of the head, the width of the gill opening and other characters. So, as there is no genus in which I can place *Gobius cometes*, I suggest a new genus for it, which I name after its obliquely pointed caudal fin.

**Obliquogobius cometes** (Alcock).

1890. *Gobius cometes*, Alcock, *Ann. Mag. Nat. Hist.* (6) VI, p. 208, pl. viii, fig. 2.

D. 1. VI ; D. 2. I/9 ; A. I/9 ; P. 23 ; L. 1. 23-24 ; L. tr. 7 ; Predorsal scales about 7.

Body elongate, compressed, height about 4 in length, 6 in total length. Head compressed,  $2\frac{3}{4}$  in length, 4 in total length. Profile feebly convex. Eye  $3\frac{2}{3}$  in head, interorbital very narrow. Snout short,  $\frac{2}{3}$  eye-diameter, tip before lower margin of eye. Anterior nostril tubular. Mouth very oblique, lower jaw prominent. Maxillary extends to below middle of eye. Teeth in several rows, outer enlarged, no canines. Tongue feebly emarginate. A row of short barbel-like papillae from nostrils to edge of mouth, where it is divided into two longitudinal rows over cheek. A row of short barbels in supraopercular groove ; a row on each side of the naked median part of nape behind eye. Two rows of short barbels along each mandibular ramus, continued along the posterior margin of preopercle. An open pore on each side near nostrils, one in median line before eye, one in median line behind eye, some along posterior margin of preopercle. Gill openings continued far forward below, isthmus narrow. Scales ctenoid, becoming cycloid below first dorsal. Head scaled above behind eyes, preopercle with a row of 6 large deciduous cycloid scales : 4 along lower margin, 2 along posterior margin. Nape naked in the median line. Opercle naked. First dorsal lower than body, 2nd and 3rd rays are the longest. Second dorsal and anal posteriorly much higher than body, pointed posteriorly. Pectoral about as long as head, without free silk-like rays. Ventral a little shorter. Caudal obliquely pointed, the uppermost rays are the longest, longer than head.

*Colour*.—According to Alcock : “ Transparent grey, with seven broad bright-yellow cross bands not quite reaching the abdominal raphe, and the gills showing through the opercle as a bright pink blotch ; the second dorsal and caudal fins beautifully pencilled in alternate, narrow, obliquely transverse stripes of black and white ; anal with a broad dark border ; ventrals blue-black. In spirit, the yellow cross bands almost entirely fade.”

*Length*.—128 mm.

*Habitat*.—Off Ganjam Coast, off Madras Coast, Gulf of Aden, in deep water (98-102 fathoms).

I have examined specimens in the collection of the Indian Museum from off Ganjam Coast.

**Oxyurichthys** Bleeker.

1860. *Oxyurichthys*, Bleeker, *Act. Soc. Sci. Indo Neerl.* VIII, p. 44.

1871. *Apocryptes (Gobiichthys)*, Klunzinger, *Verh. zool. bot. Ges. Wien* XXI, p. 479.

1905. *Pselaphias*, Jordan & Seale, *Bull. Bur. Fisheries* XXV, p. 406.

Body elongate, compressed, covered with 30-100 scales, ctenoid on the posterior part of body, cycloid on the anterior part, breast and belly scaled. Head compressed, neck more or less scaled, preopercle and opercle generally naked. Eye sometimes with a tentacle at the upper margin, bony interorbital about  $\frac{1}{4}$  eye-diameter. Snout blunt, about as long as eye. Nostrils not tubular. Mouth oblique, lower jaw prominent. Teeth in upper jaw in one row, in lower jaw 2-4 rows, sometimes inner row enlarged. Teeth of upper jaw strongly developed, caninoid, no true canines. Tongue rounded. Gill openings not very wide, isthmus broad, in one species narrow. Inner edge of shoulder girdle without fleshy flaps. First dorsal with 6 rays. Second dorsal I/10-13 ; anal I/10-14. Ventral united, oblong. Pectoral without free silk-like rays. Caudal pointed, long.



*Synopsis of the Indian species.*

- 1a. 50-55 scales in L.l. No tentacle on eye, but a black triangular spot in iris at the upper part
- 1b. 52-65 scales in L.l. At upper margin of eye a tentacle

*O. microlepis*, p. 221.*O. tentacularis*, p. 222.**Oxyurichthys microlepis** (Bleeker).1849. *Gobius microlepis*, Bleeker, *Verh. Bat. Gen.* XXII, p. 35.1873. *Euctenogobius cristatus*, Day, *Proc. Zool. Soc. London*, p. 109.1876. *Gobius cristatus*, Day, *Fish. India*, p. 291, pl. lxii, fig. 8.1888. *Gobius microlepis*, Day, *Fish. India Suppl.*, p. 793.1889. *Gobius microlepis*, Day, *Faun. Brit. Ind. Fish.* II, p. 260.1889. *Gobius cristatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 260.

D. 1. VI ; D. 2. I/12 ; A. I/13 ; P. 20-22 ; L. l. about 55 ; L. tr. about 14 ; Predorsal scales 17.

Body elongate compressed, height  $5\frac{1}{4}$ -6 in length,  $7\frac{1}{3}$ -9 in total length. Head compressed, obtuse convex,  $4-4\frac{1}{2}$  in length,  $6-6\frac{1}{2}$  in total length. Eye  $3\frac{1}{2}$ -4 in head, interorbital  $\frac{1}{3}$  eye-diameter. No ocular tentacle. Snout convex, not longer than eye, tip below lower margin of eye. Anterior nostril in a short tube. Mouth oblique, lower jaw a little prominent. Maxillary extends to below posterior half of eye. Teeth in upper jaw curved, on each side 16-20. In lower jaw 2-3 rows, inner row anteriorly enlarged. Tongue rounded. Longitudinal mucous canals over cheek. Anteriorly on each side of interorbital an open pore. Behind each eye an open pore at the beginning of supraopercular groove. Head scaled above behind eye. Median line of head and nape naked, nape in median line with a low dermal crest. Scales of head and anterior part of body cycloid, on posterior part of body weakly ctenoid. First dorsal lower or higher than body, anterior to middle rays are the longest, 4th ray mostly prolonged. Second dorsal and anal lower than first dorsal, pointed posteriorly. Pectoral rounded, a little longer than head. Ventral rounded, shorter than pectoral. Caudal lanceolate, about twice head.

*Colour.*—Green above, red pearl-like below. On back and sides large violet blotches. Below eye and on scapula violet to blue spots at the upper margin. Vertical fins red. First dorsal with 2 blue longitudinal streaks, rays with dark spots. Second dorsal with blue spots on the membrane, between the rays 2 transverse rows of blackish to violet spots. Pectoral orange, bordered with yellow and deep violet. Caudal below bordered with violet, upper part of membrane with numerous black spots, near margin oblique reddish violet streaks. A black triangular spot in iris at the upper part.

*Length.*—135 mm.*Habitat.*—India, Indo-Australian Archipelago, China, Philippines.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Bombay	..	..	..	..	Purchased from F. Day.
Main channel, W. of Satpara Id.	..	..	..	..	Chilka Survey.
Channel between Satpara and Berhampur Id.	..	..	..	..	Chilka Survey.
Channel off Berhampur Id.	..	..	..	..	Chilka Survey.
Main channel, W. of Satpara Id.	..	..	..	..	Chilka Survey.
Various localities in Celerity Passage	..	..	..	..	Marine Survey.
Ennur Backwater	..	..	..	..	N. Annandale.

## Leiden Museum Collection.

Colombo Harbour	P. Buitendijk.
Sind (as <i>Gobius cristatus</i> Day)	F. Day.

**Oxyurichthys tentacularis** (Cuvier & Valenciennes).

1837. *Gobius tentacularis*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 128.  
 1837. *Gobius erythrinus*, Cuvier & Valenciennes, *op. cit.*, p. 128.  
 1849. *Gobius macrurus*, Bleeker, *Verh. Bat. Gen.* XXII, p. 35.  
 1856-57. *Gobius ophthalmonema*, Bleeker, *Nat. Tijds. Ned. Ind.* XII, p. 208.  
 1876. *Gobius tentacularis*, Day, *Fish. India*, p. 291, pl. lxiv, fig. 4.  
 1889. *Gobius tentacularis*, Day, *Faun. Brit Ind. Fish.* II, p. 261.  
 1909. *Gobius (Oxyurichthys) uronema*, M. Weber, *Notes Leyden Mus.* XXXI, p. 153.  
 1918. *Oxyurichthys cornutus*, McCulloch & Waite, *Rec. S. Austral. Mus.* I, p. 80, pl. xviii, fig. 2.  
 1922. *Oxyurichthys rumbia*, Popta, *Zool. Med. Leiden* VII, p. 30.  
 1927. *Oxyurichthys viridis*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 260.

D.1. VI ; D.2. I/12 ; A. I/13-14 ; P. 19-22 ; L. l. 52-65 ; L. tr. 14-16 ; Predorsal scales 17.

Body very elongate, compressed, height  $5-5\frac{3}{5}$  in length,  $7-7\frac{1}{2}$  in total length. Head obtuse, compressed, profile convex, 4-5 in length, 6-7 in total length. Eye  $3\frac{1}{4}-4$  in head, interorbital  $\frac{1}{3}-\frac{1}{2}$  eye-diameter. At the upper margin of each eye a tentacle, which is about as long as eye. Snout obtuse, a little longer than eye or shorter than eye, tip before lower margin of eye. Anterior nostril in a short tube. Mouth oblique, lower jaw prominent. Maxillary extends to below posterior part of eye. On each side 20 curved teeth in upper jaw ; in lower jaw 2-3 rows, inner enlarged. Some longitudinal mucous canals over cheek. An open pore on each side anteriorly in interorbital space, the open pore behind eye at the beginning of supraopercular groove is more or less distinct. Head scaled above behind eye, median line of head and nape naked. On nape a low dermal crest to insertion of first dorsal. Scales of head and anterior part of body cycloid, posteriorly ctenoid. First dorsal higher than body, anterior rays filiform, or lower than body. Second dorsal and anal lower than body, posteriorly pointed and increasing in height. Pectoral obtuse, about as long as head. Ventral about equal to head, basal membrane often fringed. Caudal lanceolate, about twice length of head.

*Colour*.—Reddish green above, reddish pearl-coloured below. Each scale of back and sides above with a round red spot at the margin. Below eye an oblong dark spot. First dorsal spotted with 3 longitudinal rows of reddish-violet spots. Second dorsal with 5-6 alternating longitudinal rows of oblong reddish-violet spots. Pectoral orange. Ventral and anal violet. Base of anal with a row of reddish-violet spots and with violet streaks along the blue border. Caudal yellowish, violet below with oblique reddish-violet streaks.

*Length*.—145 mm.

*Habitat*.—India, Indo-Australian Archipelago, Philippines, Hongkong, Polynesia, North Australia.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Andamans	F. Day.
Main channel, W. of Satpara Id.	Chilka Survey.
Main channel between Satpara and Parikud	Chilka Survey.

Channel between Satpara and Berhampur Id.	Chilka Survey.
Channel off Berhampur Id. ..	.. Chilka Survey.
Serua Nadi	Chilka Survey.
Serua Nadi going N. E. from Parikud, S. of Patschanipur	.. Chilka Survey.
Near Ernakulam, Cochin Backwater	F. H. Gravely.
Panambukad, Cochin State, S. India	H. S. Rao.
Kayankulam Kayal, Travancore, S. India	H. S. Rao & M. Sharif.

*Madras Museum Collection.*

Madras ..	F. H. Gravely.
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**Acentrogobius** Bleeker.

1874. *Acentrogobius*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 321.  
 1874. *Porogobius*, Bleeker, *op. cit.*, p. 321.  
 1905. *Drombus*, Jordan & Seale, *Proc. U. S. Nat. Mus.* XXVIII, p. 797.  
 1905. *Exyrias*, Jordan & Seale, *Bull. Bur. Fisheries* XXV, p. 405.  
 1906. *Creisson*, Jordan & Seale, *Bull. Bur. Fisheries* XXVI, p. 43.  
 1926. *Opua*, E. K. Jordan, *Proc. U. S. Nat. Mus.* LXVI, p. 36.  
 1933. *Obtortiophagus*, Whitley, *Rec. Austral. Mus.* XIX, p. 90.

Body elongate, compressed, covered with 25-45 ctenoid scales, which become cycloid on nape, breast and belly. Head a little compressed, scaled above behind the eyes: preopercle and opercle totally scaled, scaled in the upper parts or naked. Bony interorbital more than, to less than, one eye-diameter, in young specimens less than  $\frac{1}{2}$  eye-diameter. Snout obtuse, about as long as eye. Anterior nostril in a short tube. Mouth oblique, lower jaw prominent. Teeth in both jaws in several rows, the outer of which is enlarged. the inner one is also a little enlarged. In lower jaw outer row extends only to the half of the jaw, the last teeth are recurved canines; in both jaws some caninoid teeth, larger than the rest. Tongue truncate to scarcely bilobate. Mucous canals longitudinally over cheek. Some open pores round the eyes and along upper and posterior margins of preopercle. Gill openings not or only a little continued forward below, isthmus moderate. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/6-17; and I/6-19; ventral united, oblong. Pectoral without or with free silk-like rays, base scaled. Caudal obtuse to pointed.

*Synopsis of the Indian species.*

1a. 40-42 scales in L. l.; L. tr. about 14 ..	2.
1b. 35-36 scales in L. l.; L. tr. 10-14	3.
1c. 26-32 scales in L. l.; L. tr. 7-10	4.
2a. A longitudinal band from mouth to centre of base of caudal	<i>A. dayi</i> , p. 224.
2b. No longitudinal band on body, but dark spots and blotches	<i>A. griseus</i> , p. 224.
3a. About 18 predorsal scales; L. tr. 12 ..	<i>A. bontii</i> , p. 225.
3b. About 30 predorsal scales; L. tr. 10	<i>A. viridipunctatus</i> , p. 226.
4a. About 25 predorsal scales. D. 2. I/10-11. On each side of chin a broad papilla. Cheek naked, opercle scaled in upper part	<i>A. masoni</i> , p. 227.
4b. 17-20 predorsal scales	5.
4c. 14 predorsal scales. D. 2. I/10; A. I/8-9	<i>A. cyanomos</i> , p. 228.
4d. Less than 14 predorsal scales .. ..	6.

- 5a. Scapula with blue spot. Large spots on body .. *A. caninus*, p. 228.  
 5b. Scapula without blue spot. 5-8 narrow vertical black lines on ventral half of body between base of V. and middle of A. *A. madraspatensis*, p. 229.  
 6a. Cheek and opercle scaled. L. tr. 9 7.  
 6b. Cheek naked. Opercle may be scaled 8.  
 7a. Canines in lower jaw rudimentary. Interorbital pore simple. A. I/9 *A. puntang*, p. 230.  
 7b. Canines in lower jaw developed. Interorbital pore one on each side. A. I/11 *A. cauerensis*, p. 231.  
 8a. D. 2. I/10-11 ; A. I/8-9 ; 10-12 predorsal scales *A. ornatus*, p. 231.  
 8b. D. 2. I/8 ; A. I/8 ; 12 predorsal scales, from which the foremost 9-10 fall out readily .. .. *A. reichei*, p. 232.  
 8c. D. 2. I/10 ; A. I/9 ; 7-8 predorsal scales *A. globiceps*, p. 234.

**Acentrogobius dayi**, sp. nov.

1876. *Gobius brevirostris*, Day, *Fish. India*, p. 285, pl. lxiii, fig. 5 (*nec* Günther).

1889. *Gobius brevirostris*, Day, *Faun. Brit. Ind. Fish.* II, p. 250 (*nec* Günther).

D.1. VI ; D.2. I/10 ; A. I/9 ; P. 17 ; L. l. 40-42 ; L. tr. 14 ; Predorsal scales about 20-30.

Body elongate, compressed, height 5 in length, 6 in total length. Head subcylindrical, profile parabolic,  $3\frac{2}{3}$  in length,  $4\frac{1}{2}$  in total length. Eye  $4\frac{1}{4}$  in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout as long as eye, tip before lower part of eye. Mouth oblique, lower jaw prominent. Maxillary extends to below anterior part of eye. Teeth in several rows, outer row enlarged, anterior teeth caninoid. In lower jaw outer row to halfway the jaw, last tooth a recurved canine. Tongue truncate. Two longitudinal mucous canals over cheek. Two open pores in median line in interorbital. Gill openings a little continued forward below, isthmus moderate. Scales of body ctenoid, becoming cycloid before first dorsal. Head scaled above from a little behind the eyes with small cycloid scales. Opercule totally scaled ? or its upper part only with small scales. First dorsal about as high as body, 2nd ray is the longest. Pectoral about as long as head. Ventral as long as head without snout. Caudal oblong, about as long as head.

*Colour*.—According to Day : “Olivaceous, a blotched irregular band from mouth to centre of base of caudal ; a narrow brown band from eye to above opercle terminating above axilla in a large blue ocellus. Two small bluish spots on opercle at its upper margin, another at upper edge of base of caudal. Basal half of dorsal fins violet. Anal white, with a violet band along its middle, lightish blue superiorly and white externally. Caudal with blackish margins”

*Length*.—81 mm.

*Habitat*.—Karachi, Sind, Mesopotamia.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Sind .. Purchased from F. Day.  
 Fao estuary of the Shatt-el-Arab, Mesopotamia .. .. H. J. Walton.

**Acentrogobius griseus** (Day).

1876. *Gobius griseus*, Day, *Fish. India*, p. 285, pl. lxiii, fig. 3.

1889. *Gobius griseus*, Day, *Faun. Brit. Ind. Fish.* II, p. 251.

D.1. VI ; D.2. I/10 ; A. I/9 ; P. 17 ; L. l. 42 ; L. tr. 14 ; Predorsal scales more than 20.

Body elongate, compressed, height  $4-4\frac{1}{2}$  in length,  $4\frac{3}{4}-5\frac{1}{2}$  in total length. Head compressed, profile convex,  $3\frac{3}{4}$  in length,  $4\frac{2}{3}$  in total length. Eye  $4\frac{1}{2}$  in head, interorbital  $\frac{1}{2}$  eye-diameter. Snout obtuse, as long as eye, tip before lower part of eye. Teeth in both jaws in several rows; in upper jaw outer row enlarged, anterior teeth caninoid. In lower jaw outer row enlarged, extends to halfway the jaw, last teeth are recurved canines. Tongue truncate. Some mucous canals longitudinally over cheek. Two open pores in median line in interorbital space. Gill openings not continued forward below, isthmus moderate. Scales of body ctenoid, becoming smaller and cycloid before first dorsal. Head scaled above behind the eyes with small cycloid scales. Cheek and opercle with some very thin scales along the upper margins. Rays of first dorsal filiform, longer than height of body, 2nd ray is the longest. Second dorsal and anal lower than body. Pectoral about as long as head. Ventral as long as head without snout. Caudal wedge-shaped, about as long as head.

*Colour.*—According to Day: "Olivaceous, with bands and many well-marked deep brown or black spots. Pectoral fin and contiguous portions of body finely dotted with small chestnut spots. Base of first dorsal yellowish with three or four horizontal brown bands; second dorsal yellowish with a dark outer edge. Ventral, anal, and caudal with dark outer edges."

*Length.*—89 mm.

*Habitat.*—Madras, Ennur.

I have examined specimens from the following localities:—

*Indian Museum Collection.*

Madras ..	..	Purchased from F. Day.
Ennur Backwaters ..	..	N. Annandale.

***Acentrogobius bontii*** (Bleeker).

1849. *Gobius bontii*, Bleeker, *Verh. Bat. Gen.* XXII, p. 27.

1909. *Gobius triangularis*, M. Weber, *Notes Leyden Mus.* XXXI, p. 150.

1927. *Aparrius moloanus*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 207, pl. xvi, fig. 3.

1935. *Ctenogobius waigiensis*, Herre, *Field Mus. N. H. Zool.* (18), No. 12, p. 424.

D.1. VI; D.2. I/9-11; A. I/8-10; P. 17-19; L. l. about 36; L. tr. 12; Predorsal scales about 18.

Body elongate, anteriorly subcylindrical, posteriorly compressed, height  $4\frac{3}{4}-5$  in length,  $6-6\frac{1}{2}$  in total length. Head obtuse, about as high as broad, profile convex,  $3\frac{1}{2}-4$  in length;  $4\frac{1}{2}-5$  in total length. Eye  $3\frac{1}{2}$  in head, interorbital less than  $\frac{1}{2}$  eye-diameter. Snout obtuse, shorter than eye, tip before lower margin of eye. Mouth oblique, lower jaw prominent. Maxillary extends to below middle of eye or not so far. Lips thick. Teeth filiform, in many rows, outer enlarged; in lower jaw on each side 2 curved canines. Tongue rounded. Two or three longitudinal mucous canals over cheek, crossed by transverse ones. Some open pores round the eyes, one open pore behind each eye at the beginning of supraopercular groove. Head naked above behind eye, the scales beginning from above the opercle. Scales of nape, breast and belly cycloid, on body ctenoid. First dorsal higher than body, 2nd and 3rd rays filiform (only in the male?). Second dorsal and anal lower than body, pointed posteriorly. Pectoral ending laterally in a free, pointed lobe.

*Colour.*—Reddish-green above, lighter below. Laterally on posterior part of body 5-7 dark spots in a longitudinal line. Dorsal fins with dark spots on base, anal fin with dark margin. Caudal fin with irregular spots.

In the variety *triangularis* M. Weber, the body has indistinct dark blotches and some silvery spots. At the upper part of base of pectoral fin a light triangular spot.

*Length*.—72 mm.

*Habitat*.—India, Andamans, Philippines, Indo-Australian Archipelago, Ponapé.

The specimens from India, which I have seen, belong to the variety *triangularis* M. Weber.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

In pools close to Harbour Railway Line, Vizagapatam	.. H. S. Rao & G. Varugis.
Port Blair, Andamans	?
Near South Corbyn's Cove, Port Blair, S. Andaman	H. S. Rao & K. S. Misra.

***Acentrogobius viridipunctatus*** (Cuvier & Valenciennes).

1837. *Gobius viridipunctatus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 62.

1837. *Gobius venenatus*, Cuvier & Valenciennes, *op. cit.*, p. 85.

1849. *Gobius chlorostigma*, Bleeker, *Verh. Bat. Gen.* XXII, p. 27.

1876. *Gobius viridipunctatus*, Day, *Fish. India*, p. 286, pl. lix, fig. 5, lxi, fig. 4, ? lxiii, fig. 4.

1888. *Gobius viridipunctatus*, Day, *op. cit. Suppl.*, p. 793.

1889. *Gobius viridipunctatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 253.

D.1. VI ; D.2. I/10 ; A. I/9 ; P. 18-20 ; L. l. 35-36 ; L. tr. 10 ; Predorsal scales about 30.

Body elongate, anteriorly subcylindrical, posteriorly compressed, height 4-5½ in length, 5-7 in total length. Head a little compressed, obtuse, 3½-4 in length, 4⅔-5 in total length. Profile convex. Eye 4-5 in head, interorbital less than ½ to less than 1 eye-diameter. Snout obtuse, shorter than eye, tip before or below lower margin of eye. Nostrils tubular. Mouth oblique, lower jaw prominent. Maxillary extends to below middle of eye. Lips moderate. Teeth filiform, in many rows, outer row enlarged, anterior teeth caninoid. In lower jaw on each side 2-4 canines ; outer row extends to halfway the jaw. Sometimes a canine of inner row on each side in front of the jaw. Mucous canal from nostril to edge of mouth, longitudinal canals over cheek, crossed by transversal ones radiating under eye. An open pore medially in interorbital, open pores in supraopercular groove, the first behind the eye the largest. Head scaled above behind eye and on upper part of preopercle and opercle with cycloid scales. Scales of nape, breast and belly cycloid, other scales ctenoid. First dorsal much lower than body, middle rays are the longest. Second dorsal and anal pointed posteriorly, a little higher than first dorsal. Pectoral without free silk-like rays, obtuse, not shorter than head without snout. Ventral obtuse, about as long as pectoral. Caudal oblong, a little or not shorter than head.

*Colour*.—Blackish-green, laterally dotted over with dark spots, halfway the side a longitudinal row of larger dark spots. Scales with small shiny spots. Fins yellowish-orange. Base of first dorsal with blackish longitudinal stripe. Second dorsal with 2 dark longitudinal bands. Ventral blackish. Base and margin of anal blackish. Caudal membrane with blackish spots, upper part of base without black spot.

*Length*.—165 mm.

*Habitat*.—Zanzibar, India, Andamans, Philippines, China, Indo-Australian Archipelago.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Bombay	Purchased from F. Day.
Madras ..	F. Day.
Backwaters, Vizagapatam	S. W. Kemp.
Port Blair, Andamans	?
Kumbalaun-Twara Channel, Cochin State, S. India	.. H. S. Rao.

*Collections of the Zoology Department, Madras University.*

Adyar	?
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*Leiden Museum Collection.*

Bombay	F. Day.
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***Acentrogobius masoni* (Day).**

1873. *Gobius masoni*, Day, *Proc. Zool. Soc. London*, p. 107.

1876. *Gobius masoni*, Day, *Fish. India*, p. 287, pl. lxi, fig. 6.

1889. *Gobius masoni*, Day, *Faun. Brit. Ind. Fish.* II, p. 254.

D. 1. VI ; D. 2. I/10-11 ; A. I/9 ; P. 19 ; L. 1. 28 ; L. tr. 9 ; Predorsal scales 25.

Body elongate, compressed, height  $4\frac{3}{4}$  in length, 6 in total length. Head obtuse, compressed,  $3\frac{1}{3}$  in length,  $4\frac{1}{4}$  in total length. Eye  $5\frac{1}{2}$ -6 in head, interorbital 1 eye-diameter. Snout obtuse, a little longer than eye, tip a little below lower margin of eye. Anterior nostril tubular. Lower jaw a little prominent. Maxillary extends to below middle of eye or to posterior margin of eye. Teeth in several rows ; in upper jaw outer row enlarged ; in lower jaw outer row enlarged, extends to halfway the jaw, last tooth a recurved canine. In lower side of head on each side behind the chin a small broad barbel. Behind each eye a large slit-like open pore at the beginning of supraopercular groove. Some pores along posterior margin of preopercle. Head scaled above behind eyes, cheek naked, opercle scaled on upper part. Scales of head, nape, breast and belly cycloid, on body ctenoid. First dorsal lower than body, rays a little prolonged, 2nd, 3rd and 4th rays are the longest. Second dorsal and anal lower than body. Pectoral and ventral as long as head without snout. Caudal rounded, a little shorter than head.

*Colour.*—Olive with blue spots on nape and behind pectoral fin. Some blackish spots on the sides. Dorsal fins, anal, ventral and caudal blackish. Pectoral yellowish, with darker margin.

*Length.*—102 mm.

*Habitat.*—Bombay, Manumbam, ? Chilka Lake.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Bombay	F. Day (A. S. B.).
Manumbam ..	?
Young specimens, channel between Satpara and Berhampur Id., Chilka Lake . . .	Chilka Survey.

*Leiden Museum Collection.*

Bombay	F. Day.
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**Acentrogobius cyanomos** (Bleeker).1849. *Gobius cyanomos*, Bleeker, *Verh. Bat. Gen.* XXII, p. 25.1850. *Gobius cyanoclavis*, Cantor, *Journ. As. Soc. Bengal* XVIII, p. 1167.1876. *Gobius cyanosmos*, Day, *Fish. India*, p. 287, pl. lxi, fig. 5.1889. *Gobius cyanosmos*, Day, *Faun. Brit. Ind. Fish.* II, p. 254.1923. *Ctenogobius dentifer*, Hora, *Mem. Ind. Mus.* V, p. 747, fig. 29.1932. *Acentrogobius spilopterus*, H. M. Smith, *Journ. Siam Soc. Nat. Hist. Suppl.* VIII, No. 4, p. 259, pl. xxiii.

D. 1. VI ; D. 2. I/10 ; A. I/8-10 ; P. 18-19 ; L. l. about 30 ; L. tr. 8-9 ; Predorsal scales 14.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $4\frac{1}{2}$ -5 in length, 6-6 $\frac{1}{3}$  in total length. Head compressed, obtuse,  $3\frac{2}{5}$ -4 in length,  $4\frac{1}{2}$ -5 in total length. Eye 4-5 in head, interorbital  $\frac{1}{3}$ - $\frac{1}{2}$  eye-diameter. Snout obtuse, about as long as eye, tip a little below lower margin of eye. Anterior nostril in a short tube. Jaws subequal. Maxillary extends to below posterior part of eye, in young specimens to anterior margin of pupil. Lips thick. No barbels. Teeth : in upper jaw outer row enlarged, in lower jaw outer row enlarged, extends to halfway the jaw, last two teeth are canines. Longitudinal rows of mucous canals over cheek. Supraopercular groove with open pores, first open pore behind the eye. An open pore medially in interorbital space. Head scaled above behind the eyes, rest of head naked. Scales of head, nape, breast and belly cycloid, of body ctenoid. First dorsal lower than body, in male 1st, 2nd and 3rd rays or only 2nd ray filiform. Second dorsal and anal lower than body, pointed posteriorly. Pectoral without free silk-like rays, obtuse, longer than head without snout. Ventral rounded, about as long as pectoral. Caudal obtuse, as long as head.

*Colour*.—Blackish green to olive above, lighter below. Scales with shiny greenish spots, similar spots on opercle ; on shoulder a blue blotch. First dorsal yellowish. Ventral whitish, pink to violet. Other fins violet, bordered with reddish to orange. Membrane of second dorsal and caudal with 3-5 rows of whitish spots between the rays. Base of caudal above with dark blotch.

*Length*.—115 mm.*Habitat*.—India, Siam, Indo-Australian Archipelago.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Akyab, Burma	..	..	W. De Courcy Ireland.
Rambha Bay, Chilka Lake ( <i>Ct. dentifer</i> )	..	..	Chilka Survey.
Manikpatna ( <i>Ct. dentifer</i> Type)	..	..	Chilka Survey.
Near Ernakulam, Cochin Backwater	..	..	F. H. Gravely.

**Acentrogobius caninus** (Cuvier & Valenciennes).1837. *Gobius caninus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 86.1841. *Gobius grandinosus*, Eydoux & Souleyet, *Zool. Voy. Bonite, Poissons*, p. 177, pl. v, fig. 4 ?1905. *Coryphopterus bernadoui*, Jordan & Starks, *Proc. U. S. Nat. Mus.* XXVIII, p. 207, fig. 9.1931. *Rhinogobius similis*, H. M. Smith, *Proc. U. S. Nat. Mus.* LXXIX, p. 43 (*nec* Gill).1931. *Rhinogobius simulans*, H. M. Smith, *Copeia* II, p. 64 (substitute name).1934. *Vaimosa umbra*, Fowler, *Proc. Ac. Nat. Sci. Philadelphia* LXXXVI, p. 84, fig. 26.

D. 1. VI ; D. 2. I/9 ; A. I/9 ; P. 18-19 ; L. l. about 30 ; L. tr. 9 ; Predorsal scales



Body elongate, anteriorly a little compressed, posteriorly compressed, height 4-5 in length,  $5-6\frac{1}{2}$  in total length. Head obtuse,  $3\frac{3}{4}-4$  in length,  $4\frac{3}{4}-5$  in total length. Profile convex. Eye  $3\frac{1}{2}-4$  in head, interorbital less than  $\frac{1}{2}$  eye-diameter. Snout obtuse, shorter than eye, tip before or a little below lower margin of eye. Anterior nostril in a short tube. Mouth oblique, lower jaw prominent. Maxillary extends to below anterior part of eye. Teeth in upper jaw outer row enlarged, in lower jaw on each side 2 canines. Longitudinal mucous canals over cheek.

Interorbital medially with an open pore. An open pore behind eye at the beginning of supraopercular groove. Head scaled above behind eye and on upper part of opercle with cycloid scales. Scales of nape, breast and belly cycloid, other scales ctenoid. First dorsal lower than body, 2nd and 3rd ray often filiform. Second dorsal and anal much lower than body. Pectoral without free silk-like rays, obtuse, about as long as head. Ventral obtuse, longer than head without snout. Caudal obtuse, about as long as head.

*Colour.*—Olive above, lighter below. Head with blue or pearl-like spots. Body with alternating rows of large blackish spots. Scapula with blue spot. Scales laterally with shiny spots. Fins violet. Second dorsal with 3 rows of dark spots bordered with blue. Caudal with blackish spots.

*Length.*—132 mm.

*Habitat.*—India, Siam, China, Philippines, Indo-Australian Archipelago, Fiji Is.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Singapore	..	..	..	..	..	F. Stoliczka.
Panambukad, Cochin State, S. India						H. S. Rao.

*Leiden Museum Collection.*

Colombo Harbour	..	P. Buitendijk.
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***Acentrogobius madraspatensis* (Day).**

1868. *Gobius madraspatensis*, Day, *Proc. Zool. Soc. London*, p. 152.

1876. *Gobius madraspatensis*, Day, *Fish. India*, p. 290, pl. lxii, fig. 3.

1889. *Gobius madraspatensis*, Day, *Faun. Brit. Ind. Fish.* II, p. 258.

D. 1. VI ; D. 2. I/9 ; A. I/9 ; P. 17 ; L. 1. 28-29 ; L. tr. 8 ; Predorsal scales 18 ?

Body elongate, compressed, height  $4\frac{1}{4}$  in length,  $5\frac{1}{4}$  in total length. Head compressed, profile convex,  $3\frac{1}{2}$  in length,  $4\frac{1}{3}$  in total length. Eye 4 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout obtuse, as long as eye, tip before lower margin of eye. Anterior nostril in a short tube. Mouth oblique, lower jaw prominent. Maxillary extends to below anterior margin of eye. Teeth in several rows ; in upper jaw outer row enlarged ; in lower jaw outer row extends to halfway the jaw, last tooth a recurved canine. Tongue rounded. Two longitudinal mucous canals over cheek. Two open pores in median line in interorbital. Some along posterior margin of preopercle. Scales of body ctenoid, of nape and breast cycloid. Head scaled above from behind the eyes. Cheek and opercle naked ? First dorsal a little lower than body, middle rays are the longest. Pectoral and ventral as long as head without snout. Caudal oblong, a little shorter than head.

*Colour.*—According to Day : “ Olivaceous, with irregular, ill-defined brownish blotches and dots ; from five to eight very narrow vertical black lines from back to abdomen, between

base of ventrals and middle of anal" (In the specimens which I have seen these lines were only visible on the ventral half of the body. First dorsal with a dark broad band in middle of the fin, base and tip colourless.) "Fins greyish, first dorsal with two rows of black blotches; second dorsal irregularly blotched and dotted. Pectoral and anal unspotted. Ventrals tipped with black. Caudal minutely dotted in rows."

*Length.*—77 mm.

*Habitat.*—Madras and Ennur backwaters.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Madras	..	F. Day.
Ennur Backwaters		N. Annandale.
Large creek close to Tumidalametta Hill, 336 ft., Vizagapatam		H. S. Rao & G. Varugis.

**Acentrogobius puntang** (Bleeker).

1851. *Gobius puntang*, Bleeker, *Nat. Tijds. Ned. Ind.* II, p. 486.  
 1853. *Gobius puntangoides*, Bleeker, *op. cit.* V, p. 242.  
 1870. *Gobius andamanensis*, Day, *Proc. Zool. Soc. London*, p. 691.  
 1876. *Gobius puntang*, Day, *Fish. India*, p. 288, pl. lxii, fig. 1.  
 1881. *Gobius canalae*, Sauvage, *Bull. Soc. Philom. Paris* (7) V, p. 102.  
 1883. *Gobius maculipinnis*, Macleay, *Proc. Linn. Soc. N. S. Wales*, VIII, p. 267.  
 1884. *Gobius concolor*, De Vis, *ibid.* IX, p. 689.  
 1889. *Gobius puntang*, Day, *Faun. Brit. Ind. Fish.* II, p. 256.  
 1908. *Gnatholepis sindonis*, Snyder, *Proc. U. S. Nat. Mus.* XXXV, 1909, p. 101.

D. 1. VI; D. 2. I/10; A. I/9; P. 17; L. 1. 30; L. tr. 9-10; Predorsal scales 10.

Body elongate, compressed, height  $3\frac{3}{5}$ -4 in length, 5-6 in total length. Head a little compressed, obtuse,  $3\frac{1}{2}$ -4 in length, 5-5 $\frac{3}{4}$  in total length. Profile convex. Eye 4-4 $\frac{1}{2}$  in head, interorbital about  $\frac{1}{2}$  eye-diameter. Snout obtuse, in young specimens much shorter than eye, in adult longer than eye. Tip below lower margin of eye. Anterior nostril in a short tube. Mouth a little oblique, lips thick. Jaws subequal. Maxillary extends to below anterior part of eye. Teeth in upper jaw outer row enlarged, in lower jaw canines laterally rudimentary. Two longitudinal mucous canals over cheek. Medially in interorbital an open pore. Open pore behind eye at the beginning of supraopercular groove sometimes present. Head scaled above behind eye, cheek and opercle totally scaled. The scales on cheek are placed in 3 longitudinal stripes, between which the 2 mucous canals run. Scales behind eye and on lower part of head cycloid, those of upper part laterally of head ctenoid. Scales of nape, breast and belly cycloid, other scales ctenoid. First dorsal lower or higher than body, 1st, 2nd and 3rd rays are the longest, sometimes filiform. Second dorsal and anal lower than first dorsal in adult posteriorly much higher than anteriorly, posteriorly pointed. Pectoral without free silk-like rays, rounded a little longer than head. Ventral rounded, about as long as head. Caudal obtusely rounded to pointed, much longer than head.

*Colour.*—Olive above. Laterally 7-8 diffuse transverse stripes. Scales laterally with many shiny spots. Fins reddish. Dorsal fins, pectoral and caudal with small black spots. Ventral middle and tip mostly blackish. Anal with 3-4 longitudinal streaks.

*Length.*—162 mm.

*Habitat.*—Andamans, Indo-Australian Archipelago to N. E. Australia, Solomon Is., Caroline Is.

I have examined specimens from the Andamans in the collection of the Indian Museum.

***Acentrogobius cauerensis*** (Bleeker).

1853. *Gobius cauerensis*, Bleeker, *Nat. Tijds. Ned. Ind.* IV, p. 269.  
 1854. *Gobius ophthalmotaenia*, Bleeker, *op. cit.* VII, p. 46.  
 1855. *Gobius capistratus*, Peters, *Monatsber. Ak. Wiss. Berlin*, p. 443.  
 1901. *Gobius deltooides*, Seale, *Occ. Pap. Bishop Mus.* I, p. 125.  
 1902. *Gnatholepis knighti*, Jordan & Evermann, *Bull. U. S. Fish. Comm.* XXII, p. 204.  
 1909. *Gnatholepis davaoensis*, Seale, *Philip. Journ. Sci.*, IV, p. 537.  
 1927. *Gnatholepis gemmeus*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 135, pl. ix, fig. 3.  
 1935. *Gnatholepis corlettei*, Herre, *Field Mus. N. H. Zool.* (18), No. 12, p. 418.

D. 1. VI ; D. 2. I/10-11 ; A. I/11 ; P. 14-17 ; L. 1. 30 ; L. tr. 9 ; Predorsal scales 8-11.

Body elongate, compressed, height  $4-4\frac{2}{5}$  in length,  $5\frac{1}{2}-6$  in total length. Head obtuse, compressed,  $3\frac{1}{2}-4$  in length,  $4\frac{1}{2}-5$  in total length. Profile convex. Eye 3-4 in head, interorbital  $\frac{1}{3}-\frac{1}{2}$  eye-diameter. Snout obtuse, as long as eye, or a little shorter, tip below lower margin of eye. Mouth a little oblique, lips thick. Jaws subequal or upper jaw a little prominent. Maxillary extends to middle of eye or not so far. Teeth in several rows, in upper jaw on each side 2 canines, in lower jaw on each side a curved canine. Tongue bilobate. Longitudinal mucous canals over cheek. Anteriorly in interorbital on each side an open pore, behind each eye an open pore at the beginning of supraopercular groove. Head scaled above behind eye with more or less ctenoid scales. Cheek with large cycloid scales, opercle with smaller weakly ctenoid scales. Scales of breast and belly cycloid, on body ctenoid. First dorsal obtuse, lower than body. Second dorsal and anal a little higher than first dorsal, pointed posteriorly. Pectoral without free silk-like rays, obtuse, about as long as head. Ventral rounded, a little shorter than head. Caudal rounded, about as long as head.

*Colour.*—Greenish above, lighter below. A violet streak from eye to behind maxillary. Snout, cheek and opercle with light spots, nape with dark spots. Opercle with 1-2 purple streaks. Laterally on body dark spots and lines, on ventral part light and dark spots. First dorsal anteriorly with dark spots, posteriorly 5-6 rows of oblong orange spots. Second dorsal dark with light spots. Anal with purple oblong spots, basal half whitish, outer half violet. Caudal orange, lower margin violet, rays spotted.

*Length.*—79 mm.

*Habitat.*—Red Sea and Zanzibar to Hawaiian Islands.

I have examined specimens from Dundas Point, Port Blair.

***Acentrogobius ornatus*** (Rüppell).

1828. *Gobius ornatus*, Rüppell, *Atl. Reise N. Afr. Fische*, p. 135.  
 1837. *Gobius elegans* (K. & v. H.), Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 58.  
 1837. *Gobius ventralis* (Ehrenberg), Cuvier & Valenciennes, *op. cit.*, p. 113.  
 1844. *Gobius interstinctus*, Richardson, *Zool. Erebus & Terror Fishes*, p. 3, pl. v, figs. 3-6.  
 1851. *Gobius periophthalmoides*, Bleeker, *Nat. Tijds. Ned. Ind.* I, p. 249.  
 1876. *Gobius ornatus*, Day, *Fish. India*, p. 294, pl. lxiii, fig. 1.  
 1889. *Gobius ornatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 265.  
 1904. *Gobius venustus*, Fowler, *Journ. Ac. N. S. Philadelphia* (2) XII, p. 551, pl. xxvii.  
 1906. *Gobius calderae*, Evermann & Seale, *Proc. U. S. Nat. Mus.* XXXI, p. 511, fig. 3.

D. 1. VI; D. 2. I/10-11; A. I/8-9; P. 19-20; L. 1. 28; L. tr. 8-9; Predorsal scales 10-12.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5-6 in length, 6-7 $\frac{2}{3}$  in total length. Head obtuse, subcylindrical, profile convex, 3 $\frac{2}{3}$ -4 in length, 4 $\frac{1}{2}$ -5 $\frac{1}{4}$  in total length. Eye 3-4 in head, interorbital about  $\frac{1}{3}$  eye-diameter. Snout very obtuse, about as long as eye, tip below lower margin of eye. Anterior nostril in a short tube. Jaws subequal. Maxillary extends to below middle of eye or not so far. Lips thick. Teeth in upper jaw: outer row with 3-4 caninoid teeth on each side; in lower jaw in young specimens outer row not enlarged, in adult on each side one weak canine. Two or three longitudinal mucous canals over cheek. No pore in interorbital, no pore behind eye. Head scaled above behind eyes with cycloid scales. Cheek and opercle naked. Scales medially on nape and of breast cycloid; laterally on nape and of belly ctenoid. First dorsal obtuse, lower than body, 2nd and 3rd rays are the longest. Second dorsal and anal lower than body, pointed posteriorly. Pectoral obtuse, about as long as head, upper rays free, silk-like. Ventral rounded, about as long as head. Caudal obtuse, of the same length.

*Colour*.—Green to olivaceous above, lighter below. Laterally on body each scale with a shiny spot. Head laterally with small yellowish spots and 3 purple transverse streaks: the first over angle of maxillary, the last on border of preopercle. Dorsal half of head and body with irregular rows of violet spots, on ventral half of body larger violet spots in two longitudinal rows. Dorsal fins reddish to yellowish, the membranes with oblong violet spots alternating with yellowish streaks in oblique series. Pectoral orange, rays dark-spotted; base of pectoral with 2-3 dark spots. Ventral orange, tip violet. Anal yellowish, dark-bordered; on basal half 2-4 purple streaks. Caudal orange with dark and yellow spots.

*Length*.—100 mm.

*Habitat*.—S. E. Africa and Red Sea to Australia, Fiji and Samoan Islands.

I have examined specimens from the following localities:—

*Indian Museum Collection.*

Maungmagan. Tavoy Dist.	..	..	F. J. Meggitt.
Elephant, Druid and Bedford Rocks		..	Marine Survey.
Paye or Paway Islands		..	Marine Survey.
Nancouri Island (East and North sides)		..	Marine Survey.
Camorta Island (East of Jetty to Naval Point).			Marine Survey.
Cape Comorin, S. India	..	..	?
Ayun Yusa, Quarantine Station, Sinaitic Peninsula		..	R. B. S. Sewell.
Vizagapatam Harbour (shore collection)	..	.	H. S. Rao.
Kayankulam Kayal, Travancore State, S. India			H. S. Rao & M. Sharif.
South of Sound Id., N. Andaman		..	H. S. Rao & K. S. Misra.
S. Coast of Long Id., Middle Andaman			H. S. Rao & K. S. Misra.
Curlew Id., Stewart Sound, N. Andaman			H. S. Rao & K. S. Misra.
Near South Corbyn's Cove, Port Blair		..	H. S. Rao & K. S. Misra.

**Acentrogobius reichei** (Bleeker).

1853. *Gobius reichei*, Bleeker, *Nat. Tijds. Ned. Ind.* V, p. 509.

1868. *Gobius neilli*, Day, *Proc. Zool. Soc. London*, p. 152.

1876. *Gobius neilli*, Day, *Fish. India*, p. 290, pl. lxii, fig. 4.

1889. *Gobius neilli*, Day, *Faun. Brit. Ind. Fish.* II, p. 259.

1934. *Rhinogobius melanobranchus*, Fowler, *Proc. Ac. Nat. Sci. Philadelphia* LXXXVI, p. 82, figs. 24, 25.

1936. *Aboma aliciae*, Herre, *Bull. Raffles Mus.* XII, p. 10, pl. vii.

D. 1. VI ; D. 2. I/8 ; A. I/8 ; P. 16 ; L. 1. 26-28 ; L. tr. 7-8 ; Predorsal scales 12 (2-3).

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5 in length, 6 in total length. Head a little depressed,  $3\frac{4}{5}$  in length,  $4\frac{2}{5}$  in total length. Profile a little convex. Eye 3 in head, interorbital less than  $\frac{1}{3}$  eye-diameter. Snout obtuse, shorter than eye, tip before middle of eye. Anterior nostril in a rim. Mouth oblique, lower jaw prominent. Maxillary extends to below anterior part of eye. Teeth in several rows, outer row enlarged, in lower jaw on each side a canine. Tongue obtuse to scarcely emarginate. Below eye an oblique narrow band of mucous canals running to maxillary. A broad band, bordered by two stronger developed canals runs longitudinally over cheek. A canal along posterior margin of preopercle. Some short canals over opercle. An open pore on each side medially of nostrils, an open pore in median line in front and behind the interorbital space. On each side a pore behind eye, a large one close behind eye at the beginning of supraopercular groove ; some along supraopercular groove and posterior margin of preopercle. Head scaled from a little behind the eyes with very thin cycloid scales, which fall out readily. Median part of nape with similar scales, the last ones (2-3) close before first dorsal are more firm and ctenoid. Cheek and opercle naked. Scales of breast and belly cycloid, laterally on body ctenoid. First dorsal lower than body, 2nd and 3rd rays are the longest. Second dorsal and anal a little lower than first dorsal, pointed posteriorly. Pectoral obtuse, without free silk-like rays, shorter than head. Ventral obtuse, a little longer than pectoral. Caudal obtusely rounded, shorter than head.

*Colour.*—Green above, lighter below. Cheek and opercle with violet streaks. Violet stripe from eye over lips to chin to meet the stripe of the other side. Laterally on back many small olivaceous spots, in middle of sides 5 larger spots in a longitudinal line. Fins yellowish. First dorsal at tip violet. Rays of second dorsal, pectoral and caudal spotted. Dark spot on upper part of base of pectoral, dark stripe on lower part of base of pectoral.

*Length.*—83 mm.

*Habitat.*—S. E. Africa, India, Andamans, Philippines, Indo-Australian Archipelago.

In the description of *Gobius reichei*, Bleeker states that the nape is naked in the median part. The type specimen, Leiden Museum No. 4672, shows no scales in the median part of nape, so I transferred this species to *Ctenogobius*. (Notes on Gobioid Fishes 6, *Zool. Med. Leiden* XVIII, p. 143, 1935.) *Gobius neilli* Day shows the head scaled above behind eye and the nape totally scaled. These scales are thin and cycloid behind eye and the median part of nape, except two or three close before the insertion of first dorsal, which scales are more firm and weakly ctenoid. Other specimens from the Indo-Australian Archipelago show the head and nape naked, except 2-3 scales close before second dorsal, but the chromatophores are arranged as if there should be 12 predorsal scales. The skin in this region shows wrinkles, which correspond with the place of these 12 scales, not being, however, distinct scale-pouches. In all characters, even the colour and the places of the chromatophores, these specimens are identical with a specimen of *Gobius neilli* from Vizagapatam. So I presume that the predorsal scales of the median part of nape and of head fall out readily, except the 2-3 firmer ones close before the insertion of first dorsal. Therefore, I now include this species in

*Acentrogobius*, regarding *Gobius neilli* as a synonym. *Rhinogobius melanobranchus* Fowler, which has the branchiostegal membrane dark coloured, I regard as a variety of this species. *Aboma aliciae* Herre I regard as described from an abnormal specimens with 7 rays in first dorsal.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Mergui Archipelago	Marine Survey.
Ennur Backwater	N. Annandale.
Near mouth of channel, Vizagapatam	H. S. Rao & G. Varugis.
Creek a little beyond the Ferry, Vizagapatam	H. S. Rao & G. Varugis.
Vizagapatam, W. end of Harbour	H. S. Rao.
Near South Corbyn's Cove, Port Blair	H. S. Rao & K. S. Misra.

*Collections of Australian Museum, Sydney.*

A specimen is indicated as being the type of *Gobius neilli* Day.

***Acentrogobius globiceps*** (Hora).

1923. *Ctenogobius globiceps*, Hora, *Mem. Ind. Mus.* V, p. 744, pp. 24, 25.

D. 1. VI ; D. 2. I/10 ; A. I/9 ; P.? 17 ; L. l. 26-27 ; L. tr. 6 ; Predorsal scales 7-8.

Body a little compressed, height 4 in length. Head cylindrical,  $3\frac{1}{2}$ -4 in length. Eye 3.3 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout short, rounded, tip before lower margin of eye. Anterior nostril tubular. Mouth oblique, lower jaw a little prominent. Maxillary extends to below anterior margin of pupil. Teeth in several rows, outer enlarged, distant ; in lower jaw outer row extends to halfway the jaw. Tongue emarginate. Mucous canals : two longitudinal canals over cheek, crossed by about 7 transversal ones. Two open pores medially in interorbital, one on each side at the inner margin of posterior nostril. One on each side between the medially posterior pore and the row of 3 pores in supraopercular groove. Three pores along posterior margin of preopercle. First dorsal lower than body, 2nd ray is the longest. Second dorsal and anal posteriorly higher than body. Caudal pointed,  $1\frac{1}{2}$  times head. Scales of body feebly ctenoid. Head scaled above from a little behind the eyes. Opercle scaled at least on its upper half.

*Colour.*—In spirit : “ Yellowish with 4-5 short vertical bands on side of the body. Along back some small black spots. Ventral blackish in some specimens, other fins dusky. A white submarginal band on second dorsal. An oblique white band on upper half of caudal. On body some rows of shiny spots. In life back and sides of body yellowish green, belly reddish-yellow. On head and body blackish-brown spots. On body several pearl-like blue dots, which are very shiny. Fins with minute dark spots. First dorsal with blackish spot behind the 5th ray. Fins greyish. Second dorsal and caudal with a white stripe. Margin of anal darker. Iris grey-black with golden margin.”

*Length.*—43 mm.

*Habitat.*—Chilka Lake, Ennur Backwater, near Calcutta, near Batavia (Java).

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Between Cherria and Mainland	..	Chilka Survey.
Rambha Bay, Ganjam Dist.		Chilka Survey

Off Samal Island, Chilka Lake	Chilka Survey.
Samal Island, Chilka Lake	Chilka Survey.
Satpara, Chilka Lake	Chilka Survey.
Rambha Bay, 8 miles W. by S. of Breakfast Id., Chilka Lake	Chilka Survey.
1 mile S. of Kalidai, Chilka Lake	Chilka Survey.
Off Barkul bungalow, Chilka Lake	Chilka Survey.
Off Balugaon, Chilka Lake	Chilka Survey.
Off Nalbano, 4.5 miles S. E. of Potsahanipur, Chilka Lake.	Chilka Survey.
S. E. side of Nalbano, Chilka Lake	Chilka Survey.
West of Satpara Id., Chilka Lake	Chilka Survey.
Mahosan, Burhampur Id., Chilka Lake	Chilka Survey.
Between Domkuda and Samal Id., Chilka Lake	Chilka Survey.
Between Cherria and mainland, Chilka Lake	Chilka Survey.
Island near Manikpatna, Chilka Lake	Chilka Survey.
Serua Nadi, Chilka Lake	Chilka Survey.
Nalbano & Channel S. E. of Nalbano, Chilka Lake	Chilka Survey.
Mouth of Madachna Bay, Chilka Lake	N. Annandale.
Ennur Backwater	N. Annandale.
Cochin Backwater near Ernakulam	F. H. Gravely.
Salt Lake canal, Durgapur near Calcutta	F. H. Gravely.

### **Callogobius** Bleeker.

1874. *Callogobius*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 318.  
 1909. *Macgregorella*, Seale, *Philipp. Journ. Sci.* IV, No. 6, p. 533.  
 1909. *Doryptena*, Snyder, *Proc. U. S. Nat. Mus.* XXXV, p. 102.  
 1912. *Mucogobius*, McCulloch, *Rec. W. Austr. Mus.* I, p. 93.  
 1918. *Ulcigobius*, Fowler, *Proc. Ac. Nat. Sci. Philadelphia* LXX, p. 69.  
 1927. *Galera*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 104.  
 1928. *Gunnamatta*, Whitley, *Rec. Austral. Mus.* XVI, p. 225.  
 1930. *Metagobius*, Whitley, *Austral. Zool.* VI, p. 122.

Body elongate, anteriorly subcylindrical, posteriorly compressed, covered with 25-75 scales, which are ctenoid posteriorly and becoming cycloid anteriorly, or wholly cycloid, somewhat irregularly placed; belly and breast scaled. Head depressed, broader than deep, with cutaneous papillae, scaled above behind the eyes, cheek and opercle scaled with small cycloid scales or naked. Eye looking upwards. Bony interorbital narrow, about  $\frac{1}{2}$  eye-diameter to about 1 eye-diameter. Snout as long as, to a little longer than eye. Anterior nostril in a long tube. Mouth small, oblique, lower jaw prominent. Teeth in both jaws in several rows, the outer of which is enlarged, no canines. Tongue rounded, sometimes slightly emarginate. Some transverse and longitudinal ridges on head. Gill openings not very wide, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/7-15; Anal I/7-12. Basal membrane of ventral very weakly or not developed, bases united, the membrane between the inner rays is very weakly developed, often torn. Pectoral without free silk-like rays, base scaled. Caudal lanceolate to oblong.

**Callogobius hasseltii** (Bleeker).

1851. *Eleotris hasseltii*, Bleeker, *Nat. Tijds. Ned. Ind.* I, p. 253.  
 1871. *Gobius mucosus*, Günther, *Proc. Zool. Soc. London*, p. 663., pl. lxiii, fig. a.  
 1880. *Gobius (Oxyurichthys) coelidotus* (C. & V. MS.) Sauvage, *Bull. Soc. Philom. Paris* (7) IV, p. 50.  
 1886. *Gobius depressus*, Ramsay & Ogilby, *Proc. Linn. Soc. N. S. Wales* (2) I, p. 4.  
 1908. *Doryptena okinawae*, Snyder, *Proc. U. S. Nat. Mus.* XXXV, 1909, p. 103.  
 1909. *Macregorella moroana*, Seale, *Philip. Journ. Sci.* A. IV, p. 533.  
 1927. *Macregorella intonsa*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 100, pl. vii, fig. 2.  
 1935. *Macregorella badia*, Herre, *Field Mus. N. H. Zool.* XVIII, p. 415.

D. 1. VI ; D. 2. I/9-10 ; A. I/7-8 ; P. 16-18 ; L. l. 40-45 (55) ; L. tr. 15-16 ; Predorsal scales 20.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $5\frac{3}{4}$ -6 in length,  $7\frac{1}{2}$ -8 in total length. Head pointed, depressed, 4 in length,  $4\frac{2}{3}$ - $5\frac{1}{3}$  in total length. Profile convex. Eye  $3\frac{1}{3}$ - $3\frac{1}{2}$  in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout convex, shorter than eye, tip before eye. Anterior nostril tubular. Mouth very oblique, lower jaw prominent. Maxillary does not reach eye or to below anterior margin of eye. Teeth of outer row enlarged. Tongue rounded. Gill openings not to a little continued forward below, isthmus broad. Head with rows of papillae and folds on snout, cheek and opercle. A number of transverse folds under lower jaw. Head scaled above behind the eyes and on cheek and opercle with cycloid scales. Sometimes scales of head rudimentary. Scales of body enlarged posteriorly, ctenoid. First dorsal obtuse, lower than body, middle rays are the longest. Second dorsal higher than first dorsal, pointed posteriorly. Pectoral pointed, a little longer than head. Ventral not longer than head, basal membrane present or absent. Caudal lanceolate, longer than head.

*Colour*.—Upper parts reddish-green, lower parts orange. Head and body clouded with blackish. Body with 3-4 indistinct transverse bands. Fins yellowish. Dorsal and anal fins with transverse stripes. Pectoral and caudal with transverse stripes.

*Length*.—73 mm.

*Habitat*.—India, Philippines, Japan, Indo-Australian Archipelago, Australia.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

South Point, Outram Id.	..	Marine Survey.
Pamban, Ramnad Dist.	..	S. W. Kemp.
Dundas Point, Port Blair	..	?

**Oligolepis** Bleeker.

1874. *Oligolepis*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 318.  
 1907. *Aparrius*, Jordan & Richardson, *Bull. U. S. Bur. Fish.* XXVII, p. 278.

Body elongate, compressed, covered with 25-30 ctenoid scales, becoming cycloid below the first dorsal fin. Head compressed, a little obtuse, naked. Bony interorbital about  $\frac{1}{2}$  eye-diameter. Snout about as long as eye, blunt. Mouth oblique, jaws subequal or lower jaw a little prominent. Teeth in both jaws in several rows, in upper jaw outer, in lower jaw inner row enlarged ; outer row of lower jaw extends to halfway the jaw. Some teeth behind symphysis and last teeth of outer row of lower jaw a little stronger and caniniform. Tongue



truncate, not emarginate. Gill openings not very wide, isthmus broad. Inner edge of shoulder girdle without distinct fleshy flaps. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/9-12; Anal I/9-12. Ventral united, oblong. Pectoral without free silk-like rays. Caudal lanceolate, longer than head.

*Synopsis of the Indian species.*

- 1a. D. 2. I/10-11; A. I/10-11; L. l. 27-30; L. tr. 7-8 *O. acutipennis*, p. 237.  
 1b. D. 2. I/9; A. I/9; L. l. 25; L. tr. 5 .. .. *O. cylindriceps*, p. 238.

**Oligolepis acutipennis** (Cuvier & Valenciennes).

1837. *Gobius acutipennis*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 80.  
 1837. *Gobius setosus*, Cuvier & Valenciennes, *op. cit.*, p. 81.  
 1849. *Gobius pasuruensis*, Bleeker, *Verh. Bat. Gen.* XXII, p. 32.  
 1849. *Gobius melanostigma*, Bleeker, *op. cit.*, p. 32.  
 1849. *Gobius spilurus*, Bleeker, *op. cit.*, p. 32.  
 1849. *Gobius temminckii*, Bleeker, *op. cit.*, p. 33.  
 1853. *Gobius oligolepis*, Bleeker, *Nat. Tijds. Ned. Ind.* V, p. 508.  
 1876. *Gobius acutipinnis*, Day, *Fish. India*, p. 291, pl. lxi, fig. 2.  
 1889. *Gobius acutipinnis*, Day, *Faun. Brit. Ind. Fish.* II, p. 261.  
 1907. *Rhinogobius ocyurus*, Jordan & Seale, *Bull. Bur. Fisheries* XXVI, p. 42, fig. 14.

D. 1. VI; D. 2. I/10-11; A. I/10-11; P. 20-21; L. l. 27-30; L. tr. 7-8.

Body elongate, compressed, height  $4\frac{1}{4}$ - $4\frac{1}{2}$  in length,  $5\frac{1}{2}$ -7 in total length. Head obtuse, a little compressed, 4 in length, 5-6 in total length. Profile convex. Eye 3-4 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout obtuse, about as long as eye, tip below lower margin of eye. Anterior nostril in a short tube. Jaws subequal. Maxillary extends to below posterior part of eye or not so far. Teeth anteriorly in several rows; in upper jaw outer row enlarged anteriorly, in lower jaw inner row enlarged. In interorbital anteriorly on each side an open pore, posteriorly an open pore in median line. An open pore behind eye at the beginning of supraopercular groove. From posterior nostril a mucous canal, divided into 2 branches, running longitudinally over cheek. Head and nape naked, a few scales close before insertion of first dorsal. Scales on belly cycloid, other scales ctenoid. First dorsal about as high as body, middle rays are the longest, sometimes prolonged. Second dorsal and anal about as high as first dorsal, pointed posteriorly. Pectoral obtuse, a little longer than head. Ventral obtuse, not longer than head. Caudal lanceolate, longer than head.

*Colour.*—Yellowish. From eye to behind maxillary an oblique violet streak. Five large dark spots, alternating with short dark transverse stripes, in a longitudinal row along the side. Back with transverse bars. Head and back with minute black spots. Fins reddish. Membrane of dorsal fins and caudal with rows of dark spots. Dark spot on base of pectoral. Ventral reddish, in middle violet.

*Length.*—115 mm.

*Habitat.*—From India to Indo-Australian Archipelago, Philippines.

I have examined specimens from the following localities:—

*Indian Museum Collection.*

- |                         |    |                           |
|-------------------------|----|---------------------------|
| Madras                  | .. | .. Purchased from F. Day. |
| Rambha Bay, Chilka Lake |    | .. Chilka Survey.         |
| Serua Nadi, Chilka Lake |    | Chilka Survey.            |

Barkul, Chilka Lake	Chilka Survey.
Main Channel W. of Satpara Id., Chilka Lake	Chilka Survey.
Main Channel between Satpara and Parikud, Chilka Lake	Chilka Survey.
Ennur Backwater	N. Annandale.
Large creek close to Tumidalametta Hill, 336 ft., Vizagapatam	H. S. Rao & G. Varugis.
Shallow bay opposite to Lova Garden, Vizagapatam	H. S. Rao & G. Varugis.
Vizagapatam	H. S. Rao & G. Varugis.
Creek a little beyond the Ferry, Vizagapatam .. ..	H. S. Rao & G. Varugis.
Channel, Vizagapatam	H. S. Rao & G. Varugis.
Mouth of Channel, Vizagapatam	H. S. Rao & G. Varugis.
Channel connecting the backwater with the sea, Vizagapatam ..	H. S. Rao & G. Varugis.
Vizagapatam Harbour, shore collection	H. S. Rao.
Vizagapatam W. end of Harbour, pools and stream	H. S. Rao.
Kayankulam Kayal, Travancore State, S. India	H. S. Rao & M. Sharif.
Near Ernakalum, Cochin Backwater	F. H. Gravely.
Vendurutti, Cochin State, S. India	H. S. Rao.
From the muddy sides of the channel below the sluice at Uttarbhag	S. L. Hora.

*Madras Museum Collection.*

Madras ?

*Collections of Zoology Department, Madras University.*

Adyar ?

*Leiden Museum Collection.*

Madras F. Day.

**Oligolepis cylindriceps** (Hora).

1923. *Ctenogobius cylindriceps*, Hora, *Mem. Ind. Mus.* V, p. 745, figs. 26, 27, 28.

D. 1. VI; D. 2. I/9; A. I/9; P. ? 17; L. 1. 25; L. tr. 5; Predorsal scales 2-3.

Body a little compressed, height 5 in length. Head subcylindrical, 3.5 in length. Eye 3.3 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout a little shorter than eye, tip before lower margin of eye. Anterior nostril in a rim. Mouth a little oblique, jaws subequal. Maxillary extends to anterior margin of pupil. Teeth in several rows, outer row in upper jaw enlarged; in lower jaw outer row enlarged, extending to halfway the jaw, last tooth on each side a canine. Tongue rounded. Two longitudinal mucous canals over cheek. Two open pores medially of posterior nostril, 2 medially in interorbital, some behind each eye. Scales ctenoid. Cheek and opercle naked. Some scales in median line close before first dorsal. First dorsal lower than body, middle rays are the longest. Caudal oblong, a little longer than head. Pectoral rounded, as long as head without snout. Ventral as long as pectoral.

*Colour.*—In spirit: side of body with 7-11 vertical narrow yellowish bands. Upper surface of head dusky, its lower surface and lower parts of body yellowish. First dorsal with minute black spots, black marking between 4th and 5th ray. Second dorsal variegated with black and white. Anal dusky. Pectoral almost colourless. Ventral dark. Upper part of caudal variegated with black and white, remainder light grey. Usually a number of black spots along middle of sides, the last one before caudal is a little darker. On head round black spots.

*Length.*—34 mm:

*Habitat.*—India.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

(Type and co-types) Between Cherria & mainland, Chilka Lake	Chilka Survey.
Nalbano Id., Orissa	Chilka Survey.
Rambha Bay, Ganjam Dist.	Chilka Survey.
Off Cherria Id., Chilka Lake	Chilka Survey.
Rambha Bay, 8 miles W. by S. of Breakfast Id., Chilka Lake	Chilka Survey.
Gapkuda Bay, off N. shore of Samal Id., Chilka Lake	Chilka Survey.
Off Sankuda towards Samal, S. E. of Barkuda, Chilka Lake	Chilka Survey.
Off N. side of Samal Id., Chilka Lake	Chilka Survey.
2.9 miles E. of Barkul Bungalow, Chilka Lake	Chilka Survey.
Off Barkul Bungalow, Chilka Lake	Chilka Survey.
Main channel W. of Satpara Id., Chilka Lake	Chilka Survey.
Main channel between Satpara and Barnikuda, Chilka Lake	Chilka Survey.
Between Mahosa & Satpara, Chilka Lake	Chilka Survey.
Channel between Satpara & Barhampur Id., Chilka Lake	Chilka Survey.
Channel off Berhampur Id., Chilka Lake	Chilka Survey.
Kalidai to Samakuda, Chilka Lake	Chilka Survey.
Serua Nadi, Chilka Lake	Chilka Survey.
Nalbano Id.	Chilka Survey.
Channel between Koh Yaw and the mainland	N. Annandale.
Ennur Backwater ..	N. Annandale.
Near Ernakulam, Cochin Backwater	F. H. Gravely.
Mouth of Madachua Bay, Chilka Lake	N. Annandale.
Large creek close to Tumidalametta Hill, 336 ft., Vizagapatam	H. S. Rao & G. Varugis.

**Cryptocentrus** (Ehrenberg) Cuvier & Valenciennes.

1837. *Cryptocentrus*, (Ehrenberg Ms.) Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 111.

1873. *Paragobius*, Bleeker, *Ned. Tijds. Dierkunde* IV, p. 128.

Body elongate, compressed, covered with 85 to more than 140 scales, ctenoid on the posterior part of body, cycloid on the anterior part of body or totally cycloid. Head compressed, scaled above behind the eyes or naked, neck scaled or naked. Bony interorbital about  $\frac{1}{4}$  eye-diameter. Snout blunt, about as long as eye. Nostrils not tubular or in a short tube. Mouth wide, a little oblique, lower jaw a little prominent. Teeth in both jaws in several rows, the outer enlarged, outer row of mandible extends to the half of the jaw, last tooth mostly a recurved canine. Tongue truncate. Gill openings wide, isthmus narrow. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/10-20; anal I/9-21. Ventral united, oblong. Pectoral without free silk-like rays. Caudal pointed, longer than head.

*Synopsis of the Indian species.*

1a. D. 2 and A. with less than 14 rays. All scales cycloid. Head and nape naked ..

*C. leptcephalus*, p. 240.

- 1b. D. 2 and A. with less than 14 rays. All scales cycloid. Head and nape scaled *C. pavoninoides*, p. 240.  
 1c. D. 2 and A. with more than 14 rays. Scales posteriorly ctenoid. Nape naked *C. gymnocephalus*, p. 241.

### **Cryptocentrus leptocephalus** Bleeker.

1876. *Cryptocentrus leptocephalus*, Bleeker, *Verh. Ak. Amsterdam* (2) IX, p. 146.

1914. *Cryptocentrus rubropunctatus*, Sewell, *Rec. Ind. Mus.* X, p. 134, pl. viii, fig. 3.

1935. *Cryptocentrus geniornatus*, Herre, *Field Mus. N. H. Zool.* XVIII, p. 428.

D. 1. VI ; D. 2. I/10-11 ; A. I/10 ; P. 17 ; L. l. about 105 ; L. tr. 1. 25 ; L. tr. 2. 16.

Body elongate, compressed, height 6 in length, 8 in total length. Head obtuse, convex, 4 in length,  $5\frac{1}{5}$  in total length. Profile convex. Eye 4 in head, interorbital  $\frac{1}{4}$  eye-diameter. Snout shorter than eye, tip below lower margin of eye. Mouth oblique, lower jaw a little prominent. Maxillary extends to below posterior part of eye. Teeth in several rows ; in upper jaw outer row enlarged, in front 2-3 canines ; in lower jaw outer row enlarged, on each side a canine, inner row nearly not enlarged. Tongue rounded. On cheek longitudinal mucous canals. Head naked, nape naked. Scales of body all cycloid. First dorsal higher than body, pointed, 3rd and 4th rays are the longest. Second dorsal and anal pointed posteriorly. Caudal oblong, a little longer than head.

*Colour*.—Reddish-green above, reddish pearl-like below. On head many reddish spots. On body 7-8 oblique transverse bands. Fins weakly red to yellow. First dorsal with many red spots, bordered with violet, placed in longitudinal rows. Second dorsal with dark border. Middle and tip of ventral and outer half of anal violet.

*Length*.—100 mm.

*Habitat*.—India, Persian Gulf, Singapore, Siam, Indo-Australian Archipelago.

I have examined specimens from the following localities :—

#### *Indian Museum Collection.*

(Tavoy, *C. rubropunctatus* type) Fisher Bay  
 Persian Gulf

Marine Survey.  
 Marine Survey.

### **Cryptocentrus pavoninoides** (Bleeker).

1849. *Gobius pavoninoides*, Bleeker, *Verh. Bat. Gen.* XXII, p. 33.

? 1914. *Cryptocentrus venustus*, Seale, *Philipp. Journ. Sci.*, (Sect. D.) IX, p. 76, pl. ii, fig. 2.

1927. *Cryptocentrus cebuanus*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 240, pl. xix, fig. 2.

D. 1. VI ; D. 2. I/10-11 ; A. I/10 ; P. 18 ; L. l. 90 ; L. tr. 1. 24 ; L. tr. 2. 14 ; Predorsal scales 20.

Body elongate, compressed, height  $4\frac{1}{2}$ -5 in length,  $6\frac{3}{4}$  in total length. Head  $3\frac{1}{2}$ -4 in length, 5 in total length, obtuse convex. Profile convex. Eye 4 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout truncate, much shorter than eye, tip below lower margin of eye. Anterior nostril in a short tube. Mouth very oblique, lower jaw a little prominent. Maxillary extends to below posterior margin of eye. Lips thick. Teeth in many rows, in upper jaw outer row enlarged, in front caninoid. In lower jaw outer row extends to halfway the jaw, not caninoid, inner row enlarged. Longitudinal mucous canals over cheek. No pore in interorbital. Behind eye an open pore at the beginning of supraopercular groove. Head scaled above behind eye. Scales of head, nape and body cycloid. First dorsal lower than

body, middle rays are the longest. Second dorsal and anal not higher than first dorsal, pointed posteriorly. Pectoral without free silk-like rays, obtuse, a little shorter than head. Ventral obtuse, a little longer than head. Caudal oblong, not much longer than head.

*Colour.*—Dark olivaceous above, reddish-green below. Head and nape with small pearl-like spots, bordered with violet or blue. Laterally on body 10-11 blackish transverse bands, narrower than the interspaces. Fins red to yellowish red. Only ventral purplish, middle and tip black. First dorsal halfway between each ray with oblong black spots. Second dorsal with hyaline spots.

*Length.*—140 mm.

*Habitat.*—India, Philippines, ? Hongkong, Indo-Australian Archipelago.

I have examined specimens from Nancouri Harbour.

### **Cryptocentrus gymnocephalus** (Bleeker).

1853. *Gobius gymnocephalus*, Bleeker, *Nat. Tijds. Ned. Ind.*, IV, p. 473.

1888. *Gobius gymnocephalus*, Day, *Fish. India Suppl.*, p. 792.

1889. *Gobius gymnocephalus*, Day, *Faun. Brit. Ind. Fish.* II, p. 249.

D. 1. VI ; D. 2. I/17-19 ; A. I/18-20 ; P. 19-20 ; L. 1. 120-130 ; L. tr. 1. 35 ; L. tr. 2. 18.

Body elongate, compressed, height  $6\frac{1}{3}$ -7 in length,  $8-9\frac{1}{4}$  in total length. Head obtuse compressed,  $4\frac{2}{5}$ - $4\frac{3}{4}$  in length, about 6 in total length. Profile convex. Eye  $4-4\frac{2}{5}$  in head, interorbital less than  $\frac{1}{3}$  eye-diameter. Snout obtuse, shorter than eye, tip before or a little below lower margin of eye. Anterior nostril in a short tube. Mouth oblique, lower jaw a little prominent. Maxillary extends to posterior part of eye. Teeth in many rows, in upper jaw outer row enlarged, caninoid in front. In lower jaw outer row enlarged to halfway the jaw, no canines ; inner row with 2-4 canines. Posteriorly medially in interorbital an open pore. Behind eye at the beginning of supraopercular groove an open pore. Head naked, middle of nape naked. Scales anteriorly on body cycloid, posteriorly ctenoid. First dorsal as high as or a little lower than body, 4th and 5th rays are the longest. Second dorsal and anal twice longer than first dorsal, lower than body, pointed posteriorly. Pectoral without free silk-like rays, a little shorter than head. Ventral obtuse, a little longer than head. Caudal lanceolate, about twice head.

*Colour.*—Reddish-green above, reddish pearl-like below. Laterally 3 transverse bands, 1st below first dorsal, 2nd below anterior part of second dorsal, 3rd below posterior part of second dorsal. Dorsal fins, anal and caudal reddish green. First dorsal with red margin. Second dorsal bordered with yellow, blue and red. Anal halfway a red and blue longitudinal band. Caudal with many red and blue alternating oblique stripes, upper margin yellow. Pectoral reddish. Ventral reddish violet.

*Length.*—140 mm.

*Habitat.*—Madras, Mergui Archipelago, Siam, Java.

I have examined specimens from the following localities :—

#### *Indian Museum Collection.*

Elphinstone Id., Mergui Archipelago	..	..	..	Marine Survey.
Port Maria	..		..	Marine Survey.

### **Barbatogobius**, gen. nov.

Body elongate, anteriorly cylindrical, posteriorly compressed, covered with about 34 scales, ctenoid, becoming cycloid below first dorsal. Breast and belly scaled with cycloid

scales. Head depressed, flat above, scaled from halfway preopercle or from end of preopercle with more or less rudimentary scales. Nape scaled with small cycloid scales. Interorbital 1 eye-diameter. Snout a little longer than eye. Anterior nostril tubular, posterior nostril with a flap on the rim. Mouth a little oblique, lower jaw a little prominent. Maxillary prolonged posteriorly. On snout several barbels. Two barbels at the chin, median ramus of lower jaw on each side with 4 barbels. Some mucous canals longitudinally over cheek, two along the lower jaw to posterior margin of preopercle. Before and behind eye an open pore with a flap-like rim. Teeth in both jaws in several rows, outer a little enlarged. Tongue feebly emarginate. Gill openings not continued forward below, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/10; anal I/9. Ventral united, oblong. Pectoral without free silk-like rays. Caudal oblong, shorter than head.

*Genotype*.—*Barbatogobius asanai*, sp. nov.

This genus has some resemblance to *Parachaeturichthys* but is at once distinguished by its character of having the maxillary prolonged posteriorly.

### **Barbatogobius asanai**, gen. et sp. nov.

D. 1. VI; D. 2. I/10; A. I/9; P. 21; L. l. about 34; L. tr. 14; Predorsal scales about 18.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5-5½ in length, 6-6½ in total length. Head depressed, flat above, 3 in length, 3¾ in total length. Eye 5½-6 in head, interorbital 1 eye-diameter. Snout 1½ eye-diameter, tip before inferior margin of eye. Anterior nostril in a tube, posterior nostril with a flap on the rim. Mouth a little oblique, lower jaw a little prominent. Maxillary prolonged posteriorly, extending to one eye-diameter behind eye, in young specimens not so far. On snout between the nostrils several barbels. Two barbels at the chin, four barbels on each side of median ramus of lower jaw. Teeth in each jaw in several rows, outer row enlarged. Outer row of lower jaw extends to halfway the jaw; no canines. Tongue feebly emarginate. Medially of anterior nostril two longitudinal mucous canals on snout, laterally of which three short transverse ones. From posterior nostril begins a mucous canal which runs along maxillary to edge of mouth and then longitudinally over cheek. Above this canal, four ones run longitudinally over cheek, the upper ones a little obliquely upwards, the uppermost one below eye. Two mucous canals along lower jaw to posterior margin of preopercle. Some short ones on opercle. Above opercle two longitudinal mucous canals. Open pores: one posteriorly in interorbital space; before and behind each eye one pore with a flap-like rim; two pores in supraopercular groove. Head scaled above from halfway or from end of preopercle with small cycloid scales which are somewhat rudimentary; cheek and opercle naked. Scales of nape, breast and belly cycloid. Below first dorsal the scales become ctenoid. Dorsal fins very close, but separate. First dorsal lower than body, convex, the middle rays are the longest. Second dorsal and anal anteriorly lower than body, posteriorly higher and pointed. Pectoral and ventral oblong, about as long as postorbital part of head. Caudal oblong, shorter than head.

*Colour*.—In spirit: brownish. Head with irregular dark markings. Body with 3 alternating rows of about 5 blotches. First dorsal light, with 2 broad oblique dark bands. Second dorsal light with 3-4 dusky oblique bands. Anal in middle dusky. Rays of caudal spotted. Pectoral with dark band at the base, ending above in a light ocellus, bordered with dusky; outermost part of pectoral spotted. Ventral dusky.

*Length.*—68 mm.

*Habitat.*—Kosamba Creek near Bulsan, Western India. Three specimens were collected at Kosamba Creek near Bulsan, Western India, May 1925, by J. J. Asana; they are 68, 57 and 42 mm. in length. The specimen of 57 mm. is the type. In the collection were also 2 other specimens without history of 62 and 53 mm.

### **Pseudogobiopsis** Koumans.

1935. *Pseudogobiopsis*, Koumans, *Zool. Med. Leiden* XVIII, p. 131.

Body elongate, anteriorly cylindrical, posteriorly compressed, covered with about 28 ctenoid scales. Head compressed or depressed, scales above behind the eyes and on opercle with large cycloid scales. The first predorsal is a large one, medially close behind the eye. Interorbital less than 1 eye-diameter. Mouth a little oblique. Maxillary prolonged posteriorly to behind the eye. Teeth small, in several rows, outer row in upper jaw a little enlarged. Tongue emarginate to truncate. Gill openings wide, continued forward below, isthmus narrow. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins separate. First dorsal with 6 rays. Second dorsal 1/6-7. Ventral united. Pectoral without free silk-like rays. Caudal oblong.

#### *Synopsis of the Indian species.*

1a. D. 2. I/6. Head depressed

*P. oligactis*, p. 243.

1b. D. 2. I/7. Head subcylindrical to compressed

*P. romeri*, p. 244.

### **Pseudogobiopsis oligactis** (Bleeker).

1875. *Gobiopsis oligactis*, Bleeker, *Arch. neerl. sc. ex. et nat.* X, p. 113.

1908. *Glossogobius campbellianus*, Jordan & Seale, *Proc. U. S. Nat. Mus.* XXXIII, p. 542, fig. 2.

1934. *Vaimosa siamensis*, Fowler, *Proc. Acad. Nat. Sci. Philadelphia* LXXXVI, p. 157, fig. 125.

D. 1. VI; D. 2. I/6; A. I/6; P. 18-19; L. l. 28; L. tr. 7-8; Predorsal scales 7-8.

Body elongate, anteriorly cylindrical, posteriorly compressed, height a little more than 4 in length, more than 5 in total length. Head depressed, profile convex,  $3\frac{1}{3}$  in length, 4 in total length. Eye  $4\frac{1}{2}$  in head, interorbital less than 1 eye-diameter. Snout convex, shorter than eye, tip before lower part of eye. Jaws equal. Maxillary extends to posterior margin of preopercle. Teeth in front in several rows, laterally the number of rows decrease. In front in upper jaw outer row a little enlarged. Tongue bilobate. Head scaled above behind the eyes and laterally on opercle with large cycloid scales. Scales of body ctenoid, except those before first dorsal fin and those on breast, which are cycloid. First dorsal pointed, much lower than body, 1st ray sometimes filiform. Second dorsal and anal higher than first dorsal. Pectoral rounded, not shorter than head without snout. Ventral a little shorter than pectoral, basal membrane weak. Caudal oblong.

*Colour.*—Reddish-green to olive-green above, lighter below; each scale with a number of dark spots, placed in a transverse row. Head laterally with crowded blackish spots. First dorsal with dark spot at the top. Second dorsal and caudal with dark bands.

*Length.*—53 mm.

*Habitat.*—India, Siam, Indo-Australian Archipelago.

I have examined a specimen from Chalna Kutu.

**Pseudogobiopsis romeri** (M. Weber).

1911. *Gobius romeri*, M. Weber, *Abh. Senck. Ges.* XXXIV, p. 39, fig. 8.  
 1927. *Vaimosa macrogathos*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 145, pl. x, fig. 2.  
 1935. *Vaimosa osgoodi*, Herre, *Field Mus. N. H. Zool.* XVIII, p. 420.  
 1935. *Vaimosa koumansi*, Mukerji, *Red. Ind. Mus.* XXXVII, p. 268, pl. vi, figs. 3, 4.  
 1939. *Vaimosa koumansi*, Herre, *op. cit.* XLI, p. 348.

D. 1. VI ; D. 2. I/7 ; A. I/6 ; P. 17 ; L. 1. 26-28 ; L. tr. 7-8 ; Predorsal scales 7-8.

Body elongate, compressed, height 4-5 in length, 5-6 in total length. Head subcylindrical to compressed, 3 in length,  $3\frac{2}{3}$  in total length ; dorsal profile convex. Eye  $4\frac{1}{2}$  in head, interorbital  $\frac{1}{2}$  eye-diameter. Snout obtuse, a little shorter than eye, tip below lower margin of eye. Anterior nostril in a short tube. Lips thick. Mouth a little oblique, wide, lower jaw prominent or jaws subequal. Maxillary extends to behind eye. Teeth in each jaw in some rows, outer enlarged, a little caninoid. Tongue rounded to feebly emarginate. Some open pores round the eyes and in supraopercular groove. Two longitudinal mucous canals over cheek. Head scaled above behind eyes and on opercle with large cycloid scales. Scales of nape cycloid, the anterior one is a large scale in the median line. Scales on body ctenoid, on breast cycloid. First dorsal about as high as body, the anterior rays are the longest, sometimes filiform. Second dorsal and anal lower than body. Caudal oblong, a little shorter than head. Pectoral as long as head. Ventral a little shorter.

*Colour*.—Yellowish ; body with two alternating rows of dark brown spots on the dorsal half. Two dark spots in a vertical line at the base of caudal fin. Head with bent brown transverse bands. First dorsal with dark band halfway and dark margin. Second dorsal with 2-4 longitudinal dark bands. Caudal with some dark irregular transverse bands.

*Length*.—43 mm.

*Habitat*.—Andamans, Philippines, Indo-Australian Archipelago, Queensland, Fiji Is. I have examined specimens from the following localities :—

*Indian Museum Collection.*

W. of Sipighat (Bhagelsinghpura), S. Andaman

H. S. Rao & K. S. Misra.

Dhanikari stream, S. Andaman

H. S. Rao & K. S. Misra.

As I have noted already in *Rec. Ind. Mus.* XLII, p. 16, it is possible that this species is the male of a species of which the female is *Stigmatogobius neglectus* (Blkr.) Koumans. The note of Herre, 1939, was received by me after this article was made ready for press.

**Gobiopsis** Steindachner.

1860. *Gobiopsis*, Steindachner, *Sitz. ber. Ak. Wiss. Wien.* XLII, No. 23, p. 291.

Body elongate, compressed, covered with about 33 ctenoid scales. Head depressed, scaled above behind the eyes with small cycloid scales. Maxillary prolonged posteriorly. Teeth in several rows, outer row enlarged. Gill openings wide, continued forward below. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/10 ; anal I/9. Ventrals united. Caudal rounded.



**Gobiopsis macrostomus** Steindachner.

1860. *Gobiopsis macrostomus*, Steindachner, *Sitz. ber. Ak. Wiss. Wien* XLII, p. 291, pl. I, fig. 6.

1876. *Gobius macrostoma*, Day, *Fish. India*, p. 286.

1889. *Gobius macrostoma*, Day, *Faun. Brit. Ind. Fish.* II, p. 252.

D. 1. VI ; D. 2. I/10 ; A. I/9 ; P. 18 ; L. l. about 33.

Body elongate, compressed, height  $7\frac{1}{2}$  in total length. Head depressed, flat above,  $3\frac{2}{3}$ - $3\frac{3}{4}$  in total length. Eye  $6\frac{3}{4}$  in head, interorbital  $1-1\frac{1}{3}$  eye-diameter. Snout convex. Mouth oblique, maxillary extends to beyond eye. Teeth in several rows, outer row enlarged, no canines. Head scaled above behind eye with small cycloid scales. Scales of body ctenoid. Dorsal fins separate. First dorsal rounded, lower than body. Second dorsal and anal pointed posteriorly. Pectoral rounded, longer than head,  $5\frac{1}{4}$  in total length. Ventral pointed. Caudal rounded, shorter than head.

*Colour*.—Pectoral and ventral fins dusky, other fins with dark streaks.

*Length*.— ?

*Habitat*.—Bombay.

Of this species I have not seen any specimen.

**Paragobiopsis**, gen. nov.

Body elongate, anteriorly cylindrical, posteriorly compressed, covered with about 40 ctenoid scales. Head depressed, scaled above behind the eyes, cheek and opercle naked. The predorsal scales are more or less rudimentary. Interorbital narrow. Mouth a little oblique. Maxillary a little prolonged, mandible prolonged to beyond eye. Teeth in several rows, outer row enlarged. Tongue bilobate. Gill openings not continued forward below, isthmus broad. No fleshy flaps on inner edge of shoulder girdle. No barbels. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/9-10; anal I/8-9. Ventral united. The upper rays of pectoral are free silk-like. Caudal obtuse.

*Genotype* : *Gobius ostreicola* Chaudhuri.

**Paragobiopsis ostreicola** (Chaudhuri).

1916. *Gobius ostreicola*, Chaudhuri, *Rec. Ind. Mus.* XII, p. 105.

1923. *Gobius ostreicola*, Hora, *Mem. Ind. Mus.* V, p. 740, text-fig. 22.

D. 1. VI ; D. 2. I/9-10 ; A. I/8-9 ; P. 18-19 ; L. l. 38-40 ; L. tr. 15-16 ; Predorsal scales about 20.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5 in length,  $6\frac{1}{2}$  in total length. Head depressed,  $3\frac{1}{2}$  in length,  $4\frac{1}{4}$  in total length. Eye 4 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout obtuse, a little shorter than eye, tip before lower margin of eye. Anterior nostril tubular. Lips thick. Jaws subequal. Maxillary extends to below posterior margin of eye, mandible to beyond eye. Teeth in several rows in upper jaw outer row enlarged, in lower jaw outer row a little enlarged. Tongue rounded. Longitudinal mucous canals over cheek. A pore medially in interorbital, one medially at the end of interorbital. A pore behind each eye at the beginning of supraopercular groove. Head scaled above behind eye with more or less rudimentary scales. Cheek and opercle naked. Scales of head, nape, breast and belly cycloid, on body ctenoid. First dorsal lower than body, middle rays are the longest. Second dorsal lower than body, pointed posteriorly. Anal shorter than second dorsal. Pectoral rounded, a little shorter than head, upper rays silk-like.

Ventral obtusely rounded, about as long as pectoral, basal membrane laterally with a lobe on each side. Caudal obtuse, a little shorter than head.

*Colour*.—Body and head with dark spots. On body faint irregular dark blotches, one below first dorsal, one or two below second dorsal. Rays of dorsal fins and caudal spotted. Anal dusky, a band near margin.

*Length*.—58 mm.

*Habitat*.—Manikpatna, Vizagapatam, Madras.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Oyster-beds near Manikpatna, Chilka Lake

Chilka Survey.

In pools close to harbour of Railway line, Vizagapatam

H. S. Rao & G. Varugis.

Madras

?

**Pogonogobius** H. M. Smith.

1931. *Pogonogobius*, H. M. Smith, *Proc. U. S. Nat. Mus.* LXXIX, Art. 7, p. 37.

Body elongate, compressed, covered with 46 ctenoid scales, which become smaller on predorsal region. Head greatly depressed. Cheek and opercle naked. Eyes widely separated. Mouth nearly horizontal, lower jaw slightly projecting. Teeth small, in several rows, none enlarged. Tongue rounded. Mucous canals on opercle, cheek, snout and under side of lower jaw. About 8 short, fleshy barbels on each side of snout, one large pair on the chin near median line and one pair on each side of lower jaw in line with the tubular anterior nostrils. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/9-10; anal I/9-10. Pectoral with free silk-like rays. Caudal oblong.

**Pogonogobius planifrons** (Day).

1873. *Gobius planifrons*, Day, *Proc. Zool. Soc. London*, p. 108.

1876. *Gobius planifrons*, Day, *Fish. India*, p. 293, pl. lxiii, fig. 9.

1889. *Gobius planifrons*, Day, *Faun. Brit. Ind. Fish.* II, p. 264.

D. 1. VI; D. 2. I/9-10; A. I/9-10, P. 19; L. l. 46; L. tr. 15; Predorsal scales about 25.

Body elongate, anteriorly a little compressed, posteriorly more compressed, height  $5\frac{1}{2}$  in length,  $6\frac{1}{2}$ -7 in total length. Head greatly depressed, flat above,  $3\frac{1}{2}$  in length,  $4\frac{1}{4}$ - $4\frac{1}{2}$  in total length. Eye 6 in head, interorbital  $1\frac{1}{2}$  eye-diameter. Snout as long as eye, tip before lower margin of eye. Anterior nostril tubular. Mouth nearly horizontal, lower jaw prominent. Maxillary extends to half a diameter behind eye. Teeth in several rows, outer row enlarged, distant, inner row a little enlarged. In lower jaw outer row extends to halfway the jaw. No canines. Tongue rounded. About 8 short barbels on each side on snout, on chin 5 barbels. From posterior nostril a mucous canal to edge of mouth, from here 2-3 longitudinal canals over cheek. A canal below eye, one along posterior margin of preopercle, some short ones over opercle. An open pore near posterior nostril on each side. One on each side anteriorly in interorbital space, one medially posteriorly of interorbital. Behind each eye one large pore at the beginning of supraopercular groove. Some open pores along supraopercular groove, some along posterior margin of preopercle. Head scaled above from a little behind the eyes, cheek and opercle naked. Scales on head and nape small cycloid, on breast and belly cycloid, on body ctenoid. First dorsal a half of height of body, 2nd ray

is the longest. Second dorsal higher than first dorsal. Pectoral with some free silk-like rays, as long as head without snout. Caudal rounded, shorter than head.

*Colour.*—Dark olive, with about 8 indistinct darker transverse bands. Fins dark gray. Dorsal fins spotted. At the upper part of base of pectoral a dark blotch.

*Length.*—100 mm.

*Habitat.*—India, Siam.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Bombay .. .. .	.	Purchased from F. Day.
Shallow water near Bombay	..	T. S. Patrick Stewart Townsend.
Off Hingi Basin	..	?

**Pipidonia** H. M. Smith.

1931. *Pipidonia*, H. M. Smith, *Proc. U. S. Nat. Mus.* LXXIX, Art. 7, 1931, p. 39.

Body elongate, compressed, covered with 39 cycloid scales. Head depressed, naked. Eyes close together. Mouth small, oblique. Teeth small, in about 3 rows in each jaw, outer teeth somewhat enlarged. Snout, rami of lower jaw, and median surface of lower jaw with numerous short fleshy filaments. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/8 ; anal I/8. Ventral united. Pectoral broad, without free silk-like rays. Caudal wedge-shaped, as long as head.

**Pipidonia arenarius** (Snyder).

1908. *Heteroleotris arenarius*, Snyder, *Proc. U. S. Nat. Mus.* XXXV, 1909, p. 100.

1912. *Heteroleotris arenarius*, Snyder, *op. cit.* XLII, pl. lxxvii, fig. 3.

1931. *Pipidonia quinquecineta*, H. M. Smith, *Proc. U. S. Nat. Mus.* LXXIX, Art. 7, p. 39, fig. 19.

D. 1. VI ; D. 2. I/8 ; A. I/8 ; P. 16 ; L. l. about 39 ; L. tr. 10 ; Predorsal scales 9.

Body very elongate, compressed, height 6 in length. Head depressed and flattened, 3.5 in length. Eye small. Mouth oblique, lower jaw prominent. Maxillary extends to below anterior border of eye. Snout longer than eye, tip before upper margin of eye. Anterior nostril tubular. Teeth small, in about 3 rows in each jaw, outer teeth a little enlarged. Tongue truncate. Gill openings a little continued forward below. Isthmus broad. Snout, rami of lower jaw and median surface of lower jaw with many short filaments. Body with cycloid scales, becoming a little ctenoid posteriorly. Head naked above behind eye, the predorsal scales begin above opercle. Dorsal fins separate. First dorsal with 6 slender rays, not 5 as given by Smith, the middle rays are the longest. Pectoral and ventral as long as postorbital part of head. Ventral united, the basal membrane is very weak. Caudal wedge-shaped, about as long as head.

*Colour.*—Pale yellow. Five irregular brown cross bands which do not reach the belly ; 1st on nape, 2nd below first dorsal, 3rd and 4th below second dorsal, 5th at the base of caudal fin. Behind eye a dusky blotch, extending on opercle. Fins hyaline, the 3 bands below the dorsal fins are faintly extending on their bases.

*Length.*—33 mm.

*Habitat*.—Andamans, Siam, Japan.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Dundas Point, Port Blair

?

Expedition Harbour, Nicobar Is.

..

.. Marine Survey.

**Quisquilius** Jordan & Evermann.

1902. *Quisquilius*, Jordan & Evermann, *Bull. U. S. Fish. Comm.* XXII, p. 203.

1927. *Cingulogobius*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 201.

Body elongate, compressed, covered with 25-32 ctenoid scales. Head a little compressed to depressed, scaled above behind the eyes, preopercle and opercle more or less scaled (to naked?). Eye large, interorbital  $\frac{1}{2}$  eye-diameter. Snout shorter than eye. Anterior nostril in a small tube. Mouth oblique, lower jaw prominent. Teeth apparently in two rows, but placed in many rows of very small ones, outer row enlarged, inner row a little enlarged. Tongue truncate to very slightly bilobate. Some fringed mucous canals over preopercle, some short canals over opercle. Dorsal fins close together. First dorsal with 6 rays. Second dorsal I/8-11; anal I/8-9. Ventral jointed at base of inner rays by a narrow membrane. Pectoral without free silk-like rays. Caudal rounded.

**Quisquilius eugenius** Jordan & Evermann.

1902. *Quisquilius eugenius*, Jordan & Evermann, *Bull. U. S. Fish. Comm.* XXII, 1903, p. 203.

1908. *Gobiomorphus cinctus*, Regan, *Trans. Linn. Soc. London, Zool.*, XII, p. 240.

1908. *Amblygobius naraharæ*, Snyder, *Proc. U. S. Nat. Mus.* XXXV, p. 101.

1909. *Quisquilius profundus*, M. Weber, *Notes Leyden Mus.* XXXI, p. 155.

1909. *Pleurogobius boulengeri*, Seale, *Philipp. Journ. Sci.* (Ser. A) IV, p. 536.

1912. *Amblygobius naraharæ*, Snyder, *op. cit.* XLII, pl. lxxviii, fig. 2.

1913. *Quisquilius profundus*, M. Weber, *Siboga Exp. Fische*, p. 483, fig. 100.

1927. *Cingulogobius boulengeri*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 201, pl. xvi, fig. 1.

D. 1. VI; D. 2. I/10-11; A. I/8-9; P. 18-19; L. l. about 30; L. tr. about 10; Predorsal scales about 16.

Body elongate, compressed, height  $3\frac{3}{4}$  in length. Head compressed,  $3\frac{1}{2}$  in length. Eye  $3\frac{1}{4}$  in head, interorbital very narrow. Anterior nostril tubular. Mouth oblique, lower jaw prominent. Maxillary extends to below anterior margin of pupil. Teeth apparently in two rows, but placed in many rows, outer row enlarged, inner row a little enlarged; laterally in lower jaw a canine. Tongue truncate to slightly bilobate. Gill openings continued forward below, isthmus narrow. Some mucous canals radiate under eye, crossed by two longitudinal ones. In interorbital space some short canals. Scales of body ctenoid, on nape ctenoid, on breast cycloid. Head scaled above behind eye, cheek naked, opercle naked or with a few scales along upper margin. Dorsal fins close together. First dorsal lower than body, middle rays are the longest. Caudal oblong, shorter than head. Pectoral as long as head. Ventral united, but membrane often torn, basal membrane absent.

*Colour*.—Yellowish. Head and body are dotted with small black spots. There are 12 transverse light bands on body, the four anterior bands on head, 5th just before first dorsal, 6th from middle of first dorsal, 7th at beginning of second dorsal, 8th and 9th below

second dorsal, 10th, 11th and 12th on caudal peduncle. Of these bands the 6th, 8th and 9th are extending upwards on dorsal fins. Dorsal fins and caudal with minute spots, other fins immaculate.

*Length.*—50 mm.

*Habitat.*—India, Solomon Is., Japan, Indo-Australian Archipelago, Hawaiian Is.

I have examined specimens from the north beach and inshore region of Fehendu Id.

This species is very similar to *Zonogobius semidoliatus* (C. & V.) but differs, besides in other characters, in having the head scaled above behind the eyes to first dorsal with about 16 ctenoid scales, while in *Zonogobius* this region is naked. Both species occur in the Indian fauna.

### **Amblygobius** Bleeker.

1874. *Amblygobius*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 322.

1874. *Odontogobius*, Bleeker, *op. cit.* p. 323.

Body elongate, compressed, covered with 50-75 scales, ctenoid on most parts of the body, becoming cycloid on nape, breast and belly. Head compressed, scaled above behind the eyes and on upper part of opercle. Bony interorbital about  $\frac{1}{2}$ -1 eye-diameter. Snout blunt, about as long as eye. Nostrils not tubular or anterior one in a very short tube. Mouth a little oblique, jaws subequal or lower jaw a little prominent. Teeth in both jaws in 2-3 rows, the outer strongly enlarged, outer row of lower jaw extends only to the half of the jaw, last teeth are recurved canines. Tongue truncate. Two mucous canals over preopercle diverging posteriorly. Some open pore on head. Gill openings not very wide, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins close together. First dorsal with 6 rays. Second dorsal I/13-16; anal I/13-16. Ventral united, oblong, basal membrane weakly developed. Pectoral without free silk-like rays, base scaled. Caudal rounded.

### **Amblygobius bynoensis** (Richardson).

1844. *Gobius bynoensis*, Richardson, *Voy. Erebus & Terror Fish.* p. 1, pl. i, figs. 1, 2.

1851. *Gobius stethophthalmus*, Bleeker, *Nat. Tijds. Ned. Ind.* I, p. 248, fig. 7.

1876. *Gobius bynoensis*, Day, *Fish. India*, p. 284, pl. lxi, fig. 3.

1877. *Apocryptes lineatus*, Alleyne & Macleay, *Proc. Linn. Soc. N. S. Wales* I, p. 332, pl. xii, fig. 3.

1878. *Gobius bivittatus*, Macleay, *op. cit.* II, p. 357, pl. ix, fig. 5.

1880. *Gobius harmandi*, Sauvage, *Bull. Soc. Philom. Paris* (7) IV, p. 49.

1889. *Gobius bynoensis*, Day, *Faun. Brit. Ind. Fish.* II, p. 249.

D. 1. VI; D. 2. I/13-16; A. I/14-16; P. 17-20; L. 1. 70-75; L. tr. 24; Predorsal scales 40.

Body elongate, compressed, height  $4-4\frac{3}{4}$  in length,  $5-5\frac{3}{4}$  in total length. Head compressed,  $3-4-4$  in length,  $4\frac{3}{4}-5$  in total length. Eye  $3\frac{1}{2}-4$  in head, interorbital  $\frac{2}{5}-\frac{2}{3}$  eye-diameter. Anterior nostril in a short tube. Snout a little longer than eye, tip before lower margin of eye. Mouth oblique, jaws subequal. Maxillary extends to below anterior half of eye. Teeth in upper jaw in 3 rows, outer enlarged, 4-5 caninoid teeth on each side. In lower jaw 2-3 rows, outer enlarged, laterally on each side 1-2 canines. A large open pore on inner side of anterior nostril, 2 in median line in interorbital, 5 pores in supraopercular groove, 3 along posterior margin of preopercle. Head scaled above behind the eyes, a few rudimentary

scales at upper margin of opercle. Scales of head, nape, breast and belly cycloid, other scales ctenoid. Bases of dorsal fins subcontinuous. First dorsal a little lower than body. Second dorsal and anal not higher than first dorsal, pointed posteriorly. Pectoral rounded, not longer than head. Ventral a little shorter than head. Caudal obtuse, about as long as head.

*Colour*.—Yellowish-red above, pearly below. Head with 2 brownish violet bands, bordered with blue, the upper one from eye to beneath first dorsal fin, the lower one from behind maxillary across opercle to base of pectoral, ending in a spot on base of pectoral. Cheek and opercle with blue spots surrounded by violet; on preopercle an oblique blue streak. Upper part of head and nape on each side with 5-7 blackish-violet ocelli, placed in a longitudinal row. Beneath first dorsal 2-3 dark, short transverse streaks, beneath second dorsal 4-5 short, oblong transverse bands. At base of caudal a brown spot. Dorsal fins with many pearly spots. Dorsal fins and anal with violet margin.

*Length*.—94 mm.

*Habitat*.—India to North Australia.

I have examined specimens from Paye or Paway Island.

### **Zonogobius** Bleeker.

1874. *Zonogobius*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 323.

Body elongate, covered with 22-30 ctenoid scales on the posterior part of body, anterior part naked. Head compressed, obtuse, naked. Snout about as long as eye. Mouth oblique. Teeth in upper jaw with the outer row enlarged, in lower jaw inner row enlarged, laterally some canines. Gill openings large, continued far forward below. Isthmus narrow. Dorsal fins very close together. First dorsal with 6 rays. Second dorsal I/8-9; anal I/7-8. Ventral united, basal membrane wanting or weak. Caudal rounded.

### **Zonogobius semidoliatus** (Cuvier & Valenciennes).

1837. *Gobius semidoliatus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 67.

1868. *Gobius semifasciatus*, Kner, *Sitz. ber. Ak. Wien.* LVIII, p. 326.

1876. *Gobius semidoliatus*, Day, *Fish. India*, p. 295, pl. lix, fig. 6.

1889. *Gobius semidoliatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 266.

1909. *Zonogobius boreus*, Snyder, *Proc. U. S. Nat. Mus.* XXXVI, p. 605.

D. 1. VI; D. 2. I/8-9; A. I/7-8; P. 16-17?; L. 1. 27; L. tr. 9-10.

Body elongate, compressed, height  $2\frac{2}{3}$ -3 in length, 4 in total length. Head subcylindrical,  $2\frac{2}{3}$  to more than 3 in length,  $3\frac{1}{2}$  in total length. Profile convex. Eye 3 in head, interorbital  $\frac{1}{2}$  eye-diameter. Snout obtuse, a little shorter than eye, tip before middle of eye. Mouth very oblique, lower jaw prominent. Maxillary extends to below anterior half of eye. Teeth in each jaw in some rows, outer enlarged. In upper jaw in front a short inner row of enlarged teeth; in lower jaw inner row enlarged, some canines laterally in lower jaw. Tongue rounded. Gill opening continued forward below, isthmus narrow. Head naked. Body naked on anterior part to insertion of first dorsal. Scales of body ctenoid. Second, 3rd and 4th rays of first dorsal filiform. Second dorsal and anal lower than body. Caudal rounded, shorter than head. Pectoral as long as head. Ventral as long as head, basal membrane low or wanting.

*Colour*—Brown with about 7-8 broad pale crossbars, edged with dark brown on head and anterior part of body, becoming indistinct and disappearing on posterior half. Fins uniform.

*Length*.—30 mm.

*Habitat*.—Red Sea to the Pacific.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Paye or Paway Id.	..	Marine Survey.
South Point, Outram Id.	..	.. Marine Survey.
Muthivaratu Paar.	..	?
South of Sound Island, N. Andaman		H. S. Rao & K. S. Misra.

**Awaous** Cuvier & Valenciennes.

1837. *Awaous*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 97.

1856-1858. *Chonophorus*, Poey, *Mem. de Cuba* II, p. 274.

1897. *Trichopharynx*, Ogilby, *Proc. Linn. Soc. N. S. Wales* XXII, p. 769.

Body elongate, anteriorly subcylindrical, posteriorly compressed, covered with 40-80 ctenoid scales, breast and belly scaled. Head elongate, scaled above behind the eyes and sometimes on upper parts of preopercle and opercle. Eye situated high in head, bony interorbital somewhat less than 1 eye-diameter. Snout very long, much longer than eye. Anterior nostril in a short tube. Mouth oblique, lips thick, upper jaw prominent. Teeth in both jaws in several rows, the outer somewhat enlarged, no canines. Tongue bilobate. Mucous canals not distinct.

Gill openings a little longer than the breadth of base of pectoral fin, isthmus broad. Inner edge of shoulder girdle with some fleshy flaps. Dorsal fins close together. First dorsal with 6 rays. Second dorsal I/9-11. Ventral united, oblong. Pectoral without free silk-like rays, base scaled. Caudal obtuse, shorter than head.

*Synopsis of the Indian species.*

1a. L. 1. 50-52 ; L. tr. 13-15 ; Predorsal scales 13-15	<i>A. grammepomus</i> , p. 251.
1b. L. 1. 51-58 ; L. tr. 16-19 ; Predorsal scales 17-24	<i>A. stamineus</i> , p. 252.

**Awaous grammepomus** (Bleeker).

1849. *Gobius melanocephalus*, Bleeker, *Verh. Bat. Gen.* XXII, p. 33.

1849. *Gobius personatus*, Bleeker, *op. cit.*, p. 34.

1849. *Gobius grammepomus*, Bleeker, *op. cit.*, p. 34.

1855. *Gobius grammepomus*, Bleeker, *Nat. Tijds. Ned. Ind.* IX, p. 200 (*melanocephalus* and *personatus* as synonyms, see Int. Rules art. 28).

1870. *Gobius stoliczkae*, Day, *Proc. Zool. Soc. London*, p. 692.

1876. *Gobius personatus*, Day, *Fish. India*, p. 292, pl. lxiii, fig. 6.

1889. *Gobius personatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 263.

1912. *Awaous macropterus*, Duncker, *Mitt. Nat. Hist. Mus. Hamburg* XXIX, p. 252, fig. 1.

D. 1. VI ; D. 2. I/10 ; P. 15-17 ; L. 1. 50-52 ; L. tr. 13-15 ; Predorsal scales 13-15.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $4\frac{1}{2}$ - $6\frac{1}{2}$  in length,  $5\frac{1}{2}$ - $7\frac{1}{2}$  in total length. Head obtuse convex,  $3\frac{1}{3}$ - $3\frac{3}{4}$  in length, profile convex. Eye 4-5 in

head, interorbital  $\frac{2}{5}$ -1 eye-diameter. Snout obtuse, in young specimens a little longer than eye, in adult much longer than eye, tip below lower margin of eye. Lips thick. Upper jaw prominent. Maxillary extends to below anterior margin of eye or not so far. Teeth in lower jaw equal in upper jaw outer row a little enlarged. Tongue bilobate. Scales on head cycloid. Head scaled above behind eye and along upper margin of opercle, sometimes some scales along posterior margin of preopercle. Scales of breast and belly cycloid, of body ctenoid. Distance between the dorsal fins less than diameter of eye. First dorsal about as high as body, 2nd, 3rd and 4th rays are the longest. Second dorsal and anal lower than body, pointed posteriorly. Pectoral obtuse, longer than head without snout. Ventral obtuse, not or a little shorter than pectoral. Caudal obtusely truncate, a little shorter than head.

*Colour*.—Olive green, lighter below. Head violet to olive green, 2 oblique blackish streaks from eye to maxillary. Back and sides with irregular blackish streaks. Caudal with 7-9 transverse blackish streaks. In middle of base of caudal and superiorly on base of pectoral a blackish dot. Ventral and caudal often blackish-violet.

*Length*.—134 mm.

*Habitat*.—India, Philippines, Indo-Australian Archipelago.

I have examined specimens from Burdwan, Bengal.

#### **Awaous stamineus** (Valenciennes).

1842. *Gobius stamineus*, Valenciennes, *Zool. Voy. Bonite*, p. 179, pl. v, fig. 5.

1860. *Gobius (Awaous) litturatus*, (Heckel) Steindachner, *Sitz. ber. Ak. Wien XLII*, p. 289, pl. i, figs. 4, 5.

1868. *Euctenogobius striatus*, Day, *Proc. Zool. Soc. London*, p. 272, fig.

1876. *Gobius striatus*, Day, *Fish. India*, p. 292, pl. lxii, fig. 6.

1889. *Gobius striatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 262.

D. 1. VI ; D. 2. I/10 ; A. I/10 ; P. 16-18 ; L. l. 51-58 ; L. tr. 16-19 ; Predorsal scales 17-24.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $4\frac{2}{5}$ - $4\frac{2}{3}$  in length,  $5\frac{1}{2}$ -6 in total length. Head obtusely convex,  $3\frac{1}{4}$ - $3\frac{3}{4}$  in length, profile convex. Eye  $4\frac{1}{2}$ -5 in head, interorbital  $\frac{3}{4}$ -1 eye-diameter. Snout obtusely convex, longer than eye, tip below lower margin of eye. Lips thick. Upper jaw prominent. Maxillary extends to below anterior margin of eye or not so far. Teeth in upper jaw outer row a little enlarged, in lower jaw equal. Tongue bilobate. Head scaled above behind eye and along upper margin of opercle, sometimes some scales on posterior part of cheek. Scales on opercle, breast and belly cycloid, on occiput and rest of body ctenoid. Distance between dorsal fins less than diameter of eye. Second, 3rd and 4th rays of first dorsal are the longest. Second dorsal and anal lower than body, pointed posteriorly. Pectoral obtuse, longer than head without snout. Ventral obtuse, a little or not shorter than pectoral. Caudal obtusely truncate, shorter than head.

*Colour*.—Olive green, belly yellowish. Head with irregular blackish spots. Two longitudinal blackish streaks from eye to maxillary. Body with blackish spots. Fins yellowish. First dorsal with 3-4, second with 5-6 longitudinal dark streaks. Caudal with 7-9 transverse streaks. In middle of base of caudal a blackish dot. Pectoral on upper part of base with a blackish dot.



*Length.*—170 mm.

*Habitat.*—India, Philippines, Indo-Australian Archipelago, Hawaiian Is.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Madras	..	..	..	..	Purchased from F. Day.
Bombay	..	..	..	..	F. Day.
Orissa		..	..	..	F. Day.
Chiplun Vashishti Valley, Ratnagiri Dist.		..	..	..	F. H. Gravely.
Below the Anicut of the Mahanadi in sand and stones		..	..	..	?
20 miles of the Shishak river, Chittagong Hill Tracts		..	..	..	R. P. Mullins.

*Madras Museum Collection.*

Travancore	..	..	..	..	?
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*Leiden Museum Collection.*

As <i>Gobius striatus</i> from Madras	..	..	..	..	F. Day.
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*Australian Museum Collection.*

As *Gobius striatus* from Malabar, labelled as type. This specimen is not the type, as Day describe the species from the backwaters of Madras.

As *Gobius personatus* Bleeker from Orissa, labelled as co-type. This is not a co-type as Bleeker never recorded the species from Orissa.

**Cottogobius**, gen. nov.

Body elongate, anteriorly cylindrical, posteriorly compressed, covered with 26-27 ctenoid scales. Head depressed to subcylindrical, naked or scaled above behind the eyes with ctenoid scales. Interorbital narrow. Snout pointed, as long as eye or longer than eye. Anterior nostril tubular. Mouth a little oblique. Jaws subequal or upper jaw prominent. Teeth in both jaws in several rows; in upper jaw outer row enlarged, caninoid; in lower jaw outer row enlarged, inner row laterally caninoid, on each side of symphysis of lower jaw 1-2 strong, curved canines. Tongue bilobate. Some longitudinal mucous canals over cheek. Some open pores round upper half of eye and along posterior margin of preopercle. Gill openings continued forward below, gill membranes united across the isthmus. No fleshy flaps on inner edge of shoulder girdle. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/7-8; anal I/7-8. Ventral united, short, basal membrane with a lobe on each side. Pectoral without free silk-like rays, undermost rays are unbranched and a little bent outwards. Caudal obtuse, much shorter than head.

*Genotype* : *Cottogobius bilobatus*, gen. et sp. nov.

This genus is very remarkable in having the undermost rays of pectoral undivided. In this respect the fin has some resemblance to the pectoral fin of Cottoid fishes. Another remarkable character is the union of the gill-membranes across the isthmus.

**Cottogobius bilobatus**, gen. et sp. nov.

D. 1. VI; D. 2. I/7-8; P. 16-18; L. l. 26-27; L. tr. 6-7; Predorsal scales about 10 or naked.

Body elongate, anteriorly cylindrical, posteriorly compressed, height ( $4\frac{1}{2}$ ) 6 in length, 7 in total length. Head depressed (to subcylindrical), (3)  $3\frac{1}{4}$  in length,  $3\frac{3}{4}$  in total length. Eye ( $3\frac{1}{2}$ ) 4 in head, interorbital  $\frac{1}{5}$  eye-diameter. Snout pointed, (as long as eye)  $1\frac{1}{2}$  eye-diameter, tip before lower part of eye. Anterior nostril tubular. Mouth a little oblique, upper jaw prominent (jaws subequal). Maxillary extends to below anterior margin of pupil. Lips thick. Teeth in upper jaw in many rows of small teeth, outer row enlarged, canines. In lower jaw teeth in many rows, outer row enlarged, inner row laterally enlarged to curved canines; on each side of symphysis of lower jaw 1-2 strong curved canines. Tongue bilobate. Two to three longitudinal mucous canals over cheek. Some open pores round the upper half of eye and along posterior margin of preopercle. Gill openings far continued forward below, gill membranes united in front across the isthmus. No fleshy flaps on inner edge of shoulder girdle. Head, nape and breast naked (head scaled above behind eye with ctenoid scales). Scales of body ctenoid. Dorsal fins separate. First dorsal lower than body, middle rays are the longest. Caudal obtuse, much shorter than head. Pectoral broad,  $\frac{1}{2}$  of head, without free silk-like rays, lowermost rays are unbranched and a little bent outwards. Ventral short, as long as postorbital part of head, united, about circular, the outer margin is fringed as the rays extend a little beyond the membrane; basal membrane well developed, laterally with a rounded lobe (lobe bilobate).

*Colour.*—In spirit: brownish. On head 3 faint darker bands radiating from eye, one to snout, extending on upper lip where it meets the band of the other side, one to end of maxillary, one over cheek. Body wholly with minute dark spots. First dorsal with a few dark spots. Second dorsal with more spots, forming at the last ray a black irregular blotch. Middle of caudal dark. Anal diaphanous. Pectoral diaphanous, base with many minute spots. Ventral diaphanous. (Colour fainter. No blotch on second dorsal. Lower half of caudal dark.)

*Length.*—27 mm.

*Habitat.*—India.

In some specimens, of which I have given the characters in brackets, and which I regard to be females, I found the predorsal region sometimes scaled. In the specimens which I regard to be males, I found the predorsal region naked. So this and other slight differences between the two groups I regard to be due to sexual dimorphism.

I have examined specimens from the following localities:—

*Indian Museum Collection.*

Expedition Harbour, west side near entrance Nicobars.	4♂, 4♀	Marine Survey.
Camorta Id. (West of Jetty).	7♂	Marine Survey.
Camorta Id. (East coast).	1♂	Marine Survey.
Camorta Id. (East of Jetty to Naval Point).	14♂, 2♀ predorsal naked	Marine Survey.
Camorta Id. (Coral reef on east side).	2♂	Marine Survey.
Reef on North side of Fuladu Id.	1♀ ? predorsal naked ..	Marine Survey.
Muthivaratu Paar.	1♀ predorsal naked .. ..	?

**Glossogobius** Gill.

1862. *Glossogobius*, Gill, *Ann. Lyc. Nat. Hist. New York* VII, p. 46.

1874. *Cephalogobius*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 320.

Body elongate, anteriorly cylindrical, posteriorly compressed, covered with 25-40 ctenoid scales, becoming cycloid on the head. Head depressed, pointed, scaled above behind the eyes; upper parts of cheek and opercle sometimes scaled. Bony interorbital  $\frac{1}{3}$ - $\frac{3}{4}$  eye-diameter. Snout longer than eye. Anterior nostril in a short tube. Mouth a little oblique, lower jaw prominent. Maxillary not or nearly prolonged posteriorly. Teeth in both jaws in several rows, outer and inner one enlarged, uneven, widely set, outer row curved. Tongue bilobate. Gill openings far continued forward below, isthmus narrow. Inner edge of shoulder girdle without fleshy flaps. Some longitudinal mucous canals over cheek. Dorsal fins separate. First dorsal with 6 rays. Second dorsal and anal I/6-10. Ventral united, oblong. Pectoral without free silk-like rays, base scaled. Caudal oblong to pointed.

*Synopsis of the Indian species.*

- 1a. 7-8 scales in L. tr.; D. 1. with 2 ocelli. Iris of eye with a process in pupil .. *G. biocellatus*, p. 255.  
 1b. 9-14 scales in L. tr.; D. 1. with one spot or without spot. Iris without process in pupil .. *G. giuris*, p. 256.

**Glossogobius biocellatus** (Cuvier & Valenciennes).

1837. *Gobius biocellatus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 73.

1849. *Gobius eleotrioides*, Bleeker, *Verh. Bat. Gen.* XXII, p. 25.

1854. *Gobius sumatranus*, Bleeker, *Nat. Tijds. Ned. Ind.* VII, p. 83.

1876. *Gobius biocellatus*, Day, *Fish. India*, p. 289, pl. lxiii, fig. 8.

1889. *Gobius biocellatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 258.

1905. *Glossogobius vaisiganis*, Jordan & Seale, *Bull. Bur. Fisheries* XXV, p. 403, fig. 93.

1905. *Glossogobius aglestes*, Jordan & Seale, *Proc. U. S. Nat. Mus.* XXVIII, p. 798, fig. 16.

D. 1. VI; D. 2. I/9; A. I/8; P. 17-19; L. l. 28-32; L. tr. 7-8; Predorsal scales 14-17.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5-6 $\frac{1}{2}$  in length, 6-8 in total length. Head pointed, depressed, 3-3 $\frac{1}{4}$  in length, 3 $\frac{2}{3}$ -4 in total length. Frontal line straight, on snout a little convex. Eye 4 $\frac{1}{3}$ -5 in head, interorbital  $\frac{1}{3}$ - $\frac{1}{4}$  eye-diameter. A circular process from upper part of iris into pupil of eye. A crest from snout to temporal region is distinct in interorbital. Snout pointed, as long as eye or a little shorter, tip before middle of eye. Lower jaw prominent. Maxillary extends to below posterior margin of eye. Teeth in many rows, in maxillary some rows caninoid; in lower jaw outer and inner row caninoid enlarged, outer row strongly curved in front. Three to five longitudinal mucous canals on cheek. One pore in middle of interorbital. Supraopercular groove begins with an open pore behind eye. Head scaled above behind eye and on upper part of opercle with ctenoid scales. First dorsal pointed, 2nd, 3rd and 4th rays are the longest. Second dorsal about as high as body. Pectoral rounded, about as long as head without snout. Ventral not shorter than pectoral. Anal equal to second dorsal. Caudal rounded, shorter than head.

*Colour*.—Greenish to blackish. Head with shiny spots on lower part and blackish spots on upper part. On body shiny greenish spots and 5-6 larger blotches in a longitudinal row on upper part or two rows of alternating blotches. Fins blackish to orange. First dorsal

with a blackish ocellus between 1st and 2nd ray and another between 5th and 6th ray. Other fins except ventral with spotted rays.

*Length*.—101 mm.

*Habitat*.—India, Andamans, Philippines, Indo-Australian Archipelago, Samoa.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Madras .. .. .	Purchased from F. Day.
Channel between Barkuda and Satpara	Chilka Survey.
Off Barkuda	Chilka Survey.
Taing Mengin	J. Anderson.
Ennur Backwaters	N. Annandale.
On a stake-net, Manumban Channel, Travancore State, S. India	H. S. Rao.
Arukutti, Travancore State, S. India	H. S. Rao & G. Varugis.
Shallow bay opposite to Lova Garden, Vizagapatam	H. S. Rao. & G. Varugis.
Large creek close to Tumidalametta Hill, 336 ft., Vizagapatam	H. S. Rao & G. Varugis.
Channel connecting the backwater with the sea, Vizagapatam	H. S. Rao & G. Varugis.
Long Island, Middle Andaman	H. S. Rao & G. Varugis.

*Madras Museum Collection.*

Ennur backwater, Chingleput Dist.	.. F. H. Gravely.
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*Colombo Museum Collection.*

Bentota ..	?
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*Leiden Museum Collection.*

Madras ..	F. Day.
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**Glossogobius giuris** (Hamilton).

- ? 1822. *Gobius gutum*, Hamilton, *Fish. Ganges*, pp. 50, 366.  
 1822. *Gobius giuris*, Hamilton, *op. cit.* pp. 51, 366, pl. xxxiii, fig. 15.  
 1837. *Gobius kokius*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 68.  
 1837. *Gobius celebius*, Cuvier & Valenciennes, *op. cit.*, p. 74.  
 1837. *Gobius russelii*, Cuvier & Valenciennes, *op. cit.*, p. 75.  
 1837. *Gobius catebus*, Cuvier & Valenciennes, *op. cit.*, p. 76.  
 1837. *Gobius kora*, Cuvier & Valenciennes, *op. cit.*, p. 77.  
 1840. *Gobius kurpah*, Sykes, *Ann. Mag. Nat. Hist.* IV, p. 55.  
 1844. *Gobius fasciato-punctatus*, Richardson, *Voy. Sulphur Ichth.*, p. 145, pl. lxii, figs. 13, 14.  
 1849. *Gobius phaiosoma*, Bleeker, *Verh. Bat. Gen.* XXII, p. 30.  
 1849. *Gobius fusiformis*, Bleeker, *op. cit.* p. 30.  
 1849. *Gobius phaiospilosoma*, Bleeker, *op. cit.* p. 30.  
 1850. *Gobius sublitus*, Cantor, *Journ. As. Soc. Bengal* XVIII, p. 1163.  
 1850. *Gobius brunneus*, Temminck & Schlegel, *Faun. Japonica*, pl. lxxiv, fig. 2.  
 1850. *Gobius olivaceus*, Temminck & Schlegel, *op. cit.* pl. lxxiv, fig. 3.  
 1852. *Gobius platycephalus*, Peters, *Monatsber. Ak. Berlin*, p. 681 (*nec Rich.* ?).  
 1861. *Gobius unicolour*, (Kuhl & V. Hasselt) Günther, *Cat. Fish. Brit. Mus.* III, p. 23 (*nec C. & V.*).  
 1861. *Gobius spectabilis*, Günther, *op. cit.* p. 45.  
 1867. *Gobius pavo*, Steindachner, *Sitz. ber. Ak. Wien.* LV, p. 715.

1868. *Gobius obscuripinnis*, Peters, *Monatsber. Ak. Berlin*, p. 263.  
 ? 1876. *Gobius gutum*, Day, *Fish. India*, p. 294.  
 1876. *Gobius giuris*, Day, *op. cit.* p. 294, pl. lxvi, fig. 1.  
 1878. *Gobius sauroides*, Castelnau, *Proc. Linn. Soc. N. S. Wales* III, p. 48.  
 ? 1880. *Gobius suppositus*, Sauvage, *Bull. Soc. Philom. Paris* (7) IV, p. 41.  
 1880. *Gobius boscii*, Sauvage, *op. cit.* p. 44.  
 1883. *Gobius circumspectus*, Macleay, *Proc. Linn. Soc. N. S. Wales* VIII, p. 267.  
 1884. *Eleotris laticeps*, De Vis, *ibid.* IX, p. 692.  
 1886. *Gobius concavifrons*, Ramsay & Ogilby, *op. cit.* (2), I, p. 12.  
 ? 1889. *Gobius gutum*, Day, *Faun. Brit. India. Fish.* II, p. 265.  
 1889. *Gobius giuris*, Day, *op. cit.* p. 266.  
 1914. *Gobius matanensis*, M. Weber, *Bijdr. Dierk. Amsterdam*, p. 209, fig. 7.  
 1929. *Glossogobius vomer*, Whitley, *Rec. Austral. Mus.* XVII, p. 135, pl. xxxii, fig. 1.  
 ? 1929. *Gobius gutum*, Hora, *Mem. Ind. Mus.* IX, pl. xiv, fig. 7.  
 ? 1934. *Gobius gutum*, Hora, *Rec. Ind. Mus.* XXXVI, pp. 484, 486.  
 1935. *Glossogobius koragensis*, Herre, *Field Mus. N. H. Zool.* XVIII, p. 419.

D. 1. VI ; D. 2. I/8-9 ; A. I/7-8 ; P. 17-21 ; L. 1. 28-36 ; L. tr. 8-14 ; Predorsal scales 12-30.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $5-6\frac{1}{4}$  in length,  $6-8\frac{1}{2}$  in total length. Head pointed, depressed,  $3-3\frac{3}{4}$  in length,  $3\frac{3}{4}-4\frac{1}{4}$  in total length. Profile straight to a little convex. Eye 4-8 in head, interorbital  $\frac{1}{3}-1$  eye-diameter. On each side of interorbital space a low crest. Snout pointed, convex ; in young specimens shorter than eye, in adult longer than eye. Tip of snout before middle or lower part of eye. Lower jaw prominent. Maxillary extends to below anterior part of eye, or only to anterior border of eye. Lips thick. Teeth of outer and inner row enlarged, in front caninoid. Tongue bilobate. Some (3-5) longitudinal mucous canals over cheek. Head scaled above behind the eyes and on upper part of opercle, upper part of cheek sometimes scaled. Scales of head nearly all cycloid, of breast and belly cycloid, other scales ctenoid. Dorsal fins close together, first dorsal lower than body, 2nd, 3rd and 4th rays are the longest, sometimes filiform. Second dorsal and anal pointed posteriorly. Pectoral as long as or longer than head without snout. Ventral obtuse, a little shorter than pectoral. Caudal obtuse to oblong, about as long as head.

*Colour.*—Olive green to blackish-green above, lighter below. Head laterally with irregular dark to violet spots. Laterally on body two alternating longitudinal rows, each of 4-6 dark blotches, which disappear sometimes in large specimens. Fins yellowish green. The rays of dorsal fins, caudal and pectoral fin are spotted with dark spots. First dorsal sometimes with dark spot posteriorly. Anal sometimes with black margin. Pectoral with dark spot above on base. Ventral sometimes dusky.

*Length.*—350 mm.

*Habitat.*—From the East Coast of Africa to Australia, Philippines, China, Japan, New Caledonia.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Calcutta	..	..	..	..	..	Asiatic Society of Bengal.
Port Canning	..	..	..	..	..	N. Annandale.
Damukdia Ghat, E. Bengal	..	..	..	..	..	Museum Collector.

Manbhum ..				A. K. Hallows.
Madras				F. Day.
Gavai River, (Siripur) Saran, Bihar ..	..	..	..	M. Mackenzie.
Ghorasan, Purniah	..		..	M. Mackenzie & Walker.
Jharai River				M. Mackenzie.
Khampur, Hughli Dist.				A. Rohman.
Byranee, Naini Tal Dist.				Museum Collector.
Nepalgunj Road, Nepal Frontier				Museum Collector.
Lucknow, U. P.				M. M. Khan.
Bhagmati River, Champaran Dist. ..	..	..	..	M. Mackenzie.
Dacca, Bengal	..			Museum Collector.
Chakradharpur (Chota Nagpur)				N. Annandale & F. H. Gravely.
Haslo River, Bilaspur				W. T. Blanford.
Near the mouth of Patalung River at Lampan				N. Annandale.
In the outer lake at Singgora, Talé Sap			..	N. Annandale.
Taing Mengin ..	..			J. Anderson.
River Ichchamutty			..	A. Alcock.
Dacca, Bengal				R. Beacon.
Andamans				?
Akyab, Burma	.		..	F. Day.
Satpara, Chilka Lake				Chilka Survey.
Rambha Bay, Chilka Lake	..	..	..	Chilka Survey
Barkul, Chilka Lake				Chilka Survey.
Obtained from fishermen, Kamorta Island (Hangwa Swamp)			..	Marine Survey.
Lake at Purulia, Bihar				S. L. Hora & B. N. Chopra.
Mahul Pahari, Santal Parganas				R. O. Bodding.
Hamirpur Road, United Provinces			.	J. W. C.
From muddy banks of the Piali Nadi, near Calcutta				S. L. Hora.
Coimbatore Fishmarket				?
Chiplun Vashishti Valley, Ratnagiri Dist.				F. H. Gravely.
Near Shela, Khulna Dist., Bengal				J. T. Jenkins.
Kayamkulam Kayal, Travancore State, S. India			..	H. S. Rao & M. Sharif.
Nagpur, C. P.				F. H. Gravely.
Panchgani				?
Kumbalam-Twora Channel, Cochin State, S. India.				H. S. Rao.
Ellore market, Kistna Dist.			..	N. Annandale.
Nellore, Madras				N. Annandale.
Bangalore				C. R. Narayan Rao.
Base of hills, Chakradharpur, Singbhum Dist., Chota Nagpur				F. H. Gravely.
Bhawani River, base of Nilgiris			..	?
Panambukad, Cochin State, S. India			..	H. S. Rao.
Angul				J. Taylor.
Chunbarambakum Tank near Madras				N. Annandale.
Edge of Godaveri River near Railroad bridge ..	..			N. Annandale.
Rajahmundry, Madras	..	..		N. Annandale.
Kudrah Lake, Mirzapur				?
Barnala near Gurdaspur, Punjab				?

Alleppey, Travancore State, S. India	..	..	H. S. Rao & M. Sharif.-
Vendurutti, Cochin State, S. India	..		H. S. Rao.
Ennur Backwater	..		N. Annandale.
Chittagong, edge of river opposite town	..		N. Annandale & S. W. Kemp.
Mouth of River Hooghly	..		"Investigator."
Puri, Orissa	..	..	S. L. Hora & B. N. Chopra.
Cochin backwater near Ernakulam	..		F. H. Gravely.
Tambi, Koyna Valley, Satara Dist., alt. 2100	..		F. H. Gravely.
South of Wireless Station, Port Blair			H. S. Rao & K. S. Misra.
Near Beadonabad, Port Blair	..	..	H. S. Rao & K. S. Misra.
Sheoraphuli, Hooghli Dist.	..	..	B. L. Chaudhuri.
Bassein Dist. (Irrawadi Division), Burma	..	..	F. D. Maxwell.
Goalbathan, East Bengal	..		R. Hodgart.
Sonmiani, Las Bela, Baluchistan	..	..	Zugmayer Exchange.
Nontaburi & Bangkok, Siam		..	Malcolm Smith.
Haslo River, Belaspur	..	..	W. T. Blandford.
Sittang	..	..	F. Day.
Henzada	..	..	D. Day.
Cuttack	..	..	B. L. Chaudhuri.
Talé Sap, Siam	..	..	N. Annandale.

*Madras Museum Collection.*

Travancore	..	..	..	..	?
Madras, S. India	..	..	..	..	?

*Collection of Zoology Department, Madras University.*

Adyar	..	..	?
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*Colombo Museum Collection.*

Bentota	..	?
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*Leiden Museum Collection.*

Pondichery	..	Leschenault.
Colombo Harbour	..	P. Buitendijk.

**Stigmatogobius** Bleeker.

1874. *Stigmatogobius*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 323.

1930. *Parvigobius*, Whitley, *Austral. Zool.* VI, p. 122.

1933. *Ellogobius (Libagobius)*, Whitley, *Rec. Austral. Mus.* XIX, p. 92.

Body elongate, a little compressed, covered with 25-30 scales, ctenoid on the posterior part of body, becoming more cycloid on the anterior part, breast and belly scaled. Head a little compressed to depressed, scaled above behind the eyes; the foremost scale is a large unpaired one in the median line. Cheek and opercle or only opercle scaled. Interorbital  $\frac{1}{3}$ - $1\frac{1}{2}$  eye-diameter. Snout short, blunt, shorter than eye. Anterior nostril in a short tube. Mouth oblique, lower or upper jaw prominent. Teeth in both jaws in several rows, the outer of which is enlarged. The outer row of lower jaw extends only to halfway the jaw, the last tooth is not strongly developed. In lower jaw sometimes on each side of symphysis a canine

of inner row, laterally sometimes inner row enlarged. Tongue rounded to feebly emarginate. Gill openings not wide, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/6-8; anal I/6-8. Ventral united. Pectoral without free silk-like rays, base scaled. Caudal obtuse.

*Synopsis of the Indian species.*

- |  |                                    |
|--|------------------------------------|
| 1a. Predorsal scales 6-9. Lower jaw prominent  | 2.                                 |
| 1b. Predorsal scales 6-9. Upper jaw prominent  | 3.                                 |
| 1c. Predorsal scales 11-13. Head depressed   | <i>S. hoevenii</i> , p. 260.       |
| 2a. Teeth of inner row of lower jaw laterally enlarged. Interorbital<br>broader than eye   | .. <i>S. sadamundio</i> , p. 261.  |
| 2b. Teeth of inner row of lower jaw laterally not enlarged. Interorbital<br>much narrower than eye   | .. <i>S. neglectus</i> , p. 262.   |
| 3a. Teeth of inner row of lower jaw laterally enlarged   | .. <i>S. poecilosoma</i> , p. 262. |
| 3b. Teeth of inner row of lower jaw laterally not enlarged   | 4.                                 |
| 4a. Below D. 1 a dark stripe obliquely forward. D. 1 with dark spot<br>between 3rd and 5th ray. On body 2 alternating rows of dark<br>blotches | <i>S. javanicus</i> , p. 263.      |
| 4b. No blotches and stripes on body. No spot on D. 1   | <i>S. minima</i> , p. 264.         |

**Stigmatogobius hoevenii** (Bleeker).

1851. *Gobius hoevenii*, Bleeker, *Nat. Tijds. Ned. Ind.* II, p. 426.

1932. *Vaimosa chulae*, H. M. Smith, *Journ. Siam Soc. N. H. Suppl.* VIII, p. 260, pl. xxiii, fig.

1935. *Tamanka sinensis*, Herre, *Hongkong Naturalist* VI, p. 288.

1939. *Vaimosa hoeveni*, Herre, *Rec. Ind. Mus.* XLI, p. 348.

D. 1. VI; D. 2. I/7-8; A. 1/7-8; P. 16; L. l. 28-32; L. tr. 8-10; Predorsal scales 11-13.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 4 in length, 5 in total length. Head depressed,  $3\frac{1}{2}$  in length,  $4\frac{1}{2}$  in total length. Profile convex. Eye  $3\frac{1}{2}$  in head, interorbital more than 1 eye-diameter. Snout obtuse, shorter than eye, tip before or below lower margin of eye. Mouth a little oblique, upper jaw prominent. Maxillary extends to below posterior part of eye or not so far. Teeth in several rows; in lower jaw laterally inner row enlarged. Tongue rounded. Longitudinal rows of mucous canals over cheek. A row of 4 open pores on each side in interorbital space above and behind the eye. Head scaled above behind eye and on opercle with cycloid scales. Scales of nape and breast cycloid, other scales ctenoid. First dorsal much lower than body, middle rays are the longest, sometimes filiform. Second dorsal and anal lower than body. Pectoral rounded, about as long as head. Ventral shorter than head. Caudal obtuse, about as long as head.

*Colour*.—Yellowish brown. Nape with a dark stripe from nape to upper end of base of pectoral, followed by some shorter ones parallel to it before first dorsal, running obliquely downward and backward. Under first dorsal an oblique dark stripe running downward and forward, ending behind pectoral. Behind this stripe a number (about 6) of dark transverse stripes over back. Each scale has a dark margin, which form a network of oblique dark stripes over body. Before beginning of caudal rays two dark spots, placed in a vertical line. First dorsal with dark blotch halfway the fin, margin diaphanous.

*Length*.—52 mm.

*Habitat*.—Andamans, Singapore, Siam, Hongkong, Indo-Australian Archipelago, Samoa. Herre, 1939, records this species from the Andamans.



**Stigmatogobius sadanundio** (Hamilton).

1822. *Gobius sadanundio*, Hamilton, *Fish. Ganges*, pp. 52, 366.  
 1849. *Gobius pleurostigma*, Bleeker, *Verh. Bat. Gen.* XXII, p. 28.  
 1850. *Gobius apogonius*, Cantor, *Journ. As. Soc. Bengal* XVIII, p. 1164.  
 1876. *Gobius sadanundio*, Day, *Fish. India*, p. 296, pl. lxiii, fig. 10.  
 1888. *Gobius sadanundio*, Day, *op. cit.*, *Suppl.*, p. 793.  
 1889. *Gobius sadanundio*, Day, *Faun. Brit. Ind. Fish.* II, p. 268, fig. 90.  
 1929. *Gobius sadanundio*, Hora, *Mem. Ind. Mus.* IX, pl. xviii, fig. 3.  
 1933. *Vaimosa spilopleura*, H. M. Smith, *Journ. Siam Soc. N. H. Suppl.* IX, p. 66, pl. ii, fig. 2.

D. 1. VI ; D. 2. I/7 ; A. I/8 ; P. 18-19 ; L. 1. about 28 ; L. tr. 8-9 ; Predorsal scales 8-9.

Body elongate, compressed, height  $3\frac{3}{4}$ -4 in length,  $4\frac{2}{3}$ -5 in total length. Head sub-cylindrical,  $4\frac{1}{3}$ -5 in length. Eye 3-4 in head, interorbital  $1-1\frac{1}{2}$  eye-diameter. Snout shorter than eye, tip before middle to lower half of eye. Mouth oblique, lower jaw prominent. Maxillary extends to below middle of eye. Teeth in several rows, outer a little enlarged. In lower jaw inner row enlarged, forming a canine on each side of symphysis and caninoid teeth laterally. Tongue rounded. Some short mucous canals radiate under eye. Head scaled above behind eye, opercle scaled with large scales. Foremost scale behind eye enlarged. Scales of head and nape cycloid, of body ctenoid. First dorsal lower than body, 3rd and 4th rays are the longest, prolonged. Second dorsal and anal pointed posteriorly. Pectoral oblong, about as long as head. Ventral a little shorter. Caudal obtuse, a little longer than head.

*Colour.*—In spirit : Yellowish. Body with a number of black spots in one or a few lines longitudinally in middle of the sides. A few black spots at insertion of caudal rays. First dorsal with dark blotches between 4th and 6th ray. Second dorsal and anal with 3-4 dark spots, surrounded by a narrow white ring on basal half of the fin membrane. Caudal with small black spots. Middle rays of ventral black.

*Length.*—85 mm.

*Habitat.*—India, Malay Peninsula, Indo-Australian Archipelago.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Calcutta .. ..	..	..	Purchased from F. Day.
Mirgamali Creek, Khulna Dist., Bengal	..	..	J. T. Jenkins.
Durgapur, Calcutta	..	..	S. W. Kemp.
Pratapnagar, Lower Bengal	..	..	Museum Collector.
Segregation Camp, Rangoon	..	..	Sanitary Comm., Rangoon.
Jack and Una Is.	..	..	Marine Survey.
Uttarbhag, Bengal	..	..	S. L. Hora.
From the muddy banks in a small tidal channel at Uttarbhag	..	..	S. L. Hora.

*Leiden Museum Collection.*

Calcutta .. ..	..	..	F. Day.
Colombo Harbour	..	..	P. Buitendijk.

**Stigmatogobius neglectus** (Bleeker MS.) Koumans.

1932. *Stigmatogobius neglectus*, Koumans, *Zool. Med. Leiden* XV, p. 5.

D. 1. VI ; D. 2. I/6-7 ; A. I/6 ; P. 17-18 ; L. 1. about 26 ; L. tr. 7 ; Predorsal scales 7-8.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $4\frac{1}{2}$ -5 in length,  $5\frac{3}{4}$ -6 in total length. Head subcylindrical,  $3\frac{2}{5}$ - $3\frac{1}{2}$  in length,  $4$ - $4\frac{1}{3}$  in total length. Profile convex. Eye  $3$ - $3\frac{1}{2}$  in head, interorbital about  $\frac{1}{3}$  eye-diameter. Snout obtuse, shorter than eye, tip before lower margin of eye. Mouth a little oblique, lower jaw a little prominent. Maxillary extends to middle of eye or a little further. Teeth in front in several rows, outer row a little enlarged. No canines. Tongue rounded to feebly emarginate. Two mucous canals longitudinally over cheek. Open pores in interorbital indistinct. Open pore behind eye at the beginning of supraopercular groove. Head scaled above behind eye, opercle scaled. Scales of head, nape, breast and belly cycloid, other scales ctenoid. First dorsal lower than body, 2nd and 3rd rays are the longest. Second dorsal and anal about as high as first dorsal. Pectoral obtuse, about as long as head. Ventral rounded, shorter than pectoral. Caudal obtusely rounded.

*Colour*.—Olivaceous above, lighter below. Head and body with small spots. Fins yellowish. First dorsal with 2-3 longitudinal dark streaks, one of these forming a black blotch posteriorly on fin. Rays of second dorsal and caudal spotted.

*Length*.—45 mm.

*Habitat*.—Andamans, Java.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

W. of Sipighat (Bhagelsinghpura), S. Andaman	H. S. Rao & K. S. Misra.
Near Rangat Camp, Middle Andaman	H. S. Rao & K. S. Misra.
Dhanikari stream, South Andaman	H. S. Rao & K. S. Misra.
Near Weli Village, Base Camp, Middle Andaman	H. S. Rao & K. S. Misra.
Stream below Machchaligaon, Port Blair	H. S. Rao & K. S. Misra.

As I noted in *Rec. Ind. Mus.* XLII, p. 16 it is possible that this species is the female of *Pseudogobiopsis romeri* (M. Weber). In that case the male will have a prolonged maxillary, while in the female the maxillary is not prolonged.

**Stigmatogobius poecilosoma** (Bleeker).

1849. *Gobius poecilosoma*, Bleeker, *Verh. Bat. Gen.* XXII, p. 31.

1918. *Migilogobius galwayi*, McCulloch & Waite, *Rec. S. Austral. Mus.* I, p. 50, pl. iii, fig. 1.

1927. *Vaimosa seragoonensis*, Herre, *Bull. Raffles Mus.* No. 13, p. 40, pl. ii.

D. 1. VI ; D. 2. I/6-8 ; A. I/6-8 ; P. 14 ; L. 1. 26-29 ; L. tr. 7-8 ; Predorsal scales 7-9.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $4\frac{1}{2}$ - $5\frac{1}{2}$  in length, 6-7 in total length. Head obtuse, subcylindrical,  $4$ - $4\frac{1}{3}$  in length,  $5$ - $5\frac{1}{2}$  in total length. Profile convex. Eye 3 in head, interorbital  $\frac{1}{2}$  eye-diameter. Snout obtuse, shorter than eye, tip below lower margin of eye. Mouth a little oblique, upper jaw prominent. Maxillary extends to beyond eye or not so far. Teeth in several rows in front, outer row a little enlarged. Inner row of lower jaw laterally a little enlarged. No canines. Tongue rounded. Head scaled above behind eye, opercle scaled. Scales of head cycloid, of body ctenoid. First dorsal pointed, anterior rays are the longest, 2nd sometimes prolonged. Second dorsal

and anal pointed. Pectoral obtuse. Pectoral and ventral about as long as head. Caudal obtuse, about as long as head.

*Colour.*—Greenish with dark spots in two alternating longitudinal rows of 4-5 spots. Two brown spots in a vertical line at the base of caudal. Head with indistinct dark streaks from eye to maxillary and behind mouth. First dorsal with dark longitudinal band halfway the fin, tip dark. Rays of second dorsal and caudal spotted.

*Length.*—51 mm.

*Habitat.*—India, Singapore Indo-Australian Archipelago, Australia.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Garia (South Salt Lake), Calcutta

Museum Collector.

River Yenna, 2 miles south of Medha, Satara Dist., Bombay Prescy.

H. S. Rao.

***Stigmatogobius javanicus* (Bleeker).**

1856. *Gobius javanicus*, Bleeker, *Nat. Tijds. Ned. Ind.* XI, p. 88.

1876. *Gobius melanosticta*, Day, *Fish. India*, p. 290, pl. lxiii, fig. 2.

1884. *Gobius flavescens*, De Vis, *Proc. Linn. Soc. N. S. Wales* IX, p. 689 ( *nec* Bloch).

1889. *Gobius melanostictus*, Day, *Faun. Brit. India. Fish.* II, p. 260.

1909. *Vaimosa microstomia*, Seale, *Philipp. Journ. Sci.* (Sect. A) IV, p. 538.

1910. *Gobius chilkensis*, Jenkins, *Rec. Ind. Mus.* V, p. 137, pl. vi, fig. 2.

1911. *Gobius rouxi*, M. Weber, *Abh. Senck. Ges.* XXXIV, p. 40.

1923. *Ctenogobius chilkensis*, Hora, *Mem. Ind. Mus.* V, p. 744.

1927. *Vaimosa piapensis*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 147, pl. x, fig. 3.

1927. *Vaimosa tessellata*, Herre, *op. cit.*, p. 153, pl. xii, fig. 1.

1930. *Parvigobius immeritus*, Whitley, *Austral. Zool.* VI, p. 122.

D. 1. VI ; D. 2. I/6-7 ; A. I/6-7 ; P. 15 ; L. 1. 25-27 ; L. tr. 7 ; Predorsal scales 6-8.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 4 in length, 5 in total length. Head subcylindrical,  $4\frac{1}{4}$  in length,  $5\frac{1}{4}$ - $5\frac{1}{3}$  in total length. Profile convex. Eye about 3 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout obtuse, shorter than eye, tip before or a little below lower margin of eye. Lips thin. Mouth a little oblique, upper jaw prominent. Maxillary extends to below anterior half of eye. Teeth in front in several rows, outer row a little enlarged. In lower jaw inner row not enlarged. No canines. Tongue rounded. Two mucous canals longitudinally over cheek. Some open pores round the eyes. Head scaled above behind eye and on opercle. Scales of head, breast and belly cycloid, laterally on body ctenoid. Middle rays of first dorsal the longest. Second dorsal and anal higher than first dorsal. Pectoral and ventral about as long as head. Caudal obtuse.

*Colour.*—Greenish above, reddish-green below. Head with dark stripe from eye to maxillary and dark oblong spots on cheek. Body with numerous minute spots and laterally 2-3 longitudinal rows, each of 5 blotches. The blotches of each row alternate. Below first dorsal a dark stripe obliquely forward. Two spots in a vertical line at base of caudal. First dorsal with dark spot between 3rd and 5th ray. Rays of second dorsal and caudal spotted. Base of pectoral with 2 dark spots.

*Length.*—52 mm.

*Habitat.*—India, Philippines, Indo-Australian Archipelago, Queensland, Tasmania.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Bandra, Bombay Pres.	..	Museum Collector.
Nalbano Id., Chilka Lake	..	Chilka Survey.
N. E. side of Nalbano, Chilka Lake		Chilka Survey.
Nancouri Id. (East and north side).		Marine Survey.
Chiplun, Ratnagiri Dist., alt. 0-300 ft.		F. H. Gravely.
Chittagong, edge of river opposite town	..	N. Annandale & S. W. Kemp.
Patani River below town (fresh water)		N. Annandale.
W. end of Harbour, Vizagapatam		H. S. Rao.

*Leiden Museum Collection.*

Madras ( <i>Gobius melanosticta</i> Day)	..	..	..	F. Day.
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**Stigmatogobius minima** (Hora).

1923. *Ctenogobius minima*, Hora, *Mem. Ind. Mus.* V, p. 749, fig. 30.

D. 1. VI ; D. 2. I/7 ; A. I/7-8 ; P. 15 ; L. 1. 25-26 ; L. tr. 6-7 ; Predorsal scales 8-9.

Body elongate, compressed, height 5 in length. Head 3.7 in length. Eye  $3\frac{1}{2}$  in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout a little shorter than eye, tip before lower margin of eye. Mouth a little oblique, upper jaw prominent. Maxillary extends to middle of eye. Teeth very small, in both jaws in several rows, not enlarged. In lower jaw to halfway the jaw. Tongue rounded to truncate. Gill openings not continued forward below. First dorsal lower than body, 1st ray is the longest. Second dorsal and anal as high as body. Pectoral rounded, as long as height of body. Ventral a little longer than pectoral. Caudal oblong, as long as head. Scales of body ctenoid. Head scaled on opercle. The foremost scale behind eye in the median line is large.

*Colour.*—In spirit : Light olivaceous, margins of scales in upper half of trunk speckled with minute dots. Head with black dots. In female caudal and dorsal fins with minute dots. In male edge of scales and the head darker. Second dorsal and anal with a black band on outer half. Caudal a little dusky.

*Length.*—20 mm.

*Habitat.*—Chilka Lake.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Edge of Lake, Satpara	Chilka Survey.
S. side of Satpara Id., Chilka Lake	Chilka Survey.
Rambha Bay, Ganjam Dist.	Chilka Survey.
Off Balugaon, 1.7 miles N. E. of Barkul Bungalow, Chilka Lake	Chilka Survey.
Island near Manikpatna, Chilka Lake	Chilka Survey.
Between Cherria and Manikpatna, Chilka Lake	Chilka Survey.
N. E. side of Nalbano, Chilka Lake	Chilka Survey.
Serua Nadi, Chilka Lake	Chilka Survey.
Nalbano Id., Chilka Lake (Types and Co-types)	Chilka Survey.
Mahosa, Berhampur Id., Chilka Lake	Chilka Survey.
Maludai Kuda, Chilka Lake	Chilka Survey.
Nalbano & Channel S. E. of Nalbano, Chilka Lake	Chilka Survey.

W. of Satpara Id., Chilka Lake	..	.. Chilka Survey.
Barkul Point, Chilka Lake	..	.. Chilka Survey.
Off Samal Id., Chilka Lake	..	.. Chilka Survey.

This species is closely allied to *Stigmatogobius javanicus* (Blkr.). It differs principally in having an other pattern of colour.

### **Ctenogobius** Gill.

1858. *Ctenogobius*, Gill, *Annals Lyceum Nat. Hist. New York* VI, pp. 374, 430.

Body elongate, compressed, covered with 25-? 50 ctenoid scales; those of the anterior part of body and on breast and belly cycloid. Head obtuse, nearly entirely naked, only behind each eye a longitudinal band of scales. Neck naked except some scales close before the insertion of first dorsal. Bony interorbital somewhat less than  $\frac{1}{2}$  eye-diameter, in young specimens much narrower. Snout obtuse, about as long as eye. Anterior nostril in a short tube. Mouth oblique, jaws subequal. Teeth in both jaws in many rows, the outer of which is enlarged; the outer row of lower jaw extends only to halfway the jaw, last teeth caniniform. According to Gill, the presence of canine teeth is a sexual character. Tongue truncate to emarginate. Cheek and opercle entirely naked. Gill openings not very wide, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins close together. First dorsal with 6 rays. Second dorsal I/7-12; anal I/7-11. Ventral united, oblong. Pectoral with or without free silk-like rays, base scaled. Caudal obtuse to pointed.

Specimens of *Acentrogobius reichei* (Blkr.) have sometimes a great resemblance to this genus, as the predorsal scales in that species fall out readily.

### **Ctenogobius criniger** (Cuvier & Valenciennes).

? 1775. *Gobius nebulosus*, Forskål, *Descr. Anim.*, p. 24.

1837. *Gobius criniger*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 82.

1837. *Gobius brevifilis*, Cuvier & Valenciennes, *op. cit.*, p. 90.

1867. *Gobius brevifilis*, Day, *Proc. Zool. Soc. London*, p. 940.

1876. *Gobius criniger*, Day, *Fish. India*, p. 288, pl. lxii, fig. 2.

1884. *Gobius festivus*, De Vis, *Proc. Linn. Soc. N. S. Wales* IX, p. 687.

1889. *Gobius criniger*, Day, *Faun. Brit. Ind. Fish.* II, p. 255.

1907. *Rhinogobius lungi*, Jordan & Seale, *Bull. Bur. Fisheries* XXVI, (1906), p. 41, fig. 13.

1934. *Rhinogobius baliuroides*, Fowler, *Proc. Ac. Nat. Sci. Philadelphia* LXXXVI, p. 82 (*nec* Bleeker).

D. 1. VI; D. 2. I/9; A. I/9; P. 17-19; L. l. 30-32; L. tr. 11-12; Predorsal scales 2-3.

Body elongate, compressed, height 4-5 in length, 5-6 in total length. Head compressed, obtuse convex,  $3\frac{1}{3}$ - $3\frac{2}{3}$  in length,  $4\frac{1}{4}$ - $4\frac{3}{4}$  in total length. Profile convex. Eye  $3$ - $3\frac{2}{3}$  in head, interorbital  $\frac{1}{2}$  eye-diameter. Anterior nostril in a short tube. Snout obtuse, shorter than eye to equal to eye, tip below lower margin of eye. Mouth oblique. Jaws equal. Maxillary extends to before pupil. Teeth in lower jaw on each side a curved canine. Mucous canals in longitudinal rows over cheek. In interorbital medially in front an open pore. Scales on nape cycloid. Scales of back, sides and belly ctenoid. Dorsal fins separate. First dorsal pointed, 2nd and 3rd rays are the longest, filiform. Second dorsal much lower than body, pointed posteriorly. Anal much lower and shorter than second dorsal. Pectoral obtusely rounded with or without free silk-like rays. Caudal obtusely rounded, shorter than head.

*Colour*.—Olivaceous to orange-green above, orange to pearl-coloured below. Head and dorsal part of body with irregular blackish spots. Three larger blackish spots, 1st below first dorsal, 2nd below second dorsal, 3rd at middle of base of caudal. Fins yellowish. Second dorsal with 4 rows of blackish spots. First dorsal with 3 rows of blackish spots. Caudal halfway upper part blackish spots in transverse rows. Caudal and anal with blackish border.

*Length*.—126 mm.

*Habitat*.—? Red Sea, Mozambique to the Pacific.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Malabar	Purchased from F. Day.
Madras (as <i>G. caninus</i> )	.. Purchased from F. Day.
Padaw Bay, Mergui Exped.	J. Anderson.
Tor, Sinitic Peninsula	R. B. S. Sewell.
Mergui Archipelago, Elephistone Id., Port Maria	“Investigator.”
Creek, a little beyond the Ferry, Vizagapatam	H. S. Rao & G. Varugis.
Long Island, Middle Andaman	H. S. Rao & K. S. Misra.
Near South Corbyn's Cove, Port Blair	H. S. Rao & K. S. Misra.

*Madras Museum Collection.*

Madras, S. India	F. H. Gravely.
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*Collection of Zoology Department, Madras University.*

Madras Coast	..	..	..	..	..	?
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*Leiden Museum Collection.*

Madras	F. Day.
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**Bathygobius** Bleeker.

1878. *Bathygobius*, Bleeker, *Arch. neerl. sc. ex. nat.* XIII, p. 54.

1899. *Mapo*, Smitt, *Ofv. Kon. Ak. Forhandlingar Stockholm*, p. 551.

1902. *Chlamydes*, Jenkins, *Bull. U. S. Fish. Comm.* XXII, p. 503.

Body elongate, anteriorly subcylindrical, posteriorly compressed, covered with 30-43 scales. Neck covered with moderate scales, longitudinal median groove more or less developed. Breast scaled. Head depressed, scaled above behind the eyes, cheek scaled or naked, opercle more or less scaled or naked. Snout about as long as eye. Mouth a little oblique, lower jaw a little prominent. Teeth in several rows. In upper jaw outer row enlarged; in lower jaw outer row enlarged, extending to halfway the jaw, laterally inner row enlarged, sometimes some of these teeth caniniform. Tongue bilobate. A mucous canal from the snout to angle of mouth, where it is divided into two canals running longitudinally over cheek. Gill openings not very wide, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. First dorsal with 6 rays. Second dorsal I/8-11; anal I/7-9 Pectoral with some free silk-like rays at the upper margin. Ventral united, oblong. Caudal obtuse.

**Bathygobius fuscus** (Rüppell).

1828. *Gobius fuscus*, Rüppell, *Atl. Reise N. Afr. Fische*, p. 137.  
 1828. *Gobius punctillatus*, Rüppell, *op. cit.*, p. 138.  
 1837. *Gobius soporator*, Cuvier & Valenciennes, *Hist. Nat. Pois.* XII, p. 56.  
 1837. *Gobius albopunctatus*, Cuvier & Valenciennes, *op. cit.*, p. 57.  
 1837. *Gobius nebulopunctatus*, Cuvier & Valenciennes, *op. cit.*, p. 58.  
 1837. *Gobius cyclopterus*, Cuvier & Valenciennes, *op. cit.*, p. 59.  
 1842. *Gobius lineatus*, Jenyns, *Zool. Voy. Beagle*, p. 95, pl. xix, fig. 2.  
 1850. *Gobius elegans* var., Cantor, *Journ. As. Soc. Bengal* XVIII (1849), p. 1161.  
 1851. *Gobius nox*, Bleeker, *Nat. Tijds. Ned. Ind.* I, p. 248.  
 1851. *Gobius padangensis*, Bleeker, *op. cit.*, p. 249.  
 1851. *Gobius tjilankahanensis*, Bleeker, *op. cit.*, p. 251.  
 1854. *Gobius cocosensis*, Bleeker, *op. cit.*, VII, p. 47.  
 1858. *Gobius breviceps*, Blyth, *Journ. As. Soc. Bengal*, XXVII, p. 271.  
 1858. *Gobius catulus*, Girard, *Proc. Ac. Nat. Sci. Philadelphia*, p. 169.  
 1861. *Gobius mapo*, Poey, *Memorias* II, p. 277.  
 1861. *Gobius lacertus*, Poey, *op. cit.*, p. 278.  
 1863. *Gobius carolinensis*, Gill, *Proc. Ac. Nat. Sci. Philadelphia*, p. 268.  
 1866. *Gobius kreftii*, Steindachner, *Sitz. ber. Ak. Wiss. Wien*, LIII, p. 451.  
 1875. *Gobius homocyanus*, Vaillant & Sauvage, *Rev. Mag. Zool.* III, p. 280.  
 1876. *Gobius elegans*, Day, *Fish. India*, p. 293 (*nec* C. & V.).  
 1876. *Gobius albo-punctatus*, Day, *op. cit.*, p. 294, pl. lxiii, fig. 7.  
 1877. *Gobius darnleyensis*, Alleyne & Macleay, *Proc. Linn. Soc. N. S. Wales* I, p. 331.  
 1877. *Gobius nigripinnis*, Alleyne & Macleay, *op. cit.*, p. 332, pl. xii, fig. 2.  
 1877. *Gobius graeffii*, Günther, *Journ. Mus. Godeffroy* XIII, p. 179.  
 1880. *Gobius sandvicensis*, Günther, *Challenger* VI Shore Fishes, p. 60.  
 1880. *Gobius andrei*, Sauvage, *Bull. Soc. Philom. Paris* (7) IV, p. 44.  
 1880. *Gobius caledonicus*, Sauvage, *op. cit.*, p. 46.  
 1884. *Gobius watkinsoni*, De Vis, *Proc. Linn. Soc. N. S. Wales* IX, p. 685.  
 1884. *Gobius marginalis*, De Vis, *op. cit.*, p. 686.  
 1889. *Gobius aeolosoma*, Ogilby, *Mem. Austral. Mus.* II, p. 161.  
 1889. *Gobius elegans*, Day, *Faun. Brit. Ind. Fish.* II, p. 264.  
 1889. *Gobius albopunctatus*, Day, *op. cit.*, p. 265.  
 1901. *Gobius poecilichthys*, Jordan & Snyder, *Proc. U. S. Nat. Mus.* XXXI, p. 52, fig. 4.  
 1901. *Gobius variabilis*, Steindachner, *Abh. Senck. Ges.* XXV, p. 430, pl. xviii, figs. 4-4b.  
 1906. *Rhinogobius corallinus*, Jordan & Seale, *Bull. Bur. Fisheries* XXV, (1905), p. 400, fig. 89.  
 1906. *Mapo crassiceps*, Jordan & Seale, *op. cit.*, p. 403, fig. 92.  
 1907. *Gobius panayensis*, Jordan & Seale, *op. cit.* XXVI, (1906), p. 42, fig. 15.  
 1907. *Mapo mearnsi*, Evermann & Seale, *Proc. U. S. Nat. Mus.* XXXI, p. 510, fig. 2.  
 1909. *Gobius ophthalmicus*, M. Weber, *Notes Leyden Mus.* XXXI, p. 150.  
 1909. *Gobius villosus*, M. Weber, *op. cit.*, p. 151.  
 1927. *Bathygobius bravoii*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 112, pl. viii, fig. 1.  
 1931. *Drombus whitleyi*, Fowler, *Mem. Bishop Mus.* XI, p. 362.  
 1934. *Gobius atripinnis*, Fowler, *Proc. Ac. Nat. Sci. Philadelphia* LXXXVI, p. 81, figs. 21, 22.  
 1936. *Ctenogobius meggitti*, Hora & Mukerji, *Rec. Ind. Mus.* XXXVIII, p. 30, fig. 6, pl. i, figs. 3, 4.

D. 1. VI ; D. 2. I/9-10 ; A. I/8-9 ; P. 19-20 ; L. l. 38-40 ; L. tr. 11-13 ; Predorsal scales 24 or less:

Body elongate, anteriorly cylindrical, posteriorly compressed; height  $4\frac{3}{4}$ -5 in length, 6-6 $\frac{1}{2}$  in total length. Head depressed,  $3\frac{1}{4}$ - $3\frac{3}{5}$  in length,  $4\frac{1}{5}$ - $4\frac{2}{3}$  in total length. Profile convex. Eye 3-4 $\frac{1}{2}$  in head, interorbital  $\frac{2}{5}$ - $\frac{2}{3}$  eye-diameter. Snout obtuse, as long as, or shorter than eye, tip before lower margin of eye. Anterior nostril in a short tube. Lips thick. Jaws subequal. Maxillary extends to below posterior part of eye or not so far. Teeth in several rows, in upper jaw outer row enlarged, in lower jaw outer row enlarged extending to halfway the jaw, inner row laterally enlarged. Tongue more or less bilobate. Longitudinal rows of mucous canals over cheek. An open pore anteriorly median in interorbital, another on each side behind eye at the beginning of the supraopercular groove. Head scaled above behind eyes with rudimentary scales; sometimes upper parts of opercle scaled. Scales of head, nape, breast and belly cycloid, on rest of body ctenoid. First dorsal lower than body, the middle rays are the longest. Second dorsal a little lower than body, pointed posteriorly. Anal shorter than second dorsal. Pectoral rounded, a little shorter than head, upper rays silk-like. Ventral obtusely rounded, about as long as pectoral, basal membrane laterally with a lobe on each side. Caudal obtuse, about as long as head.

*Colour*.—In spirit: Very variable, olivaceous above, lighter below. Head and body with irregular dark spots, on body often placed in two alternating longitudinal rows. Head sometimes with shiny spots, body sometimes with a shiny spot laterally on each scale. Fins dark to light, with or without dark markings. Rays of dorsal fins, pectoral fin and caudal fin spotted.

*Length*.—120 mm.

*Habitat*.—From South Africa and Red Sea to Pacific America.

I have examined specimens from the following localities:—

*Indian Museum Collection.*

Andamans and Moulmein	..	..	..	..	?
Ross Id., Port Blair			..		C. Paiva.
Mergui, Burma					Mergui Exped. (J. Anderson).
Maungmagan, Tavoy Dist., L. Burma					F. J. Meggitt.
Fisher Bay					Marine Survey.
Una Island, shore collecting					Marine Survey.
Elephant, Druid and Bedford Rocks					Marine Survey.
Paye or Paway Id.		..	..		Marine Survey.
Nankauri Id. (East and north Side)					Marine Survey.
Expedition Harbour					Marine Survey.
Expedition Harbour, west side near entrance					Marine Survey.
Pool of Dunk Id., Kaluhera				.	Marine Survey.
Pool of Dunk Id., Akyab Harbour					Marine Survey.
Attu Atoll, coral reef					Marine Survey.
Nicobar Id., Nankauri Harbour		..			Marine Survey.
Mergui Archipelago, S. & W. coasts of Macleod Id.			..		Marine Survey.
Byick Hwaai Bay					Marine Survey.
Morrison Bay					Marine Survey.
Off Hingi Basin					?
Cape Comorin			..		R. S. N. Pillay.
Blair Reef (near Chatham)					E. E. Northrup.



Ayun-Musa, Quarantine Station, Sinaitic Peninsula	..	..	R. B. S. Sewell.
Kosamba Creek near Bulsan, Western India	..	..	J. J. Asana.
Port Blair, Andamans	..	..	H. S. Rao.
Vizagapatam Harbour, shore collection	..	..	H. S. Rao.
From the muddy banks in a tidal channel at Uttarbhag	..	..	S. L. Hora.
Near South Corbyn's Cove, Port Blair	..	..	H. S. Rao & K. S. Misra.
Near Murdakhari Bay, Port Blair	..	..	H. S. Rao & K. S. Misra.

### **Brachygobius** Bleeker.

1874. *Brachygobius*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 315.

1874. *Hypogymnogobius*, Bleeker, *op. cit.* p. 318.

Body elongate, subcylindrical anteriorly, compressed posteriorly, covered with 25-50 ctenoid scales. Head depressed. Head and nape scaled with very thin cycloid scales in the median part; these scales fall out readily. Opercle scaled with large ctenoid scales. Neck with a median longitudinal groove. Bony interorbital and snout about 1 eye-diameter. Mouth oblique, lower jaw a little prominent. Teeth in both jaws in several rows, the outer one a little enlarged, no canines. Tongue truncate. Some curved longitudinal mucous canals under eye, some on opercle and one along mandible to posterior margin of preopercle. Gill openings not continued forward below, isthmus broad. No fleshy flaps on inner edge of shoulder girdle. Dorsal fins widely separated. First dorsal with 6 rays. Second dorsal and anal I/7-10. Ventral united, oblong. Pectoral without free silk-like rays. Caudal rounded.

### **Brachygobius nunus** (Hamilton).

1822. *Gobius nunus*, Hamilton, *Fish. Ganges*, pp. 54, 366.

1868. *Gobius doriae*, Günther, *Ann. Mag. N. H.* (4) I, p. 265, pl. xii, fig. A.

1876. *Gobius nunus*, Day, *Fish. India*, p. 297.

1889. *Gobius nunus*, Day, *Faun. Brit. Ind. Fish.* II, p. 269.

1906. *Gobius alcockii*, Annandale, *Journ. As. Soc. Bengal* (N. S.) II, p. 201, fig. 1.

1923. *Ctenogobius alcocki*, Hora, *Mem. Ind. Mus.* V, p. 744.

1929. *Gobius nunus*, Hora, *Mem. Ind. Mus.* IX, pl. xiv, fig. 5 (MS. drawing of Hamilton).

1934. *Ctenogobius nunus*, Hora, *Rec. Ind. Mus.* XXXVI, p. 488.

1937. *Brachygobius xanthomelas*, Herre, *Bull. Raffles Mus.* XIII, p. 43, pl. iv, figs. a, b.

D. 1. VI; D. 2. I/7; A. I/7; P. 14-16; L. 1. 25-27; L. tr. 8; Predorsal scales 10-11.

Body oblong, anteriorly cylindrical, posteriorly compressed, height  $3\frac{3}{4}$ -4 in total length. Head obtuse, convex, depressed,  $3\frac{1}{2}$  in length,  $3\frac{2}{3}$ -4 in total length. Dorsal profile convex. Eye  $3\frac{1}{3}$ -4 in head, interorbital 1-2 eye-diameter. Snout depressed, convex, shorter than eye, tip before middle of eye. Mouth very oblique, lower jaw prominent. Maxillary extends to below anterior part of eye. Teeth in many rows, pointed, outer row in upper jaw enlarged, distant, conical. Laterally some longitudinal rows of mucous canals. Head scaled from a little behind the eyes to insertion of first dorsal with very thin cycloid scales, which fall out readily, therefore the head behind the eyes is in preserved specimens mostly naked. Opercle and subopercle scaled for the greater part with ctenoid scales, on opercle in 4 rows. Scales of body ctenoid, laterally posteriorly the largest. Body scaled under first dorsal. Dorsal fins distant. First dorsal half as high as body, 3rd and 4th rays are

the longest. Second dorsal and anal a little higher than first dorsal, obtuse. Pectoral and caudal obtusely rounded, shorter than head without snout. Ventral obtuse, shorter than pectoral.

*Colour*.—Yellow with 4 blackish transverse bands, broader than the interspaces: 1st through eye, 2nd from first dorsal to ventral, 3rd from second dorsal to anal, 4th on base of caudal. Head grayish. Dorsal fins and anal blackish with yellow margin or totally yellow. Other fins yellow. Pectoral and ventral with blackish base.

In a variety there may be besides the 4 transverse bands 1-3 narrow bands on dorsal part of body, one between 1st and 2nd band, another between 2nd and 3rd, another between 3rd and 4th.

*Length*.—36 mm.

*Habitat*.—India to Indo-Australian Archipelago.

In several specimens of *Gobius alcocki* from the Chilka Lake, I found the head scaled from a little behind the eyes with thin cycloid scales. These scales fall out readily, leaving no visible pouches. One type specimen of *Gobius doriae* in the British Museum (Nat. Hist.) shows about 9 predorsal scales. The specimens of Bleeker's collection of *Brachygobius doriae* are all naked in the median part before first dorsal. Some specimens from Tjampea near Buitenzorg (Java), however, show some cycloid scales on the nape. As the foremost scale behind eye is unpaired and a little larger than the following ones, *Brachygobius* is closely allied to *Stigmatogobius*; it differs, however, in having ctenoid scales on the opercle, these scales are cycloid in *Stigmatogobius*. It seems that the Indian specimens remain smaller than those of the Indo-Australian Archipelago which I have seen.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

(Types <i>G. alcocki</i> ) Port Canning, Lower Bengal, brackish water pools	N. Annandale.
Port Canning, brackish pools ..	C. Paiva.
Rajshahi, E. Bengal, from tank ..	.. N. Annandale.
Damukdia Ghat, East Bengal	Museum Collector.
Garia near Calcutta ..	.. N. Annandale & S. W. Kemp.
Near Rambha Bay, Chilka Lake	Chilka Survey.
Satpara	Chilka Survey.
Barkul Bay, Chilka Lake	Chilka Survey.
Off Balugaon near Barkul Bungalow, Chilka Lake ..	Chilka Survey.
East of Barkul Bay, Chilka Lake .. ..	.. Chilka Survey.
Off Barkul Bungalow, Chilka Lake ..	.. Chilka Survey.
N. of Satpara, Chilka Lake .. ..	.. Chilka Survey.
Off Samal Id., Ganjam, Madras, 8-15 ft. .. ..	.. Chilka Survey.
From brackish water pools, Rambha Bay, Chilka Lake ..	.. Chilka Survey.
Koh Si Hah, shore collection .. ..	N. Annandale.
Mouth of Patalung River at Lampam .. ..	.. N. Annandale.
Tank with aquatic vegetation, west of the Harcourt Butler Institute of Public Health, Burma, Rangoon .. ..	.. T. S. Freegade.
Port Canning, Lower Bengal, brackish water pools ..	C. A. Paiva.
Garia (South Salt Lake), Calcutta .. ..	Museum Collector.

Canal near Chingraghatta, outskirts of Calcutta	Museum Staff.
Ennur Backwater, Madras	N. Annandale.
Nellore, Madras ..	N. Annandale.
Puri, Orissa Coast	S. L. Hora & B. N. Chopra.
Uttarbhag, Bengal	S. L. Hora.

### **Mugilogobius** Smitt.

1899. *Mugilogobius*, Smitt, *Ofv. Kon. Ak. Forh. Stockholm*, p. 552.

1905. *Vaimosa*, Jordan & Seale, *Bull. Bur. Fisheries XXV*, p. 395.

1933. *Ellogobius (Ellogobius)*, Whitley, *Rec. Austral. Mus. XIX*, p. 92.

Body elongate, compressed, covered with about 34-57 ctenoid scales, becoming cycloid on neck and breast. Head depressed, scaled above behind the eyes with small scales, cheek naked, opercle with large scales. Bony interorbital  $\frac{1}{2}$ -1 eye-diameter. Snout about as long as eye. Mouth a little oblique, jaws subequal. Teeth in both jaws in several rows, none enlarged. Tongue truncate to slightly emarginate. Gill openings a little continued forward below, isthmus broad. No fleshy flaps on inner edge of shoulder girdle. Dorsal fins separate. First dorsal with 6 rays. Second dorsal and anal 1/7-8. Ventral united, infundibuliform. Pectoral without free silk-like rays. Caudal rounded.

### **Mugilogobius valigouva** (Deraniyagala).

1936. *Vaimosa valigouva*, Deraniyagala, *Ceylon Journ. Sci. (Sect. B) XIX*, p. 219, fig. 1.

D. 1. VI-VII ; D. 2. 1/7-8 ; A. 1/7-8 ; P. 16-17 ; L. 1. 34-35 ; L. tr. 15 ; Predorsal scales 16-18.

Body elongate, feebly depressed anteriorly, feebly compressed posteriorly, height 4.15-4.25 in length. Head 3.3-3.5 in length. Eye 3.6-3.9 in head, interorbital 0.9 eye-diameter. Snout much shorter than eye. Maxillary extends to below middle of eye. Teeth in 4 subequal rows. Two or three longitudinal mucous canals over cheek. Scales of body ctenoid, smaller anteriorly. First dorsal about as high as body, 2nd, 3rd and 4th rays are the longest. Second dorsal and anal pointed posteriorly. Pectoral and ventral as long as head without snout. Caudal subtruncate, about as long as head.

*Colour*.—In spirit according to Deraniyagala : “ Brownish, with a lateral row of 9-11 spots connected by diffuse dark bands to as many dorsal spots. First dorsal with an oblique black band across its middle descending posteriorly and with a diffuse dark band at its tip. Second dorsal with three black spots on its base and a diffuse dark median band. Caudal with two round black spots at its base with a smaller diffuse one between. Other fins unmarked.”

*Length*.—20 mm.

*Habitat*.—Ceylon.

I found in the collection of the Indian Museum a specimen from Mormugao Bay, Portuguese India, collected by S. W. Kemp. This specimen is either closely allied to or identical with *M. valigouva*.

### Subfamily *APOCRYPTEINAE*.

Body very elongate. Head compressed, mostly scaled above and laterally. Teeth in upper jaw in one row, in lower jaw subhorizontal. In lower jaw on each side of

symphysis an erect canine. Scales cycloid. Second dorsal fin elongated. Ventral fins totally united, only attached to the belly in their bases. Gill openings narrow to moderate.

*Synopsis of the Phalanges.*

- |                               |    |                       |
|-------------------------------|----|-----------------------|
| 1a. Free lower eyelid absent  | .. | <i>Apocryptei.</i>    |
| 1b. Free lower eyelid present | .. | <i>Boleophthalmi.</i> |

Phalanx *APOCRYPTEI.*

Eyes not or nearly not above the dorsal profile of the head, without free lower projected eyelid. First dorsal longer than high.

*Synopsis of the Indian genera.*

- |  |    |   |                                  |
|--|----|---|----------------------------------|
| 1a. Scales moderate, less than 150 in longitudinal line  | .. | 2 |                                  |
| 1b. Scales minute, more than 200. Teeth in upper jaw pointed. D. 1. 5 ; D. 2. 1/27-30  |    |   | <i>Pseudapocryptes</i> , p. 272. |
| 2a. Teeth in lower jaw pointed, anterior teeth in upper jaw caninoid. About 80 scales in L. 1. ; D. 2. 1/19-29   |    |   | <i>Parapocryptes</i> , p. 273.   |
| 2b. Teeth in lower jaw truncate, obtuse or bilobate  |    | 3 |                                  |
| 3a. Anterior teeth of upper jaw strong canines, teeth of lower jaw obtuse, a canine behind symphysis. 70-90 scales in L. 1. ; D. 1. VI ; D. 2. 1/24-26 |    |   | <i>Apocryptichthys</i> , p. 276. |
| 3b. Anterior teeth of upper jaw caninoid, teeth of lower jaw truncate to bilobate. 40-60 scales in L. 1. ; D. 1. VI ; D. 2. 1/22-23                    |    |   | <i>Apocryptodon</i> , p. 277.    |
| 3c. Anterior teeth of upper jaw bilobate, not caninoid, teeth of lower jaw bilobate. About 100 scales in L. 1. ; D. 1. V ; D. 2. 1/20                  |    |   | <i>Apocryptes</i> , p. 278.      |

**Pseudapocryptes** Bleeker.

1874. *Pseudapocryptes*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 328.

Body very elongate, anteriorly subcylindrical, posteriorly compressed, covered with more than 200 very small cycloid scales. Head subcylindrical, totally or nearly totally scaled. Eyes small, bony interorbital and snout about 1 eye-diameter. Mouth nearly horizontal, jaws subequal. Teeth in both jaws in one row, pointed, those of lower jaw subhorizontal, on each side of symphysis of lower jaw a canine. Tongue rounded, nearly totally adnate to the floor of the mouth. Gill openings not very wide, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins nearly continuous. First dorsal with 5 rays. Second dorsal 1/27-30 ; anal 1/25-29. Ventral united, oblong. Pectoral without free silk-like rays, base scaled. Caudal pointed, long.

**Pseudapocryptes lanceolatus** (Bloch & Schneider).

1801. *Eleotris lanceolata*, Bloch & Schneider, *Syst. Ichth.*, p. 67, pl. xvi.  
 1822. *Gobius changua*, Hamilton, *Fish. Ganges*, pp. 41, 365, pl. v, fig. 10.  
 ? 1837. *Apocryptes dentatus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 148.  
 1876. *Apocryptes lanceolatus*, Day, *Fish. India*, p. 301, pl. lxiv, fig. 5.  
 1876. *Apocryptes dentatus*, Day, *op. cit.*, p. 301.  
 1889. *Apocryptes lanceolatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 277.  
 ? 1889. *Apocryptes dentatus*, Day, *op. cit.*, p. 278.  
 1923. *Apocryptes lanceolatus*, Hora, *Mem. Ind. Mus.* V, p. 751.  
 1934. *Boleophthalmus taylori*, Fowler, *Proc. Ac. Nat. Sci. Philadelphia* LXXXVI, p. 159, fig. 128.

D. 1. V ; D. 2. I/30 ; A. I/29 ; P. 17-20.

Body very elongate, anteriorly cylindrical, posteriorly compressed, height 7 in length, about 9 in total length. Head subcylindrical,  $5\frac{1}{2}$  in length, 7-8 in total length. Eye 6-7 in head, interorbital less than 1 eye-diameter. Snout about  $1\frac{1}{2}$  eye-diameter. Mouth nearly horizontal. Upper jaw a little prominent. Maxillary extends to below posterior margin of eye. Teeth in each jaw about 24 pointed teeth. In upper jaw in front much larger than laterally. In lower jaw horizontal, pointed ; behind symphysis a canine on each side. Dorsal fins much lower than body, membrane of last ray of first dorsal scarcely united with second dorsal. Caudal pointed, much longer than head.

*Colour.*—Brownish-gray with brown markings on back and cheek. Belly yellowish. Dorsal fins, pectoral and caudal greenish. Rays of second dorsal and caudal with brown spots. Ventral and anal yellowish.

*Length.*—200 mm.

*Habitat.*—India, Siam, China, Indo-Australian Archipelago, Tahiti.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Calcutta	..	F. Day.
Orissa	..	F. Day.
Kidderpur market, Calcutta	..	B. L. Chaudhuri.
Gatiagarh, Dist. Hooghly	.. ..	Atiur Rohman.
Near Shela F. S., Khulna Dist., Bengal	..	J. T. Jenkins.
Brackish ponds, Port Canning, Lower Bengal	..	Museum Collector.
Segregation Camp, Rangoon.	..	Sanitary Commission, Rangoon, Burma.
South Bay, Chilka Lake	..	Chilka Survey.
Sandheads, mouth of the Hooghly River	.. ..	R. M. Daly.
Mergui, Burma	.. ..	F. Day.
Moulmein	.. ..	F. Day.
Salt lake near Calcutta	.. ..	E. C. Dormeux.
Port Canning	..	R. Hodgart.
Uttarbhag, Bengal	.. ..	S. L. Hora.
Pools (drying up) with shallow water at Uttarbhag, Bengal	..	S. L. Hora.
From a long lake-like stretch of brackish water near Uttarbhag, Bengal	..	S. L. Hora.
Pools near Piali River, Uttarbhag, Bengal	..	S. L. Hora.

**Parapocryptes** Bleeker.

1874. *Parapocryptes*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 327.

Body very elongate, anteriorly subcylindrical, posteriorly compressed, covered with about 80 deciduous cycloid scales. Head subcylindrical, naked or scaled above behind the eyes, laterally scaled from under the eye, on cheek and opercle. Bony interorbital about  $\frac{1}{2}$  eye-diameter. Snout about as long as the eye. Nostrils not tubular. Mouth a little oblique, jaws subequal. Teeth in both jaws in one row, in upper jaw anterior ones caninoid ; in lower jaw horizontal, pointed, behind symphysis on each side a canine. The upper jaw has a concavity, receiving the tip of the lower jaw. Tongue truncate, nearly totally adnate to the floor of the mouth. Gill openings not very wide, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins close together. First dorsal with

6 rays. Second dorsal 1/19-29 ; anal 1/19-28. Ventral united, oblong. Pectoral without free silk-like rays, base scaled. Caudal pointed.

*Synopsis of the Indian species.*

1a. Height of body 7-9 in total length. D. 2. 1/26	<i>P. serperaster</i> , p. 274.
1b. Height of body 11-14 in total length	2
2a. Dorsal fins not united. D. 2. 1/22	<i>P. batoides</i> , p. 275.
2b. Dorsal fins united. D. 2. 1/23-26. Maxillary extends to beyond eye	<i>P. rictuosus</i> , p. 275.
2c. Dorsal fins scarcely united. D. 2. 1/28. Maxillary extends to below posterior margin of eye	<i>P. macrolepis</i> , p. 275.

**Parapocryptes serperaster** (Richardson).

1846. *Apocryptes serperaster*, Richardson, *Rep. Ichth. China & Japan (Rep. Br. Ass. Adv. Sci. 1845)*, p. 206.

1876. *Apocryptes serperaster*, Day, *Fish. India*, p. 300, pl. lxvi, fig. 2.

1889. *Apocryptes serperaster*, Day, *Faun.-Brit. Ind. Fish.* II, p. 275, fig. 93.

? 1934. *Boleophthalmus smithi*, Fowler, *Proc. Ac. Nat. Sci. Philadelphia* LXXXVI, p. 160, fig. 129.

D. 1. VI ; D. 2. I/26 ; A. I/26 ; P. 21 ; L. l. 65-70 ; L. tr. 1. 20 ; L. tr. 2. 6.

Body very elongate, height 7 in total length. Head  $6\frac{1}{2}$  in total length. Eye  $4\frac{1}{2}$ -5 in head, interorbital  $\frac{1}{4}$  eye-diameter. Snout a little longer than eye. Mouth oblique. Lower jaw a little prominent. Maxillary extends to below posterior margin of eye. Teeth in front of upper jaw 4-8 enlarged ones on each side. In lower jaw directed outwards, on each side of symphysis 1-2 canines. Head scaled above behind the eyes, on cheek and opercle. Scales of body small and irregular before dorsal fin, on posterior part of body larger. Dorsal fins separate. First dorsal lower than body, middle rays are the longest. Second dorsal and anal pointed posteriorly. Caudal lanceolate.

*Colour.*—Greenish above, whitish below. Five or six irregular bands from back to halfway the side. Dorsal fins with a narrow gray band on basal half, outer part of fin dusky. Caudal gray, outer margin yellowish. Anal with a band in its middle, outer margin dark, last rays nearly black. Pectoral gray with a dark band ; upper and lower rays yellowish-white.

*Length.*—180 mm.

*Habitat.*—India, China, Siam.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Madras		Purchased from F. Day.
Port Canning	..	R. Hodgart.
Nontaburi, Siam		Malcolm Smith.

*Leiden Museum Collection.*

Calcutta	..	F. Day.
Rangoon		L. Fea's Coll.

**Parapocryptes batoides** (Day).1876. *Apocryptes batoides*, Day, *Fish. India*, p. 301, pl. lxvi, fig. 3.1889. *Apocryptes batoides*, Day, *Faun. Brit. Ind. Fish.* II, p. 277.

D. 1. VI ; D. 2. I/22 ; A. I/22 ; P. 21.

Body very elongate, height 12 in total length. Head subcylindrical,  $6\frac{1}{2}$  in total length. Eye  $6\frac{1}{2}$  in head, interorbital  $\frac{3}{4}$  eye-diameter. Snout 2 eye-diameters. Mouth nearly horizontal. Upper jaw a little prominent. Maxillary extends to below posterior margin of eye. Teeth 8-10 on each side in both jaws. In lower jaw on each side a canine behind symphysis. Scales of body large and small ones intermixed, posteriorly larger. Head scaled. Dorsal fins separate. First dorsal and second dorsal about as high as body. Anal a little lower. Caudal lanceolate.

*Colour*.—Grayish above, whitish below. Fins without marks.*Length*.—255 mm.*Habitat*.—Moulmein.

I have examined specimens from Moulmein.

**Parapocryptes rictuosus** (Cuvier & Valenciennes).1837. *Apocryptes rictuosus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 151.1876. *Apocryptes rictuosus*, Day, *Fish. India*, p. 300.1889. *Apocryptes rictuosus*, Day, *Faun. Brit. Ind. Fish.* II, p. 275.1923. *Apocryptes rictuosus*, Hora, *Mem. Ind. Mus.* V, p. 751.

D. 1. VI ; D. 2. I/23-26 ; A. I/24-28 ; P. 20 ; L. 1. about 75.

Height of body 11-14 in total length. Head  $6\frac{3}{4}$ - $7\frac{1}{2}$  in total length. Eye 6-7 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout about as long as eye. Maxillary extends to more than one eye-diameter behind eye. Teeth in upper jaw caninoid in front ; in lower jaw 20-28 on each side, a pair of canines behind symphysis. Scales small, irregular anteriorly, posteriorly larger. Dorsal fins continuous at their bases. Rays of first dorsal prolonged. Caudal lanceolate.

*Colour*.—Grayish, lighter below. Dark ill-defined oblique bands from back to halfway the side. Ventral whitish. Other fins with spots. Usually a black spot on the last rays of second dorsal. Inner side of mouth with dark spots.

*Length*.—175 mm.*Habitat*.—India.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Main channel, W. of Satpara Id., Chilka Lake .. ..	..	..	Chilka Survey.
Channel between Satpara and Berhampur Id., Chilka Lake .. ..	..	..	Chilka Survey.
Barkul .. .. .	..	..	Chilka Survey.
Ennur backwater .. .. .	..	..	N. Annandale.
Creek, a little beyond the Ferry, Vizagapatam .. ..	..	..	H. S. Rao & G. Varugis.

**Parapocryptes macrolepis** (Bleeker).1851. *Apocryptes macrolepis*, Bleeker, *Nat. Tijds. Ned. Ind.* II, p. 66.1932. *Parapocryptes cantonensis*, Herre, *Lingnan Science Journal* XI, p. 441.

D. 1. VI ; D. 2. I/28 ; A. I/28 ; P. 20 ; L. 1. about 75.

Body very elongate, anteriorly subcylindrical, posteriorly compressed, height 11 in total length. Head subcylindrical, 7 in total length. Eye 5 in head, interorbital less than  $\frac{1}{2}$  eye-diameter. Maxillary extends to below posterior margin of eye. In upper jaw anteriorly 6-8 caninoid teeth, laterally 18-24 smaller ones. In lower jaw 18-20 subhorizontal teeth, behind symphysis a pair of canines. Scales of body larger posteriorly. Dorsal fins with the bases scarcely united. Pectoral and ventral a little shorter than head. Caudal lanceolate.

*Colour*.—Green above, silvery to yellowish below. Snout black. Back and side with smoky reddish blotches. Dorsal fins violet with 4-6 oblique rows of oblong black blotches. Pectoral green, blackish towards tip. Ventral yellow. Anal reddish. Caudal fin rays green, membrane blackish-violet.

*Length*.—230 mm.

*Habitat*.—Ceylon, Andamans, Singapore, Canton, Borneo.

I have examined a specimen from Colombo Harbour in the collection of the Leiden Museum.

### **Apocryptichthys** Day.

1876. *Apocryptichthys*, Day, *Fish. India*, p. 302.

Body very elongate, anteriorly subcylindrical, posteriorly a little compressed, covered with 70-90 cycloid scales, small in the anterior parts of body, becoming larger posteriorly. Head elongate, compressed, scaled above behind the eyes with scales smaller than those of body; cheek and opercle scaled. Eye small, bony interorbital and snout about 1 eye-diameter. Anterior nostril in a triangular lobule, hanging over the upper lip. Mouth wide, nearly horizontal, lower jaw a little prominent. Teeth in both jaws in one row, obtuse; anterior teeth in upper jaw large canines; teeth of lower jaw subhorizontal, a canine on each side behind symphysis. Tongue rounded, nearly totally adnate to the floor of the mouth. Gill openings narrow, isthmus moderate. Dorsal fins continuous? First dorsal with 6 rays. Second dorsal 1/24-26; anal 1/23-26. Ventral united, oblong. Pectoral without free silk-like rays. Caudal oblong, pointed.

### **Apocryptichthys cantoris** (Day).

1870. *Apocryptes cantoris*, Day, *Proc. Zool. Soc. London*, p. 693.

1876. *Apocryptichthys cantoris*, Day, *Fish. India*, p. 302, pl. lxii, fig. 7.

1889. *Apocryptichthys cantoris*, Day, *Faun. Brit. Ind. Fish.* II, p. 279, fig. 94.

D. 1. VI; D. 2. I/26; A. I/25; P. 19; L. 1. about 90; L. tr. 17.

Body very elongate, height of body 5-6 in length, about 9 in total length. Head depressed, 4-4 $\frac{1}{2}$  in total length. Eye not prominent, 6 in head, interorbital  $\frac{2}{3}$  eye-diameter. Snout 1 eye-diameter, tip before lower margin of eye. Anterior nostril in a triangular lobule, hanging over upper lip. Maxillary extends to one eye-diameter behind eye or not so far. Teeth in upper jaw anteriorly caninoid. In lower jaw horizontal, curved upwards, laterally obtuse, not bilobate. A pair of canines behind symphysis. Scales minute. Head naked. Gill openings narrow, before lower half of base of pectoral. The membrane behind the last ray of first dorsal is almost continued to the base of second dorsal. First three rays of first dorsal prolonged. Dorsal fins of the same height. Base of pectoral fleshy, but not muscular. Pectoral as long as postorbital part of head. Caudal pointed, but shorter than head.



*Colour.*—Olive. First dorsal dark, with three black longitudinal bands. Upper part of caudal spotted. Cheek and lower surface of head with black spots.

*Length.*—100 mm.

*Habitat.*—Madras, Andamans, Gulf of Siam, Java.

### **Apocryptodon** (Bleeker).

1874. *Apocryptodon*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 327.

Body very elongate, anteriorly subcylindrical, posteriorly compressed, covered with 40-60 deciduous cycloid scales. Head posteriorly subcylindrical, anteriorly a little depressed, scaled above behind the eyes, laterally scaled from under the eye, on cheek and opercle. Scales behind the eyes about of the same size as those of body. Bony interorbital less than 1 eye-diameter. Snout a little more than 1 eye-diameter. Nostrils not tubular. Mouth nearly horizontal, jaws subequal. Teeth in both jaws in one row, in upper jaw caninoid, in lower jaw horizontal, truncate to bilobate. A pair of canines behind symphysis of lower jaw. The upper jaw has a concavity, receiving the tip of the lower jaw. Tongue rounded, nearly totally adnate to the floor of the mouth. Gill openings about as long as the breadth of the base of pectoral fin, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins close together. First dorsal with 6 rays. Second dorsal I/22-23; anal I/21-22. Ventral united, oblong. Pectoral without free silk-like rays, base scaled. Caudal pointed.

### **Apocryptodon glyphisodon** (Bleeker).

1849. *Apocryptes glyphisodon*, Bleeker, *Verh. Bat. Gen.* XXII, p. 36.

1873. *Apocryptes madurensis*, Day, *Proc. Zool. Soc. London*, p. 109 (*nec* Blkr.).

1876. *Apocryptes bleekeri*, Day, *Fish. India*, p. 300, pl. lxiv, fig. 3.

1889. *Apocryptes bleekeri*, Day, *Faun. Brit. Ind. Fish.* II, p. 276.

1927. *Apocryptodon montalbani*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 277, pl. xxii, fig. 2.

1927. *Apocryptodon sealei*, Herre, *op. cit.* p. 278.

1927. *Apocryptodon taylori*, Herre, *op. cit.* p. 279, pl. xxii, fig. 3.

1931. *Apocryptodon malcolmi*, H. M. Smith, *Proc. U. S. Nat. Mus.* LXXIX (1932), p. 47, fig. 22.

D. 1. VI; D. 2. I/22; A. I/22; P. 22; L. 1. about 50-55; L. tr. 13; Predorsal scales about 20.

Body very elongate, compressed, height  $6\frac{1}{2}$  in length, 8-9 in total length. Head subcylindrical, 4 in length, 5 in total length. Eye 6 in head, interorbital  $\frac{1}{2}$  eye-diameter. Snout as long as or a little longer than eye, tip below lower margin of eye. Mouth oblique, upper jaw prominent. Maxillary extends to beyond eye. Teeth in upper jaw 8-16 on each side, in lower jaw horizontal, bilobate, 15-30 on each side. A pair of canines behind symphysis of lower jaw. Scales cycloid, becoming larger posteriorly. Head scaled above behind eye, on cheek and opercle. Dorsal fins subcontinuous, the membrane behind the 6th ray of first dorsal is connected with the 1st ray of second dorsal. First dorsal about as high as body, 3rd and 4th rays filiform. Second dorsal and anal lower than first dorsal. Pectoral as long as postorbital part of head. Ventral a little shorter. Caudal a little longer than head.

*Colour.*—Grayish, laterally with 5 indistinct red blotches. Lower part of head with numerous black spots. Pectoral darker towards lower margin, lower margin bordered

with white. Anal dark. Caudal darker towards lower margin, lower margin bordered with white.

*Length*.—77 mm.

*Habitat*.—India, Siam, Philippines, Indo-Australian Archipelago.

The specimens of *A. bleekeri* agree fully with *A. glyphisodon*, but differ only in the number of teeth. In *A. glyphisodon* there are 8-11 teeth on each side in upper jaw, 15-18 on each side in lower jaw. In *A. bleekeri* the numbers are about 16 on each side in upper jaw, about 30 on each side in lower jaw. The black spots on lower part of head are feebly developed in *A. bleekeri*.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Large creek close to Tumidalametta Hill, alt. 336 ft., Vizagapatam  
Port Canning  
Uttarbhag, Bengal

H. S. Rao & G. Varugis.  
R. Hodgart.  
S. L. Hora.

**Apocryptes** Cuvier & Valenciennes.

1837. *Apocryptes*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 142.

1839. *Gobileptes*, Swainson, *Nat. Hist. Class. Fish.* II, p. 183.

Body very elongate, anteriorly subcylindrical, posteriorly compressed, covered with about 100 cycloid scales, between these scales other small cycloid scales are irregularly placed. Head subcylindrical, totally scaled. Bony interorbital about  $\frac{1}{2}$  eye-diameter. Snout about as long as eye. Nostrils not tubular. Mouth nearly horizontal, upper jaw a little prominent. Teeth in both jaws in one row, in both jaws bilobate. In lower jaw teeth horizontally placed, a pair of canines behind symphysis. Tongue rounded, nearly totally adnate to the floor of the mouth. Gill openings about as long as breadth of base of pectoral fin, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins close together. First dorsal with 5 rays. Second dorsal I/20; anal I/21-22. Ventral united, oblong. Caudal long, pointed.

**Apocryptes bato** (Hamilton).

1822. *Gobius bato*, Hamilton, *Fish. Ganges*, pp. 40, 365, pl. xxxvii, fig. 10.

1876. *Apocryptes bato*, Day, *Fish. India*, p. 302, pl. lxiv, fig. 6.

1889. *Apocryptes bato*, Day, *Faun. Brit. Ind. Fish.* II, p. 278.

D. 1. V; D. 2. I/20-21; A. I/22; P. 23.

Body very elongate, height 7 in total length. Head subcylindrical, 6-6 $\frac{1}{2}$  in total length. Eye 5 $\frac{1}{2}$ -6 in head, interorbital 1 eye-diameter. Snout truncate, as long as or a little longer than eye, tip below lower margin of eye. Mouth nearly horizontal. Maxillary extends to below anterior third of eye. Teeth about 24 on each side in both jaws, all notched at their tip. A pair of canines behind symphysis of lower jaw. Scales cycloid, large and small ones intermixed, posteriorly larger. Head scaled. First dorsal about as high as body, middle rays are the longest. Second dorsal and anal a little lower than body. Pectoral half as long as head. Caudal lanceolate, much longer than head.

*Colour*.—Greenish-white with about 12 indistinct narrow transverse bands. Scales with brown spots. Fins hyaline, with minute spots. A dark band on base of pectoral.

*Length.*—145 mm.

*Habitat.*—India.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Calcutta	..	..	..	..	Purchased from F. Day.
Orissa	..	..	..	..	Purchased from F. Day.
Garia near Calcutta		..	..		N. Annandale.
Calcutta	..		..	..	B. L. Chaudhuri.
Near Sheal F. S., Khulna Dist., Bengal			..	..	J. T. Jenkins.
River Damoda, Moiraha	..		..	..	J. Wood-Mason.
Rangoon, Burma (Fea coll.)			..	..	Genova Museum exchange.
River Ichchamutty, Bengal	..		..	..	A. Alcock.
Tribeni, Bengal			..	..	B. L. Chaudhuri.
Off False Pt., Bay of Bengal	..		..	..	Marine Survey.
Chittagong, edge of river opposite town			..	..	N. Annandale & S. W. Kemp.
Ennur Backwater, Madras					N. Annandale.
Salt Lake near Calcutta	.		..	..	E. C. Dorneux.
Uttarbhag, Bengal				..	S. L. Hora.

*Leiden Museum Collection.*

Calcutta	..	F. Day.
Bengal	..	P. Bleeker.
Rangoon	..	L. Fea.

Phalanx *BOLEOPHTHALMI.*

Eyes erectile above the dorsal profile of head, with a free lower eyelid. First dorsal higher than long.

*Synopsis of the Indian genera.*

- 1a. Mandibular teeth obliquely notched. Scales small, about 100 in  
 L. l. No barbels on head .. .. . *Boleophthalmus*, p. 279.
- 1b. Mandibular teeth pointed. Scales minute, rudimentary. Lower  
 side of head with barbels .. .. . *Scartelaos*, p. 283.

**Boleophthalmus** Cuvier & Valenciennes.

1837. *Boleophthalmus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 198.

Body very elongate, compressed, covered with 60 to more than 100 cycloid scales, becoming larger posteriorly. Head subcylindrical, covered with a warty skin, totally scaled or scales rudimentary. Eyes very close together, moveable to above the dorsal profile of head, lower eyelid well developed. Snout blunt, about as long as eye. Mouth a little oblique, jaws subequal. Teeth in both jaws in one row. In upper jaw conical, anterior ones caninoid. In lower jaw subhorizontal, flattened and obliquely notched; on each side of symphysis a curved canine. Tongue truncate, nearly totally adnate to the floor of the mouth. No barbels on head. Gill openings obliquely placed, about as long as the breadth of base of pectoral, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins separate to connected at their bases. First dorsal with 5 rays. Second dorsal

I/22-27 ; anal I/23-26. Ventral united, oblong. Pectoral without free silk-like rays, base muscular, scaled. Caudal asymmetrical, the upper half a little longer, oblong.

*Synopsis of the Indian species.*

1a. Height of body $7\frac{1}{2}$ to 9 in total length	..	..	2
1b. Height of body 5 to 7 in total length	..	..	4
2a. Dorsal fins with blue spots	..	..	3
2b. Dorsal fins without blue spots, oblique bands on side of body			<i>B. sculptus</i> , p. 280.
3a. Oblique bands on side of body. L. tr. 2.11			<i>B. boddarti</i> , p. 280.
3b. No oblique bands on side of body. L. tr. 2.17	..	..	<i>B. pectinirostris</i> , p. 281.
4a. Dorsal fins not connected by membrane. Scales of body distinct			<i>B. dussumierei</i> , p. 282.
4b. Dorsal fins connected by membrane at their bases. Scales on body only distinct on posterior half of body			<i>B. dentatus</i> , p. 282.

**Boleophthalmus sculptus** Günther.

1861. *Boleophthalmus sculptus*, Günther, *Cat. Fish. Brit. Mus.* III, p. 104.

1876. *Boleophthalmus sculptus*, Day, *Fish. India*, p. 308.

1889. *Boleophthalmus sculptus*, Day, *Faun. Brit. Ind. Fish.* II, p. 286.

D. 1. V ; D. 2. 1/24 ; A. 1/23 ; P. 15 ; L. tr. 2.8.

Body very elongate, height  $6\frac{1}{2}$  in total length. Head  $4\frac{1}{2}$  in total length. Eye  $4\frac{1}{2}$  in head, close together. Snout as long as eye. Six canines in front of upper jaw. Scales cycloid, on head and anterior part of body rudimentary, with flat, rounded tubercles. Third ray of first dorsal filiform. Pectoral rather short. Caudal rhomboid.

*Colour*.—According to Günther : “ Body greenish-olive, yellowish on the belly ; six rather indistinct darker bands descend obliquely from the back towards the belly ; the anterior dorsal grayish, the other fins reddish.”

*Length*.—80 mm.

*Habitat*.—India (Günther), Bombay (Day).

I have not examined any specimen of this species.

**Boleophthalmus boddarti** (Pallas).

1770. *Gobius boddarti*, Pallas, *Spicilegia* VIII, p. 11, pl. ii, figs. 4, 5.

1822. *Gobius plinianus*, Hamilton, *Fish. Ganges*, pp. 45, 366, pl. xxv, fig. 13.

1876. *Gobius boddaerti*, Day, *Fish. India*, p. 307, pl. lxxv, fig. 2.

1889. *Gobius boddaerti*, Day, *Faun. Brit. Ind. Fish.* II, p. 285.

D. 1. V ; D. 2. I/24-27 ; A. I/26 ; P. 18-19 ; L. l. 75-100 ; L. tr. 2.11.

Body very elongate, subcylindrical anteriorly, compressed posteriorly, height 6-7 in total length. Head a little compressed,  $5-5\frac{1}{3}$  in total length. Eye 6 in head, interorbital less than  $\frac{1}{2}$  eye-diameter. Snout obtuse, not longer than eye. Maxillary extends to behind eye. Teeth in upper jaw in front 4-6 canines. In lower jaw about 30 teeth on each side. Scales cycloid, on head and anterior part of body with a tubercle. First dorsal higher than body, rays filiform.

*Colour*.—Darkish-green with 6-7 dark spots or oblong bands. Head with blue or brown spots. First dorsal with or without black spot between 2nd and 4th ray. First dorsal with blue spots. Second dorsal with 4 irregular longitudinal rows of blue spots.

*Length.*—220 mm.

*Habitat.*—India, Malay Peninsula, Indo-Australian Archipelago.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Madras	..				Purchased from F. Day.
Bombay	..	..	..		Purchased from F. Day.
Rangoon	..	..	..	..	A. S. B.
Mergui	..	..	..	..	J. Anderson.
Larut near Perak, F. M. S.		..	..	..	J. Anderson.
Madras coast			..		Marine Survey.
Moulmein	..		..	..	F. Day.
Matlah River, Gangetic Delta		..	..	..	S. Kemp.
Petrin, Central Siam		..	..		N. Annandale.
Gosaba near Canning Town	..	..	..	..	T. Southwell.
Freshwater stream in Lova Garden, Vizagapatam				..	H. S. Rao & G. Varugis.
Port Canning					R. Hodgart.
Uttarbhad, Bengal	..		..		S. L. Hora.
From pools in jungle near Uttarbhad, Bengal				..	S. L. Hora.
Muddy banks of Piali River at Uttarbhad, Bengal			..	..	S. L. Hora.

*Leiden Museum Collection.*

Bombay	..	..	..	..	F. Day.
Rangoon				..	L. Fea's coll.

***Boleophthalmus pectinirostris*** (Linnaeus).

1754. *Apocryptes chinensis*, Osbeck, *Amoen, Acad.*, p. 29, fig. 23.

1758. *Gobius pectinirostris*, Linnaeus, *Syst. Nat.* X, vol. 1, p. 264.

1876. *Boleophthalmus pectinirostris*, Day, *Fish. India*, p. 308.

1889. *Boleophthalmus pectinirostris*, Day, *Faun. Brit. Ind. Fish.* II, p. 286.

? 1918. *Boleophthalmus caeruleomaculatus*, McCulloch & Waite, *Rec. S. Austral. Mus.* I, p. 79, pl. viii, fig. 1.

D. 1. V ; D. 2. I/23-26 ; A. I/23-26 ; P. 17-20 ; L. l. about 100 ; L. tr. 1.20 ; L. tr. 2.17.

Body very elongate, anteriorly subcylindrical, posteriorly compressed, height  $6\frac{1}{4}$  in length, 7-8 in total length. Head subcylindrical,  $4\frac{1}{5}$  in length, 5 in total length. Eye  $5\frac{1}{2}$ -7 in head, interorbital less than  $\frac{1}{2}$  eye-diameter. Snout obtuse, not longer than eye. Jaws subequal. Maxillary extends to a little behind the eye. Teeth in upper jaw pointed, not truncate, 3-4 canines on each side in front, other teeth much smaller. Teeth in lower jaw subhorizontal, tip obliquely truncate to emarginate, a pair of canines behind symphysis. Head and anterior part of body with conical papillae, the scales of body become larger posteriorly. First dorsal much higher than body, middle rays prolonged. Second dorsal lower than body. Anal lower than second dorsal. Pectoral about as long as head. Caudal obtuse, obliquely rounded, about as long as head.

*Colour.*—Violet-green to olivaceous above, lighter below. Body laterally with irregular light spots and blackish tubercles. Dorsal fins deep violet to purple, rays dark red. Mem-

brane of first dorsal with many small blue ocelli bordered by black or vertically placed lilac spots. Membrane of second dorsal between the rays with oblong horizontal spots, bordered by black, placed in 6-9 vertical rows. Other fins violet to dusky. Caudal with transverse rows of lilac spots, membrane brownish-black. Second dorsal, caudal and anal bordered with orange. Anterior scaly part of pectoral with blackish crescent-shaped margin. Branchiostegal membrane violet.

*Length*.—115 mm.

*Habitat*.—Burma (Day), Penang, China, Japan, ? Australia.

I have not seen specimens of this species from the Indian region.

### **Boleophthalmus dussumierei** Cuvier & Valenciennes.

1837. *Boleophthalmus dussumierei*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 207, pl. cccliv.

1876. *Boleophthalmus dussumierei*, Day, *Fish. India*, p. 305, pl. lxiv, fig. 9.

1889. *Boleophthalmus dussumierei*, Day, *Faun. Brit. Ind. Fish.* II, p. 283.

D. 1. V ; D. 2. I/26-27 ; A. I/25 ; P. 19 ; L. 1. about 125.

Body very elongate, height  $7\frac{3}{4}$ -8 in total length. Head  $5\frac{1}{3}$  in total length. Eye 7 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout about as long as eye. Teeth in upper jaw 3 canines on each side, about 25 teeth along the side of the jaw. Scales of body distinct, of head indistinct. First dorsal about as high as body, a little longer than high, not connected by membrane to second dorsal. Second dorsal half as high as first dorsal. Anal half as high as second dorsal. Caudal pointed, a little longer than head.

*Colour*.—Gray. First dorsal purplish with minute black spots. Second dorsal with 2-3 rows of oblong white spots. Caudal black.

*Length*.—139 mm.

*Habitat*.—Western India.

I have examined specimens from the following localities :—

#### *Indian Museum Collection.*

Sind	..	..	Purchased from F. Day.
Las Bela, Baluchistan	..		Zugmeyer exchange.
Basra, Mesopotamia		.. ..	W. T. Blanford.
Bombay	..		W. T. Blanford.
Bombay	..	..	Major Pali Hill.

#### *Leiden Museum Collection.*

Sind	..		F. Day.
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### **Boleophthalmus dentatus** Cuvier & Valenciennes.

1837. *Boleophthalmus dentatus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 208, pl. ccclv.

1876. *Boleophthalmus dentatus*, Day, *Fish. India*, p. 306, pl. lxiv, fig. 10.

1889. *Boleophthalmus dentatus*, Day, *Faun. Brit. Ind. Fish.* II, p. 283, fig. 96.

D. 1. V ; D. 2. I/26 ; A. I/25-26 ; P. 19 ; L. tr. 2.11.

Body very elongate, height  $7\frac{1}{2}$ - $8\frac{1}{2}$  in total length. Head  $5$ - $5\frac{1}{2}$  in total length. Eye 7 in head, interorbital less than  $\frac{1}{2}$  eye-diameter. Snout  $1\frac{1}{2}$ -2 eye-diameters. Teeth in upper jaw 3 canines on each side, about 25 teeth along the side of the jaw. In lower jaw 35-40 teeth on each side. Scales of head and anterior part of body as rough points, becoming

normal at posterior half of body and on belly. First dorsal higher than body, rays filiform, membrane extends to base of second dorsal. Second dorsal half as high as first dorsal. Anal half as high as second dorsal.

*Colour.*—Olive-gray with indistinct vertical bands on body. First dorsal purplish with black spots with whitish edges. Upper margin of the fin yellowish. Second dorsal with about 5 rows of oblong white spots, some black ones with white edges along the first half of the base. Upper margin of caudal with white band and yellow spots, rays black.

*Length.*—190 mm.

*Habitat.*—Western India.

This species is very close to *B. dussumierei* C. & V I have examined specimens from the following localities :—

*Indian Museum Collection.*

Sind

Turbat, Kej, Mekran, 128 miles from mouth of river, Baluchistan

Fao Estuary of Shatt-el-Arab, Mesopotamia

Kosamba creek near Bulsan, Western India

Purchased from F. Day.

Zugmeyer exchange.

H. J. Walton.

J. J. Asana.

*Leiden Museum Collection.*

Sind

F. Day.

**Scartelaos** Swainson.

1837. *Scartelaos*, Swainson, *Nat. Hist. Class. Fish.* II, pp. 183, 279.

1863. *Boleops*, Gill, *Proc. Ac. Nat. Sci. Philadelphia*, p. 271.

Body very elongate, subcylindrical anteriorly, compressed posteriorly, naked or covered with minute rudimentary scales, becoming a little larger posteriorly. Head a little depressed, covered with a warty skin. Eyes close together, movable to above the dorsal profile of head, lower eyelid well developed. Snout blunt, about as long as eye. Mouth a little oblique, upper jaw a little prominent. Along the lower side of the head on each side, parallel to the margin of mandible a row of short barbels. Teeth in both jaws in a single row; in upper jaw caninoid; in lower jaw anteriorly subhorizontal, posteriorly more erect; in both jaws pointed. A pair of canines behind symphysis of lower jaw. Tongue rounded, nearly totally adnate to the floor of the mouth. Gill openings narrow, a little obliquely placed between the bases of pectoral and ventral, isthmus moderate. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins separate. First dorsal with 5-6 rays. Second dorsal I/24-28; anal I/23-25. Ventral united, oblong. Pectoral without free silk-like rays, base muscular. Caudal asymmetrical, rays of upper half longer, pointed.

*Synopsis of the Indian species.*

- |   |                             |
|---|-----------------------------|
| 1a. Last ray of D.2 connected by membrane to caudal fin | <i>S. viridis</i> , p. 283. |
| 1b. Last ray of D.2 not connected to caudal fin         | 2.                          |
| 2a. D.2 with oblique bands ..                           | <i>S. tenuis</i> , p. 284.  |
| 2b. D.2 posteriorly with narrow horizontal stripes      | <i>S. glaucus</i> , p. 285. |

**Scartelaos viridis** (Hamilton).

1822. *Gobius viridis*, Hamilton, *Fish. Ganges*, pp. 42, 366, pl. xxxii, fig. 12.

1837. *Boleophthalmus histophorus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 210.

- ? 1837. *Boleophthalmus sinicus*, Cuvier & Valenciennes, *op. cit.*, p. 215.  
 ? 1837. *Boleophthalmus chinensis*, Cuvier & Valenciennes, *op. cit.*, p. 215.  
 1842. *Boleophthalmus aucupatorius*, Richardson, *Voy " Sulphur " Fish.*, p. 148, pl. xlii, figs. 1, 2.  
 1873. *Apocryptes macrophthalmus*, Castelnau, *Proc. Zool. Soc. Vict.* II, p. 87.  
 1876. *Boleophthalmus viridis*, Day, *Fish. India*, p. 307, pl. lxvi, fig. 5.  
 1878. *Gobiosoma guttulatum*, Macleay, *Proc. Linn. Soc. N. S. Wales* II, p. 357, pl. ix, fig. 6.  
 1884. *Gobiosoma punctularum*, De Vis, *ibid.* VIII, p. 449.  
 1889. *Boleophthalmus viridis*, Day, *Faun. Brit. Ind. Fish.* II, p. 285.

D. 1. V ; D. 2. I/25-26 ; A. I/23-26 ; P. 21.

Body very elongate, height  $6\frac{1}{2}$ -9 in length,  $8\frac{3}{4}$ -10 in total length. Head depressed,  $3\frac{1}{2}$ - $4\frac{1}{2}$  in length. Eyes close together,  $5\frac{3}{4}$ - $6\frac{1}{2}$  in head. Snout broad,  $3\frac{1}{2}$ -4 in head. Nostrils ending anteriorly in a free flap. Mouth horizontal, upper jaw prominent. Maxillary extends to below posterior margin of eye or farther. Teeth in upper jaw anteriorly 12-14 canines, laterally the teeth are smaller. In lower jaw 24-30 horizontal teeth, a pair of canines behind symphysis. A row of barbels along the ramus of lower jaw. Scales of body small, rudimentary, head naked, warty. Dorsal fins widely separate. Base of first dorsal short. First dorsal higher than body, 3rd ray is the longest. Second dorsal a little lower than body, last ray mostly connected by membrane to caudal fin. Anal lower than second dorsal. Pectoral rounded, much shorter than head, base muscular. Ventral as long as Pectoral. Caudal lanceolate, longer than head.

*Colour.*—Slaty blue above, lighter below. On head, base of pectoral back and dorsal fins small black spots. On lower half of body some (4-6) short transverse, brownish bars. Upper part of caudal with dark bands, lower part white, tip black.

*Length.*—140 mm.

*Habitat.*—India to the Pacific.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Akyab, Burma	..	..	F. Day.
Jack and Una Is.	..	..	Marine Survey.
Chandipore near Balasore, Orissa Coast	..	..	F. H. Gravely.
Gosaba near Canning Town	..	..	T. Southwell.
Kosamba Creek near Bulsan, Western India			J. J. Asana.

**Scartelaos tenuis** (Day).

1876. *Boleophthalmus tenuis*, Day, *Fish. India*, p. 305, p. lxxv, fig. 1.

1889. *Boleophthalmus tenuis*, Day, *Faun. Brit. Ind. Fish.* II, p. 282.

D. 1. V ; D. 2. I/27-28 ; A. I/25 ; P. 13.

Body very elongate, height 10 in total length. Head  $5\frac{1}{3}$ - $6\frac{1}{4}$  in total length. Eyes close together, 6 in head. Snout about as long as eye. Upper jaw prominent. Maxillary extends to below posterior part of eye. Teeth in upper jaw 7-9 large canines on each side in front, laterally about 10 much smaller teeth. In lower jaw about 17 on each side, a pair of canines at symphysis. A row of 8-10 short barbels along the ramus of lower jaw. Scales absent. First dorsal about as high as body. Second dorsal lower than first dorsal, membrane not connected with caudal fins. Caudal lanceolate.



*Colour.*—According to Day : “ Greyish above, white below ; numerous black spots on upper surface of head and commencement of body, which latter has cloudy marks and bands from the second dorsal fin. First dorsal black above and with some dark bands below ; second dorsal with about nine or ten oblique black bands in its lower thirds continued on to the body, posteriorly its upper edge white with a black margin, as is also upper edge of caudal. Pectoral and ventral grey, anal white ; caudal blackish with white spots, each having a black centre.”

*Length.*—168 mm.

*Habitat.*—Mesopotamia, Sind.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Sind	..	..	..	..	..	Purchased from F. Day.
Fao Estuary of the Shatt-el-Arab, Mesopotamia					..	H. J. Walton.

*Leiden Museum Collection.*

Sind	..	..	..	..	..	F. Day.
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**Scartelaos glaucus** (Day).

1876. *Boleophthalmus glaucus*, Day, *Fish. India*, p. 306, pl. lxxv, fig. 3.

1889. *Boleophthalmus glaucus*, Day, *Faun. Brit. Ind. Fish.* II, p. 284.

D. 1. V ; D. 2. I/26 ; A. I/24 ; P. 19.

Body very elongate, height 7 in length, 8-9 in total length. Head  $4\frac{1}{4}$  in length,  $5-5\frac{1}{2}$  in total length. Eye 5 in head, interorbital less than  $\frac{1}{2}$  eye-diameter. Snout a little longer than eye. Maxillary extends to below middle of eye. A row of short barbels along ramus of lower jaw. Teeth in upper jaw on each side 6-7 canines in front, followed by about 13 smaller teeth. In lower jaw pointed, horizontally anteriorly, more erect posteriorly. Scales distinct on posterior half of body. First dorsal higher than body. Second dorsal lower than body, membrane not united with a caudal fin. Caudal lanceolate.

*Colour.*—According to Day : “ greenish, tinged with violet along abdomen, cloudy bands on head, a few widely scattered black spots on the cheeks and upper fourth of body. Second dorsal with dark horizontal lines, most distinct posteriorly. Pectoral grey, with a yellowish outer edge. Anal yellowish. Caudal light in its lower third, whilst superiorly it is dotted or covered with white spots surrounded by a black ring.”

*Length.*—155 mm.

*Habitat.*—Andamans.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Andamans	..	..	..	..	..	Purchased from F. Day.
Andamans					..	Homfray.

*Leiden Museum Collection.*

Andamans	..	..	..	..	..	F. Day.
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Subfamily *PERIOPHTHALMINAE*.

Body very elongate. Head truncate, scaled above, on cheek and opercle. Eyes prominent above the dorsal profile, lower eyelid well developed. Teeth in upper jaw in 1-2 rows, in lower jaw in 1 row. Scales cycloid to weakly ctenoid. Second dorsal fin not much longer than the first one. Pectoral fin with a muscular base, this fin can be bent on the place of insertion of the rays and used as a locomotory organ on dry land. Ventral fins from totally united, infundibuliform to only united with their bases, or the rays totally separated and the basal membrane wanting. Gill openings not very wide.

*Synopsis of the Indian genera.*

- 1a. Teeth in upper jaw in a single row *Periophthalmus*, p. 286.  
 1b. Teeth in upper jaw in two rows *Periophthalmodon*, p. 291.

**Periophthalmus** Bloch & Schneider.

1801. *Periophthalmus*, Bloch & Schneider, *Syst. Ichth.* p. 63.

1863. *Euchoristopus*, Gill, *Proc. Ac. Nat. Sci. Philadelphia*, p. 271.

Body elongate, a little compressed, covered with about 60-100 cycloid to very weakly ctenoid scales. Head compressed, scaled above behind the eyes and on cheek and opercle to totally scaled. Eyes close together and prominent above the dorsal profile, lower eyelid well developed. Snout blunt, about as long as the eye. Anterior nostril in a tube in a triangular lobule above the upper lip. Mouth horizontal, jaws equal. Teeth in both jaws in a single row, uneven, anterior ones more or less caninoid. Tongue rounded, nearly totally adnate to the floor of the mouth. Gill openings narrow, placed before the lower  $\frac{3}{4}$  of the pectoral fin, isthmus broad. Dorsal fins close together. First dorsal with 8-17 rays. Second dorsal and anal I/10-14. Ventral only united with their bases, not infundibuliform, the rays being completely separated, or united to halfway the rays, a low basal membrane present; sometimes totally united, infundibuliform. Pectorals with a muscular base. Caudal symmetrical, the dorsal rays are longer than the ventral ones, oblong.

*Synopsis of the Indian species.*

- 1a. Ventral fins totally united, not emarginate; basal membrane well developed .. *P. chrysospilos*, p. 287.  
 1b. Ventral fins totally united, but emarginate; basal membrane well developed 2.  
 1c. Ventral fins not totally united; basal membrane moderate or weak or absent 3.  
 2a. D. 1. VIII-X; L. 1. 65-75 .. .. *P. pearsei*, p. 287.  
 2b. D. 1. XIII; L. 1. about 90 .. .. .. *P. waltoni*, p. 288.  
 3a. Basal membrane moderate or weak. The two halves of ventrals united by a narrow membrane. L. 1. 60-70 .. *P. variabilis*, p. 289.  
 3b. Basal membrane moderate or weak. Inner rays of ventrals only united at the base by a membrane, which is deeply emarginate. L. 1. 70-90. D. 1 convex .. .. *P. koelreuteri*, p. 289.  
 3c. Basal membrane very weak or absent. The two halves of ventrals nearly separated, a very narrow membrane is mostly present. L. 1. 70-95. D. 1 concave *P. vulgaris*, p. 290.  
 3d. Basal membrane absent. The two halves of ventrals are separated till the base. L. 1. 60-80 .. *P. dipus*, p. 291.

**Periophthalmus chrysospilos** Bleeker.

1853. *Periophthalmus chrysospilos*, Bleeker, *Nat. Tijds. Ned. Ind.*, p. 728.

1935. *Periophthalmus chrysospilos*, Eggert, *Zool. Jahrb. (Syst.)* LXVII, p. 56, pl. ii, fig. 8, pl. iii, fig. 9.

D. 1. IX-X ; D. 2. I/11-13 ; A. I/10-12 ; P. 14-15 ; L. 1. 70-75 ; L. tr. 1. 17 ; L. tr. 2. 12 ; Predorsal scales 25.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 6 in length,  $7\frac{1}{3}$ - $7\frac{1}{2}$  in total length. Head truncate, a little compressed,  $3\frac{3}{4}$ -4 in length,  $4-4\frac{2}{3}$  in total length. Eye  $4\frac{1}{3}$ -5 in head. Teeth on each side in each jaw 15-20, anterior ones a little caninoid. Scales on caudal peduncle not or a little larger than those of front of body. Dorsal fins separate. First dorsal pointed, triangular, 2 times as high as body. Anterior rays prolonged in male. Second dorsal lower than body. Pectoral about as long as head, basal half scaled. Basal membrane of ventral well developed, fin not emarginate posteriorly, totally united. Anal shorter and lower than second dorsal. Caudal obtuse, obliquely rounded, about as long as head.

*Colour.*—Yellowish-green to brownish above, smoky white below. Head and body with orange dots. Base of first dorsal bluish-green, middle yellowish-green. Rays of outer part red, with blackish spots between them. Outer margin from 1st to 3rd ray white, posteriorly reddish. Filaments of dorsal rays red. Second dorsal yellowish-green with dark longitudinal band halfway. Caudal bluish-green above, brownish below. Anal and ventral whitish. Pectoral yellowish-green with orange dots. The Indian specimens belong to a variety which has in spirit : First dorsal totally black, except the first ray and the outer margin of fin between the first and fifth ray, behind this the margin is very narrow. These parts are white, probably red in life.

*Length.*—120 mm.

*Habitat.*—Vizagapatam, Singapore, Banka, Sumatra, Java.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Ponds at entrance of Lova Garden, Vizagapatam	..	H. S. Rao & G. Varugis.
Freshwater stream in Lova Garden, Vizagapatam	..	H. S. Rao & G. Varugis.

**Periophthalmus pearsei** Eggert.

1935. *Periophthalmus pearsei*, Eggert, *Zool. Jahrb. (Syst.)* LXVII, p. 57, pl. iii, fig. 10.

D. 1. VIII-X ; D. 2. I/11-12 ; A. I/12 ; P. 13 ; L. 1. 65-75 ; L. tr.1. 17 ; L. tr. 2. 12 ; Predorsal scales 22.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $6\frac{1}{2}$ -7 in total length. Head truncate,  $4\frac{1}{2}$ -5 in total length. Anterior teeth larger. Dorsal fins very close together. First dorsal pointed, triangular, a little concave, first ray in male prolonged. Second dorsal lower than first dorsal. Pectoral about as long as head. Basal membrane of ventral well developed, the fin is emarginate posteriorly. Anal lower than second dorsal. Caudal obtuse, obliquely rounded, about as long as head.

*Colour.*—In spirit : Brownish with irregular dark spots on head, belly lighter. First dorsal dark grey with whitish margin. On the rays light spots. Second dorsal with two dark grayish longitudinal bands. Anal diaphanous. Rays of caudal in middle dark.

*Length*.—60 mm.

*Habitat*.—India. The species was described from Port Canning.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Calcutta	J. Anderson.
Port Canning, Lower Bengal, brackish water	R. Hodgart.
Pertapnogare, Lower Bengal	Museum Collector.
Segregation camp, Rangoon	Sanitary Commission, Rangoon.
Buna, Ohom, Raneegunge	Museum Collector.
Sunderbans, Bengal	de Courcey.
Akyab Harbour	Marine Survey.
From pools in jungle near Uttarbhag, Bengal	S. L. Hora.
Uttarbhag, Bengal ..	S. L. Hora.
From a large lake-like stretch of brackish water near Uttarbhag, Bengal	S. L. Hora.

**Periophthalmus waltoni**, sp. nov.

D. 1. XIII ; D. 2. I/13 ; A. I/11 ; P. 14 ; L. l. about 90 ; L. tr. 1. 22 ; L. tr. 2 about 14 ; Predorsal scales about 30.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $5\frac{1}{2}$  in length,  $6\frac{3}{4}$  in total length. Head blunt, subcylindrical,  $3\frac{3}{4}$  in length,  $4\frac{1}{2}$  in total length. Eye  $4\frac{3}{4}$  in head. Teeth on each side in each jaw about 15, placed in one row. In upper jaw on each side in front about 5 caninoid teeth, among which 2-3 large ones, followed by about 10 small teeth laterally. In lower jaw in front on each side 6-7 caninoid teeth, among which 3-4 large ones, followed by about 8 smaller teeth laterally. Head and body scaled, on posterior part of body the scales become gradually larger. Dorsal fins separate, but interspace small, about 6 in head. First dorsal convex, a little higher than body, about as long as high, in male higher than body. Second dorsal much lower than body. Pectoral about as long as head. Ventral with distinct basal membrane. The fin is posteriorly emarginate as the inner rays are shorter than the middle ones ; the membrane between the inner rays extends to the end of these rays. Caudal obliquely pointed, the upper rays are much longer than the lower ones,  $\frac{3}{4}$  of head.

*Colour*.—In spirit : Brownish gray with silvery spots on head and body. On ventral side these spots form more or less transverse silvery stripes. On body indefinite dark blotches. First dorsal dark, becoming darker towards the outer margin, on basal half of the fin a row of light spots, one spot on each membrane between two rays. Second dorsal base dark, a light band, consisting of large light blotches halfway the fin, at the outer side of which a blackish band ; outer part of the fin dark. Pectoral, caudal and anal dusky.

*Length*.—135 mm.

*Habitat*.—Mesopotamia, Karachi.

I have seen 2♂ and 2♀. These were from the following localities :—

*Indian Museum Collection.*

Fao estuary of the Shatt-el-Arab, Mesopotamia, ♀	..	..	H. J. Walton.
Karachi ♂ and ♀	..	..	W. D. Cumming.
Mouth of Shatt-el-Arab ♂	..	..	W. T. Blanford.

**Periophthalmus variabilis** Eggert.

1935. *Periophthalmus variabilis*, Eggert, *Zool. Jahrb. (Syst.)* LXVI, p. 63, pl. iii, fig. 13, pl. iv, figs. 14, 15.

D. 1. IX ; D. 2. I/12-13 ; A. I/12 ; P. 11 ; L. 1. 60-75 ; L. tr. 1 about 17 ; L. tr. 2. 12-13 ; Predorsal scales about 25.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 6-7 in total length. Head truncate,  $4\frac{1}{2}$ -5 in total length. Teeth in upper jaw anteriorly 2-3 caninoid ones ; in lower jaw on each side 1-3 caninoid teeth. First dorsal concave, convex posteriorly. Second dorsal lower than first dorsal. Anal lower than second dorsal. Basal membrane of ventral moderate to weak, the two halves of the fins are united by a narrow membrane along the inner rays. Caudal obtuse, obliquely rounded, about as long as head.

The colour of the different subspecies of Eggert is pretty different. I do not know to which subspecies the 3 Indian specimens which I have seen, should be assigned.

*Length.*—85 mm.

*Habitat.*—India, Siam, Java, Pulu Babu.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Pulicat Canal, Ennur

N. Annandale.

Pond at entrance of Lova Garden, Vizagapatam ..

H. S. Rao & G. Varugis.

**Periophthalmus koelreuteri** (Pallas).

1770. *Gobius koelreuteri*, Pallas, *Spicilegia Zool.* VIII, p. 8, pl. ii, figs. 1-3.

1830. *Periophthalmus kalolo*, Lesson, *Voy. Coquille Zool.* II (I), p. 146.

1876. *Periophthalmus koelreuteri*, Day, *Fish. India*, p. 303, pl. lxiv, fig. 8.

1889. *Periophthalmus koelreuteri*, Day, *Faun. Brit. Ind. Fish.* II, p. 280, fig. 95.

1935. *Periophthalmus koelreuteri*, Eggert, *Zool. Jahrb. (Syst.)* LXVII, p. 70, pl. v, figs. 18-21 ; figs. 9-11.

D. 1. 10-17 ; D. 2. I/11 ; A. I/10-11 ; P. 13 ; L. 1. 70-90 ; L. tr. 1. 17 ; L. tr. 2. 12-13 ; Predorsal scales about 35.

Body elongate, height  $6-7\frac{1}{3}$  in total length. Head truncate,  $4\frac{1}{2}$ -5 in total length. Teeth in front caninoid, laterally smaller. Dorsal fins separate. First dorsal convex, the first ray generally a little shorter than the following ones. Anal lower than second dorsal. Basal membrane of ventral moderate to weak. Inner rays of ventral only united at the base by a narrow membrane which is deeply emarginate. Caudal obliquely truncate.

*Colour.*—Brownish to blackish-brown, lighter below. On body irregular transverse bands. Opercle with light dots on lower half, sometimes shiny spots on body. First dorsal light-brown to dark-brown, margin white. A dark submarginal band, below which a narrow white band. Base with white dots. Second dorsal with broad white margin, a dark brown submarginal band, below which short dark stripes, bordered with white. Anal white.

*Length.*—150 mm.

*Habitat.*—East Africa to Samoa Islands ; different subspecies.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Sunderbans, mouth of river Hughly	S. W. Kemp.
Andamans	J. Wood-Mason.
Nankauri Harbour, Nicobar Islands	H. S. Rao & K. S. Misra.

These specimens cannot be referred to any subspecies definitely. The following ones belong to *Periophthalmus koelreuteri kalolo* Lesson, which subspecies is characterized by: First dorsal 11-15. Body light-brown to dark-brown with indistinct dark markings, often with shiny spots and stripes. First dorsal with white margin, below which a black band. Below this band a row of white spots. Base light-grey to greyish-brown, sometimes with white dots. The body is lower than in the other subspecies.

*Indian Museum Collection.*

Andamans	Captain Homfray.
Fisher Bay, Port Owen, Tavoy Id.	Marine Survey.
Murdakhari, Port Blair	H. S. Rao & K. S. Misra.

**Periophthalmus vulgaris** Eggert.

1935. *Periophthalmus vulgaris*, Eggert, *Zool. Jahrb. (Syst.)* LXVII, p. 80, pl. vi, figs. 23-26, pl. vii, figs. 27-30.

D. 1. X-XVII; D. 2. I/10-12; A. I/10-11; P. 13; L. 1. 70-95.

Body elongate, height 5·7-7·3 in total length. Head truncate, 4·2-5·1 in total length. Teeth in front a little enlarged, laterally small. Dorsal fins separate. First dorsal concave, posteriorly convex, the first ray is the longest. Anal lower than second dorsal. Basal membrane of ventral very weakly developed or absent. The two halves of the ventral fin are nearly separated, a very narrow membrane is mostly present. Caudal obliquely rounded.

*Colour.*—Light-brown to blackish-brown, light below. On ventral part of body shiny transverse stripes, on dorsal part dark oblique stripes. First dorsal with broad white margin. A broad black submarginal band, below which a white stripe. Base grayish with white dots. Second dorsal with broad white margin, below which a black longitudinal band. Base grayish to light-brown with white markings. Anal uncoloured.

*Length.*—105 mm.

*Habitat.*—India to Australia.

Eggert described some subspecies which are, however, not sufficiently defined to make it possible to refer the Indian specimens to any of them.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Little Andamans	?
Channel between B. Pak Raw and B. Pak Cha, Siam	N. Annandale.
Hightut Buul, Mergui	J. Anderson.
Akyab, Burma	F. Day.
Jack and Una Is.	Marine Survey.
Byick Hwaar Bay	Marine Survey.
Vizagapatam Harbour, shore collection	H. S. Rao.

**Periophthalmus dipus** Bleeker.

1854. *Periophthalmus dipus*, Bleeker, *Nat. Tijds. Ned. Ind.* VII, p. 320.

? 1928. *Periophthalmus dipus*, Eggert, *Zeitschr. Wiss. Zool.* CXXXIII, p. 403, pl. ix, fig. 5.

? 1935. *Periophthalmus dipus*, Eggert, *Zool. Jahrb. (Syst.)* LXVII, p. 86, pl. viii, figs. 31, 32; figs. 12-14.

D. 1. X-XII; D. 2. I/11; L. l. about 70; L. tr. 1. 17; L. tr. 2. 11-12; Predorsal scales 25.

Body elongate, height  $5\frac{1}{2}$ -7 in total length. Head about  $4\frac{1}{2}$  in total length. Snout truncate. Teeth in both jaws 10-12 in upper jaw no canines, in lower jaw anterior teeth caninoid. Scales of body a little larger posteriorly. Dorsal fins nearly continuous at the bases. First dorsal a little convex, first ray is shorter than the second; 2nd and 3rd about as high as body. Second dorsal lower than first dorsal. Anal lower than second dorsal. Ventral without basal membrane, the two halves of the fin are separated till the base.

*Colour.*—After a drawing of Bleeker: Bluish-brown with dark blotches, belly lighter. Head and body with shiny spots. First dorsal yellowish-orange with a faint brown band below the margin; on the base a number of shiny spots. Second dorsal yellowish-orange with black longitudinal band, bordered with white. Caudal bluish-brown, yellowish in its upper part. Rays of pectoral and ventral spotted. Anal greenish-yellow.

*Length.*—112 mm.

*Habitat.*—Andamans, Indo-Australian Archipelago.

I have examined specimens from the Andamans.

**Periophthalmodon** Bleeker.

1874. *Periophthalmodon*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 326.

Body elongate, a little compressed, covered with 45-60 cycloid scales. Head compressed, entirely scaled. Eyes close together and prominent above the dorsal profile. Lower eyelid well developed. Snout blunt, a little longer than eye. Anterior nostril in a tube in a triangular lobe. Mouth horizontal, jaws equal. Teeth in upper jaw in two rows, the outer row has the anterior teeth enlarged, caninoid; inner row smaller. In lower jaw one row, partly caninoid. Tongue rounded, nearly totally adnate to the floor of the mouth. Gill openings narrow, placed before the lower  $\frac{3}{4}$  of pectoral fin, isthmus broad. Dorsal fins close together. First dorsal absent, or 3-14 rays. Second dorsal I/11-14; anal I/11-13. Ventral nearly totally united, infundibuliform, a low basal membrane is developed, or only united with their bases, not infundibuliform; the rays completely separated. Pectoral with a muscular base. Caudal asymmetrical, the dorsal rays longer than the ventral ones, oblong.

*Synopsis of the Indian species.*

- |  |   |
|--|---|
| 1a. Ventral fins totally united; basal membrane well developed                                 | <i>P. schlosseri</i> , p. 291.          |
| 1b. Ventral fins nearly separate, only a narrow membrane at the base;<br>basal membrane absent | .. <i>P. tredecemradiatus</i> , p. 292. |

**Periophthalmus schlosseri** (Pallas).

1770. *Gobius schlosseri*, Pallas, *Spicilegia Zool.* VIII, p. 3, pl. i, figs. 1-4.

1822. *Gobius septemradiatus*, Hamilton, *Fish. Ganges*, p. 46.

1837. *Periophthalmus freycineti*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 197.

1875. *Periophthalmus australis*, Castelnau, *Res. Fish. Australia (Vict. Office. Rec. Philad. Exhib.)*, p. 22.

1935. *Periophthalmus schlosseri*, Eggert, *Zool. Jahrb. (Syst.)* LXVII, p. 45, pl. i, figs. 1-3.

D. 1. III-X; D. 2. I/12-13; A. I/11-12; P. 16-20; L. l. 50-60; L. tr. 1. 14; L. tr. 2. 12; Predorsal scales 22-23.

Body elongate, height about 6 in total length. Head about 4 in total length. Teeth in upper jaw in two rows, outer row 10-12 canines in front, inner row 2-4 smaller teeth. First dorsal convex, even when reduced, not higher than body. Second dorsal and anal lower than body. Ventral totally united, sometimes emarginate posteriorly; basal membrane well developed. Caudal obliquely rounded.

*Colour*.—Dark brown, lighter below. Blue spots or shiny spots on head and body. From eye to shoulder a dark-brown band. First dorsal yellow-brown to dark-brown with light margin. Second dorsal light-brown to dark-brown with brown : dark longitudinal band in middle of the fin. Ventral and anal yellowish.

*Length*.—270 mm.

*Habitat*.—India to Australia.

### **Periophthalmus tredecemradiatus** (Hamilton).

1822. *Gobius tredecemradiatus*, Hamilton, *Fish Ganges*, p. 48.

1851. *Periophthalmus borneensis*, Bleeker, *Nat. Tijds. Ned. Ind.* I, p. 11.

1861. *Periophthalmus 13-radiatus*, Blyth, *Journ. As. Soc. Bengal* XXIX, p. 148.

1876. *Periophthalmus schlosseri*, Day, *Fish. India*, p. 304, pl. lxvi, fig. 4 (*nec* Pallas).

1889. *Periophthalmus schlosseri*, Day, *Faun. Brit. Ind. Fish.* II, p. 281 (*nec* Pallas).

1935. *Periophthalmus tredecemradiatus*, Eggert, *Zool. Jahrb. (Syst.)*, LXVII, p. 51, pl. i, fig. 4, pl. ii, fig. 5.

D. 1. X-XIV (female 0-VI); D. 2. I/11-13; A. I/10-11; P. 12-13; L. 1. 45-60.

Body elongate, height 6-7½ in total length. Head 4½-5 in total length. Teeth small, in upper jaw in two rows, anterior ones caninoid. First dorsal concave, in female very reduced to absent. First ray in male filiform. Ventral nearly separated, only a very narrow membrane at the base; basal membrane absent. Caudal obliquely rounded. The Indian specimens belong to the subspecies *tredecemradiatus* (Ham.). This subspecies differs from the other subspecies (*borneensis* Blkr.) in having 45-50 scales in L. I. Body more sub-cylindrical. First dorsal in female very small to wanting (see Eggert, *op. cit.*, p. 52). First dorsal 11-13 (female 0-5); second dorsal I/12-13.

*Colour of male in spirit*: Dark brown with black transverse stripes. Body lighter below. Head, especially on opercle, with dark, short, oblique or horizontal blotches. First dorsal with broad light border, below which the fin is blackish-brown, base lighter brown. Rays light-brown, the first one is white. Second dorsal with white border and light-brown base with 2 longitudinal rows of black spots.

*Colour of female in spirit*: Dark-brown, lighter below. On opercle blackish-brown blotches. First dorsal with broad light border, base dark-brown. Second dorsal light with broad dark-brown longitudinal band.

Pectoral dark brown, lighter towards the tip. A more or less distinct transverse band at the insertion of the rays and at last ½ part of the rays. Caudal brownish with dark spots on the membrane. Anal light-brown, grayish-brown towards margin.

*Length*.—92 mm.

*Habitat*.—India, Andamans, Siam, Sumatra.



I have examined specimens from the following localities :—

*Indian Museum Collection.*

Andamans ..	..	F. Day.
Burma	..	F. Day.
Bangkok .. ..	.. ..	Malcolm Smith.
Bassein, Burma .. ..	.. ..	F. Day.
Uttarbhag, Bengal .. ..	.. ..	S. L. Hora.

Subfamily *SICYDIAPHIINAE.*

Body elongate, scaly or naked. Gill openings not very wide, except in *Aphia*, isthmus broad. Two dorsal fins, the second one is not elongated. Ventral fins united, either only with the bases, either wholly attached to the belly. Sometimes labial teeth in lower lip. In lower jaw a single row of simple teeth. In upper jaw a row of teeth, behind which sometimes some rows hidden in the gum. Head elongate. Snout and cheek naked.

*Synopsis of the Indian genera.*

- 1a. Ventral fins forming together a sucking disk, which is attached to the belly. Body scaled. At least one canine on each side behind symphysis of lower jaw .. .. . *Sicyopterus*, p. 293.
- 1b. Ventral fins united, but not adherent to the belly. No labial teeth. Teeth of upper jaw slender. Scales not deciduous, cycloid. A pair of canines behind symphysis of lower jaw. Mouth nearly vertical .. .. . *Gobiopterus*, p. 297.

***Sicyopterus* Gill.**

1860. *Sicyopterus*, Gill, *Proc. Acad. Nat. Sci. Philadelphia*, p. 101.  
 1864. *Cotylopus*, Guichenot in Maillard, *Notes sur l'Isle de la Reunion* II, add. C, p. 9.  
 1874. *Sicydiops*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 314.  
 1874. *Microsicydium*, Bleeker, *op. cit.*, p. 314.  
 1932. *Bryanina*, Fowler, *Occ. Pap. Bishop Mus.* IX, No. 25, p. 10.

Body elongate, nearly cylindrical to a little compressed, covered with about 50-80 small scales, ctenoid on the posterior part of body, cycloid on the anterior part. Head a little depressed, scaled above behind the eyes, cheek naked. Mouth nearly horizontal, upper jaw prominent. Lower lip with a series of numerous slender horizontal teeth. Upper jaw with a single row of numerous movable teeth. Lower jaw with a row of widely set conical teeth, a pair of canines behind symphysis. All teeth of the upper jaw are simple, slender, the distal half bent inwards nearly at a right angle. No barbels on head. Eyes of moderate size. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/10-12. Caudal free, obtuse. Ventral united into a short cup-shaped disk, which is attached to the belly, the rays are short and with many ramifications in a short distance. Gill openings of moderate width.

*Synopsis of the Indian species.*

- 1a. L. l. 52-55 (12-15 deciduous cycloid scales and about 40 ctenoid ones); L. tr. 14-15; Predorsal scales 11-12. Caudal slightly emarginate. Upper lip entire, without clefts, inner margin rugose, but without papillae .. .. . *S. gymnauchen*, p. 294.

- 1b. L. l. 56 ; L. tr. 16 ; Predorsal scales 19. A dark interorbital band *S. halei*, p. 294.  
 1c. L. l. 60-70 ; L. tr. 15-16 ; Predorsal scales 20. Upper lip entire, without clefts, with papillae along the lower margin *S. microcephalus*, p. 295.  
 1d. L. tr. more than 16 2.  
 2a. L. l. 67 ; L. tr. 19 ; Predorsal scales about 30 *S. fasciatus*, p. 296.  
 2b. L. l. about 80 ; L. tr. about 20 ; Predorsal scales about 25. Upper lip entire, without clefts, with short papillae along the lower margin *S. griseus*, p. 296.

### **Sicyopterus gymnauchen** (Bleeker).

1858. *Sicydium gymnauchen*, Bleeker, *Act. Soc. Sc. Indo-Neerl.* III, p. 11.

1906. *Sicyopterus tauae*, Jordon & Seale, *Bull. Bur. Fisheries XXV*, (1905), p. 410, fig. 96.

1932. *Bryanina inana*, Fowler, *Occ. Pap. Bishop Mus.* IX, No. 25, p. 10, fig. 5.

Upper lip entire, without clefts, without papillae. D. 1. VI ; D. 2. I/9-10 ; A. I/10 ; P. about 10 ; L. l. 52-55 (12-15 cycl. and about 40 ct.) ; L. tr. 14-15 ; Predorsal scales 11-12.

Body anteriorly cylindrical, posteriorly compressed, height 6-7 in length, 7-8 in total length. Head obtuse, cylindrical,  $4\frac{1}{2}$  in length,  $5\frac{1}{2}$  in total length. Eye  $4-4\frac{1}{2}$  in head, interorbital 1 eye-diameter. Snout prominent. Jaws subequal. Maxillary extends to below anterior part of eye. Scales deciduous, cycloid on anterior part of body, ctenoid on posterior part. Scales of anterior part about equal to those of middle of body. First dorsal a little lower than body, 2nd and 3rd rays are the longest. Pectoral a little shorter than head. Ventral a little longer than postorbital part of head. Caudal slightly emarginate, about as long as head.

*Colour*.—Green above, pearl-like below. Body with blackish transverse stripes, narrower than the interspaces, 1st through eye, 2nd from nape to breast, 8th over base of caudal. The 4-5 posterior stripes are a little narrower than the other stripes and a little obliquely placed. The stripes on body may be diffuse or totally wanting. Fins reddish. Anal with blackish spots.

*Length*.—34 mm.

*Habitat*.—Ceylon, Indo-Australian Archipelago to the Pacific.

I have examined specimens from the following localities :—

#### *Leiden Museum Collection.*

Ceylon	..	..	P. E. P. Deraniyagala.
Riv. Kalugangas Kalutara, Ceylon	..	..	.. P. E. P. Deraniyagala.

### **Sicyopterus halei** (Day).

1888. *Sicydium halei*, Day, *Fish. India Suppl.*, p. 794.

1889. *Sicydium halei*, Day, *Faun. Brit. Ind. Fish.* II, p. 272.

I have not examined any specimen of *Sicyopterus halei*, and therefore, give below a copy of Day's description of 1888 :

“ B. V D. 6/12, P. 19, V 1/5, A. 11, C. 14, L. l. 56, L. tr. 16.

Length of head  $5\frac{1}{2}$ , of caudal fin  $7\frac{1}{4}$ , height of body 7 in the total length. *Eyes*—upper margin on dorsal profile, diameter  $4\frac{1}{4}$  in the length of the head,  $1\frac{1}{2}$  diameters from the end of

the snout, and 2 apart. Body subcylindrical. Interorbital space nearly flat, snout obtuse and rounded, an oblique fall from orbit to it. Upper jaw the longer and overhung by the snout: cleft of mouth nearly horizontal: the maxilla reaches to below the middle of the eye. Lips thick. No warts, barbels or scales on the head. *Teeth*—in maxilla, in a single external movable row in the gums, directed almost horizontally, and a single inner row of longer pointed and curved ones, these two rows being divided by a considerable interspace: a large recurved canine on either side of symphysis of the lower jaw: in a single row of much smaller teeth in the upper jaw. *Fins*—spines of first dorsal ending in filamentous prolongations, but the longest is not quite so high as the body below it. A considerable interspace between the first and second dorsal fins, the rays of the latter are equal to about half the height of the body, and similar to the anal. Ventral does not extend half way to the anus. Caudal rounded at the extremity, its central rays somewhat the longest. Pectoral as long as the head, excluding the snout. *Scales*—strongly ctenoid, the exposed portion above twice as high as wide, and rounded, about 19 rows from occiput to first dorsal fin, the first few anterior rows somewhat small, the remainder on the body of about the same size. *Colours*—greenish brown, a black interorbital band which is continued from the eye to the angle of the mouth: some dark vertical bands on the body: a dark outer edge to ventral and anal, also a dark band to outer edge of caudal, margined externally with white, which is widest at the angles.”

*Habitat.*—Ceylon, whence Mr. Haly sent to Dr. F. Day an example 3 inches long.

### ***Sicyopterus microcephalus* (Bleeker).**

1854. *Sicydium microcephalus*, Bleeker, *Nat. Tijds. Ned. Ind.* VII, p. 437.

1925. *Sicyopterus garra*, Hora, *Rec. Ind. Mus.* XXVII, p. 35, pl. ii, figs. 2-5.

1939. *Sicyopterus garra*, Herre, *ibid.* XLI, p. 348.

1940. *Sicyopterus microcephalus*, Koumans, *ibid.* XLII, p. 17.

Upper lip without clefts, but with papillae along its lower margin.

D. 1. VI; D. 2. I/10; A. I/10; P. 19-20; L. 1. 60-70; L. tr. 15-16; Predorsal scales 20.

Body anteriorly cylindrical, posteriorly compressed, height  $5\frac{1}{2}$  in length,  $7-7\frac{3}{4}$  in total length. Head subcylindrical,  $4\frac{3}{4}-5\frac{1}{4}$  in length,  $6\frac{2}{3}-6\frac{3}{4}$  in total length, in young specimens comparatively larger. Eye 4 to more than 4 in head, interorbital 2 eye-diameters. Snout obtuse, prominent. Jaws subequal. Maxillary extends to below anterior part of eye. In lower jaw on each side 5-8 canines. Scales of occiput, nape and belly cycloid. Scales of head and nape small, laterally anteriorly on body smaller than those of middle of body. First dorsal pointed, higher than body, 2nd, 3rd and 4th rays are the longest. Second dorsal lower than body, pointed posteriorly. Anal a little higher. Pectoral rounded, longer than head. Ventral a little shorter than head without snout. Caudal obtuse, longer than head.

*Colour.*—Violet above, pearl-coloured below. Below eye a violet streak. On the sides yellow spots in longitudinal rows, on caudal peduncle these spots form stripes. Fins reddish-violet. Pectoral with many spots. Dorsal fins with minute irregular spots. Caudal with longitudinal deep violet streaks. Above and below caudal fin bordered with orange. Pectoral and ventral bordered with orange. Anal violet-orange, dusky bordered.

*Length.*—112 mm.

*Habitat.*—Andamans, Java, ? Celebes, Timor.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

(Type <i>S. garra</i> ) Birchgunge, S. Andaman .. ..	N. Annandale.
S. W. of Golf course, Aberdeen, Port Blair ..	H. S. Rao & K. S. Misra.
Near Weli village, Base Camp, Middle Andaman	H. S. Rao & K. S. Misra.
Bellow Machchaligaon, Port Blair	H. S. Rao & K. S. Misra.

Herre, 1939, gives D. 1. VII or VIII, a number which I did not find and which is very unusual for *Sicyopterus*.

***Sicyopterus fasciatus* (Day).**

1876. *Sicydium fasciatum*, Day, *Fish. India*, p. 299, pl. lxiv, fig. 7.

1889. *Sicydium fasciatu*, Day, *Faun. Brit. Ind. Fish.* II, p. 273, fig. 92.

As I have not examined any specimen of *Sicyopterus fasciatus*, I give below a copy of Day's description of 1876 :

“ B. IV, D. 6/1/10 ; P. 17 ; V. 6 ; A. 11 ; C. 13 ; L. l. 67 ; L. tr. 19.

Length of head  $5\frac{1}{4}$ , of caudal  $5\frac{1}{2}$ , height of body  $5\frac{1}{2}$  in total length. *Eyes*—diameter  $\frac{2}{9}$  of length of head, nearly  $1\frac{1}{2}$  diameters from end of the snout, and  $1\frac{3}{4}$  apart. Body subcylindrical : head rather flattened superiorly, and broader than high, its breadth being equal to its length without snout. Cleft of mouth horizontal, extending to below the centre of the orbit : lips rather thick : snout overhanging the mouth. No barbels. *Teeth*—in the upper jaw small, and implanted in the gums in a single row : the inner row in the lower jaw large conical, recurved, some distance apart, there being two canines near the symphysis, also a minute row of sharp ones on the lower lip. *Fins*—dorsal spines rather filiform, and projecting beyond the membrane, being  $\frac{3}{4}$  as high as the body beneath, and  $\frac{1}{3}$  higher than the second dorsal. Pectorals nearly as long as the head : ventrals short, forming a complete disk, and not reaching half-way to the anal fin, which latter is beneath the soft dorsal but lower than it. Caudal rounded. *Scales*—strongly ctenoid, somewhat irregularly arranged, they extend forwards nearly as far as the eyes : those anterior to the dorsal fin (about 30 rows) and also in front of the anal, smaller than the others, and more or less cycloid. None on opercles or cheek. *Colours*—reddish-brown, with about six vertical darker bands on the body wider than the ground colour : there are also some dark spots : its under surface is dirty yellowish-brown. Fins nearly black, with a light, nearly white, edge.

This *Sicydium* or *Sicyopterus*, Gill, is the most westerly species I am aware of on the continent of Asia.

*Habitat*.—Burma, to  $2\frac{1}{4}$  inches in length, the specimen figured is life-size ”

***Sicyopterus griseus* (Day).**

1878. *Sicydium griseum*, Day, *Journ. Linn. Soc. London (Zool.)* XIII, p. 140.

1878. *Sicydium griseum*, Day, *Fish. India*, p. 747.

1889. *Sicydium griseum*, Day, *Faun. Brit. Ind. Fish.* II, p. 273.

Upper lip without clefts, with short papillae along the lower margin.

D. 1. VI ; D. 2. I/10 ; A. I/10 ; P. 17 ; L. l. about 80 ; L. tr. about 20 ; Predorsal scales about 25.

Body anteriorly cylindrical, posteriorly compressed, height 6 in length,  $7\frac{1}{2}$  in total length. Head depressed, flat above,  $4\frac{1}{4}$  in length,  $5\frac{1}{2}$  in total length. Eye 4 in head, inter-

orbital more than 1 eye-diameter. Snout obtuse, prominent. Jaws subequal. Maxillary extends to below anterior part of eye. In lower jaw one canine on each side. Scales of head and nape cycloid, smaller than those of middle of body. Rays of first dorsal filiform. Caudal rounded.

*Colour.*—According to Day “Brownish, with eight or nine rings of a darker tint encircling the body, and wider than the ground colour. *Fins*—dark, most deeply so at their edges.”

*Length.*—77 mm.

*Habitat.*—South Canara.

I have examined a specimen from Canara.

### **Gobiopterus** Bleeker.

1874. *Gobiopterus*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 311.

1923. *Micrapocryptes*, Hora, *Mem. Ind. Mus.* V, p. 751.

1927. *Mirogobius*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 91.

1931. *Gobiella*, H. M. Smith, *Proc. U. S. Nat. Mus.* LXXIX, art. 7, p. 33.

Body elongate, compressed, covered with 25-36 scales, ctenoid. Head compressed, naked. Cleft of mouth nearly vertical, lower jaw prominent. Teeth in both jaws in one row, in upper jaw caninoid, in lower jaw anterior ones caninoid, lateral ones smaller. In lower jaw behind symphysis on each side a canine, implanted a little more inwards. No labial teeth. Tongue bilobate. Dorsal fins separate. First dorsal with 5-6 rays. Second dorsal 1/7-8; anal 1/7-13. Ventral united, but free from belly. Caudal truncate.

### **Gobiopterus chuno** (Hamilton).

1822. *Gobius chuno*, Hamilton, *Fish. Ganges*, p. 53.

1923. *Micrapocryptes fragilis*, Hora, *Mem. Ind. Mus.* V, p. 751, figs. 31-33.

1929. *Gobius chuno*, Hora, *Mem. Ind. Mus.* IX, pl. xiv, fig. 6 (MS. drawing of Hamilton).

1931. *Gobiella pellucida*, H. M. Smith, *Proc. U. S. Nat. Mus.* LXXIX, p. 33, fig. 16.

1934. *Gobiopterus chuno*, Hora, *Rec. Ind. Mus.* XXXVI, p. 487.

1934. *Gobiella birtwistlei*, Herre, *Bull. Raffles Mus.* XIX, p. 85.

1936. *Gobiopterus chuno*, Mukerji, *Rec. Ind. Mus.* XXXVIII, p. 9-13 (for synonyms).

D. 1. V; D. 2. I/7-8; A. I/10-11; P. 13-14; L. l. 27; L. tr. 7.

Body elongate, compressed, height  $4\frac{1}{2}$ -5 in length. Head  $3\frac{2}{3}$ -4 in length. Eye  $4\frac{1}{2}$ -5 in head, interorbital 1 eye-diameter. Snout a little shorter than eye, tip before upper part of eye. Mouth very oblique, lower jaw prominent. Maxillary extends to anterior margin of pupil. In male: teeth in 1 row in upper jaw, conical, distant, caninoid, 9 on each side; in lower jaw in front on each side 4 large conical teeth, laterally a row of smaller ones. On each side behind symphysis a canine. In female and young specimens the teeth are much smaller. Tongue bilobate. Head and nape naked. Scales of body ctenoid. First dorsal low, middle rays are the longest. Second dorsal and anal in front about as high as body. Caudal truncate, as long as head. Pectoral as long as head without snout. Ventral small.

*Colour.*—Diaphanous with a yellowish tinge. A series of black spots along back and on lower surface from origin of anal to base of caudal. In spirit the colour is light yellow. Tip of lower jaw brown.

*Length.*—27 mm.

*Habitat.*—India, Singapore, Siam.

This species is closely allied to *G. brachypterus* (Blkr.). I have examined specimens from the following localities :—

*Indian Museum Collection.*

Durgapur, Calcutta	S. W. Kemp.
Baliaghata canal, near Gaswork (Type and cotypes <i>M. fragilis</i> )	B. L. Chaudhuri.
Barkul, Chilka Lake	Chilka Survey.
1.9 miles N. E. of Kalidai	Chilka Survey.
Off Balugaon, 17 miles N. E. of Barkul Bungalow, Chilka Lake	Chilka Survey.
Off Samal Id., Chilka Lake	Chilka Survey.
Ennur Backwater, Madras	N. Annandale.
Balugaon, Chilka Lake	N. Annandale.

Family TAENIOIDIDAE.

Gobioidea with united ventral fins, one dorsal fin, which is very elongate; with a distinct short spinous part. Eye small to indistinct. Isthmus broad. Naked or with cycloid scales.

*Synopsis of the subfamilies.*

- |   |                         |
|---|-------------------------|
| 1a. No pit in upper margin of opercle, opening to a cavity, separate from the gill-cavity | Taenioinae, p. 298.     |
| 1b. A pit in upper margin of opercle, opening to a cavity, separate from the gill-cavity  | Trypaucheninae, p. 305. |

Subfamily TAENIOININAE.

Body very elongate, eel-like, no pit at the upper margin of opercle, opening to a cavity, separate from the gill-cavity. Eyes small, rudimentary.

*Synopsis of the Indian genera.*

- |  |                                  |
|--|----------------------------------|
| 1a. No barbels on head. No canines   | <i>Brachyamblyopus</i> , p. 298. |
| 1b. Barbels on head. Canines in both jaws  | 2.                               |
| 2a. Pectoral fin much shorter than ventral fin, about 3 in head. Mouth nearly vertical | <i>Taenioides</i> , p. 300.      |
| 2b. Pectoral fin as long as ventral fin, about 1½ in head. Mouth very oblique          | <i>Odontamblyopus</i> , p. 303.  |

**Brachyamblyopus**, Bleeker.

1874. *Brachyamblyopus*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 329.  
 1903. *Trypauchenopsis*, Volz, *Zool. Anz.* XXVI, p. 554 and *Zool. Jahrb. (Syst.)* XIX, p. 366.  
 1906. *Caragobius*, Smith & Seal, *Proc. Biol. Soc. Washington* XIX, p. 81.  
 1910. *Trypauchenophyrus*, Franz, *Munchen Abh. Ak. Wiss. Math. Ph. Kl. Suppl.* IV, p. 68.  
 1931. *Pseudotrypauchen*, Hardenberg, *Treubia* XIII, Livr. 3-4, p. 418.

Body very elongate, compressed, covered with about 70 rudimentary scales to naked. Head compressed to depressed. Eyes rudimentary. Mouth oblique, lower jaw a little prominent. Teeth in both jaws in 2-3 rows, outer one enlarged, no canines. Tongue rounded. No pouch-like depressions in opercular region. No barbels. Gill-openings about as long as the breadth of base of pectoral fin, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. Dorsal fins continuous, about 6 simple rays and 26-39 branched rays.

Anal I/26-34. Both fins are connected with the caudal fin. Ventral united, oblong. Pectoral without free silk-like rays. Caudal pointed, long.

*Synopsis of the Indian species.*

- |  |                                   |
|--|-----------------------------------|
| 1a. Scales in L. 1. about 70. Head naked. D. VI. 29 ; A. I/27        | <i>B. brachysoma</i> , p. 299.    |
| 1b. Scales in L. 1. about 50. Head scaled. D. VI. 30-34 ; A. I/28-32 | <i>B. multiradiatus</i> , p. 299. |
| 1c. Scales much less developed, only on caudal part or absent        | 2.                                |
| 2a. Scales on caudal part of body. D. VI. 32 ; A. I/33               | <i>B. urolepis</i> , p. 299.      |
| 2b. Scales absent ? D. VI. 36-39 ; A. I/32-34                        | <i>B. burmanicus</i> , p. 300.    |

**Brachyamblyopus brachysoma** (Bleeker).

1853. *Amblyopus brachysoma*, Bleeker, *Nat. Tijds. Ned. Ind.* V, p. 510.

D. VI. 29 ; A. I/27 ; P. 21 ; L. 1. about 70 ; L. tr. about 16.

Body compressed, height  $7\frac{1}{2}$ -8 in length,  $9-9\frac{1}{2}$  in total length. Head obtuse, subcylindrical, 5 in length,  $6\frac{1}{2}$  in total length. Profile convex. Eyes very small. Mouth oblique, lower jaw prominent. Maxillary  $2\frac{1}{3}$ - $2\frac{1}{4}$  in head. Teeth in upper jaw in 2 rows, the outer enlarged, of about 30 teeth. Teeth in lower jaw in front in 3 rows, laterally in 2 rows, outer enlarged. Head naked. Body scaled from a little before the insertion of first dorsal. Dorsal and anal fins lower than body. Pectoral obtuse. Ventral rounded. Caudal oblong.

*Colour.*—Body and fins pink, upper part of back and caudal peduncle dusky.

*Length.*—105 mm.

*Habitat.*—From Persian Gulf to Indo-Australian Archipelago, Siam, Hongkong.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Persian Gulf	..	Marine Survey.
Off Tenasserim Coast, Burma	..	Marine Survey.
North end of Persian Gulf, 15 fathoms	..	Marine Survey.

**Brachyamblyopus multiradiatus** (Hardenberg).

1931. *Pseudotrypauchen multiradiatus*, Hardenberg, *Treubia* XIII, Livr. 3-4, p. 418, fig. 8.

D. VI. 30-34 ; A. I/28-32 ; P. 40 ; L. 1. about 50 ; L. tr. about 8.

Body compressed, height 5 in length, 7 in total length. Head obtuse, 5 in length, 7 in total length. Profile convex. Eyes very small. Mouth oblique. Maxillary  $1\frac{1}{2}$  in head. Teeth in upper jaw in outer row about 30 on each side. Head and body scaled, scales large, deciduous. Dorsal and anal fins lower than body. Pectoral pointed, longer than head. Caudal pointed, very long, about 3 in total length.

*Colour.*—Pale rosa.

*Length.*—87 mm.

*Habitat.*—Mouth of River Hooghly, Sumatra.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Sandheads	..	..	A. Milner.
Sandheads, mouth of river Hooghly	..	..	P. V. "Lady Fraser"

**Brachyamblyopus urolepis** (Bleeker).

1852. *Amblyopus urolepis*, Bleeker, *Nat. Tijds. Ned. Ind.* III, p. 581.

1927. *Brachyamblyopus olivaceus*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 329, pl. xxv, fig. 3.

D. VI. 32 ; A. I/33 ; P. 18.

Body compressed, height 9 in length. Head subcylindrical,  $5\frac{1}{2}$  in length, 7 in total length. Front a little convex. Eyes very small. Mouth very oblique, lower jaw prominent. Lips thin. Maxillary 3 in head. Teeth subequal, a little curved. Teeth in upper jaw in 2 rows, in lower jaw in more rows. Only small scales on caudal part of body. Dorsal and anal fins lower than body. Pectoral short, rounded,  $\frac{1}{2}$  of length of head. Caudal longer than head, pointed.

*Colour*.—Reddish-green. Fins red.

*Length*.—81 mm.

*Habitat*.—India, Andamans, Siam, Philippines, Sumatra.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Ennur Backwater	..	.. N. Annandale.
Andamans	.. .. .	?
Creek a little beyond the Ferry, Vizagapatam (bottom sample)		H. S. Rao & G. Varugis.
Channel connecting the backwater with the sea Vizagapatam (bottom sample)	.. .. .	.. H. S. Rao & G. Varugis.
Large creek close to Tumidalametta Hill, 336 ft., Vizagapatam		.. H. S. Rao & G. Varugis.
From the muddy sides of the channel below the sluice at Uttarbhag (subject to tidal influence)	.. .. .	.. S. L. Hora.

**Brachyamblyopus burmanicus** Hora.

1925. *Brachyamblyopus burmanicus*, Hora, *Rec. Ind. Mus.* XXVII, p. 455, fig. 2.

D. VI. 36-39 ; A. I/32-34 ; P. 14.

Body very elongate, compressed, height about 10-13 in length, about 15 in total length. Head depressed,  $6\frac{3}{4}$ -9 in length, about  $10\frac{1}{2}$  in total length. Eyes small. Mouth oblique, jaws equal. Maxillary 3 in head. Teeth in upper jaw in 3 rows in front, laterally 2 rows. Scales absent ? Dorsal and anal fins much lower than body. Caudal pointed, much longer than head. Pectoral obtuse, slightly less than half the length of head. Ventral a little longer than Pectoral.

*Colour*.—In spirit : Grayish-yellow. Middle rays of caudal black.

*Length*.—100 mm.

*Habitat*.—Rangoon.

I have examined a specimen from a small pond opening into the Rangoon River about 3 miles below Rangoon.

**Taenioides** Lacépède.

1798. *Taenioides*, Lacépède, *Hist. Nat. Poiss.* II, p. 580.

1800. *Taenioides*, Lacépède, *op. cit.* IV, p. 339.

1815. ? *Gymnurus*, Rafinesque, *Analyse de la Nature*, p. 84.

1837. *Amblyopus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 157.

1883. *Leme*, De Vis, *Proc. Linn. Soc. N. S. Wales* VIII, p. 286.

Body very elongate, compressed, covered with very rudimentary scales, or naked. Head subcylindrical, naked ? Eyes reduced, hidden. Mouth almost vertical, lower jaw prominent. Lips laterally fringed. Teeth in both jaws truncate to obtusely pointed, placed in a band of several rows ; an outer row is separated, widely set, enlarged, more or less caninoid.



Tongue rounded. Gill openings not very wide, isthmus as broad as the base of ventral fins. Inner edge of shoulder girdle without fleshy flaps. Several ridges of papillae on head, radiating from eye, on cheek, opercle and on mandible. Some barbels on ventral side of head. Dorsal fins continuous, with 5-6 simple rays and 38-50 branched rays; anal with 45-49 rays. Both fins more or less connected with the caudal fin. Ventral large, united, oblong. Pectoral small. Caudal oblong.

*Synopsis of Indian species.*

- 1a. Length of head a little shorter than distance from base of ventral to vent. Second dorsal and anal separated by a deep notch from caudal .. *T. cirratus*, p. 301.  
 1b. Length of head much shorter than distance from base of ventral to vent. Dorsal, anal and caudal fins continuous .. 2.  
 2a. Height of body 10-10½ in length, about 11½ in total length. Dorsal, anal and caudal black .. *T. buchannani*, p. 301.  
 2b. Height of body 13-15 in length, 14-16½ in total length .. 3.  
 3a. On each side in upper jaw 3-5 canines. Scales developed posteriorly. Dorsal, anal and caudal black .. *T. nigrimarginatus*, p. 302.  
 3b. On each side in upper jaw about 7 canines. Scales absent .. *T. anguillaris*, p. 302.

**Taenioides cirratus** (Blyth).

1860. *Amblyopus cirratus*, Blyth, *Journ. As. Soc. Bengal* XXIX, p. 147.

1861. *Amblyopus brachygaster*, Günther, *Cat. Fish. Brit. Mus.* III, p. 134.

1876. *Gobioides cirratus*, Day, *Fish. India*, p. 318, pl. lxix, fig. 4.

? 1883. *Leme mordax*, De Vis, *Proc. Linn. Soc. N. S. Wales* VIII, p. 286.

1889. *Gobioides cirratus*, Day, *Faun. Brit. Ind. Fish.* II, p. 300.

D. VI. 43-47; A. I/42-45; P. 13.

Body subcylindrical anteriorly, compressed posteriorly, height about 11 in length, about 12-14 in total length. Head about 6½ in length, about 7¾ in total length, a little shorter than the distance from base of ventral to vent. Teeth strong, on each side about 5 in outer row in upper jaw, about 4 on each side in lower jaw; behind these outer rows a band of small teeth. A row of 3 short barbels on each side of chin. Dorsal and anal fins separated from caudal fin by a deep notch. Caudal rhomboid. Pectoral short, about 3 in head.

*Colour.*—In spirit: uniform grayish.

*Length.*—300 mm.

*Habitat.*—India, Andamans, Indo-Australian Archipelago, Australia ?

I have examined specimens from the following localities:—

*Indian Museum Collection.*

Calcutta

Capt. Hodge (A. S. B.).

Calcutta

Purchased from F. Day.

Creek near South Corbyn's Cove, Port Blair

H. S. Rao & K. S. Misra.

**Taenioides buchannani** (Day).

1873. *Amblyopus buchannani*, Day, *Proc. Zool. Soc. London*, p. 110.

1876. *Gobioides buchannani*, Day, *Fish. India*, p. 318, pl. lxxvii, fig. 5.

1889. *Gobioides buchannani*, Day, *Faun. Brit. Ind. Fish.* II, p. 300.

D. VI. 42; A. I/35; P. 19.

Body subcylindrical anteriorly, compressed posteriorly, height about 10 in length, about  $11\frac{1}{2}$  in total length. Head about 6 in length,  $7-7\frac{1}{2}$  in total length,  $1\frac{3}{4}$  in distance from base of ventral to vent. Teeth on each side 4-5 canines of outer row in upper jaw, in lower jaw on each side 5; behind these outer rows a band of small teeth. A pair of canines at symphysis of lower jaw. A row of 3 barbels on each side below head, the first ones close together at the chin. Dorsal and anal fins continuous with caudal. Caudal pointed. Pectoral short, about 3 in head.

*Colour*.—Brownish-olive above, reddish below. Vertical fins black.

*Length*.—300 mm.

*Habitat*.—India.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Calcutta	..	Purchased from F. Day.
Madras		F. Day.
Moulmein	.	Purchased from F. Day.
Saugor Island		V. Ball.
Dhappa (Salt-water Lakes), Calcutta		A. L. Fraser.
Sandheads, mouth of River Hooghly		P. V. "Lady Fraser".
Uttarbhag, Bengal		S. L. Hora.

*Leiden Museum Collection.*

Calcutta	..	F. Day.
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**Taenioides nigrimarginatus** Hora.

1924. *Taenioides nigrimarginatus*, Hora, *Mem. As. Soc. Bengal* VI, p. 496, fig. 8.

D. VI. 48; A. about I/43.

Height of body  $13-13\frac{1}{2}$  in length, 15 in total length. Head about  $6\frac{3}{4}$  in length, 8 in total length,  $1\frac{2}{3}$  in distance from base of ventral to vent. Teeth on each side 4-5 canines of outer row in upper jaw, in lower jaw 4-5 on each side; behind these outer rows a band of small teeth. No canines behind symphysis of lower jaw. A row of 3 short barbels on each side below head, the first ones are close together at the chin. On posterior part of body small cycloid scales. Dorsal and anal fins continuous with caudal. Caudal pointed. Pectoral short, about 3 in head.

*Colour*.—In spirit according to Hora: "The general surface of the body is pale olivaceous, but from behind the nape to the base of the caudal fin it is marked with bluish, oblique, transverse bands, which run from the dorsal surface to slightly below the lateral line. These markings become more prominent when a specimen is allowed to dry up a little. The dorsal, the caudal and the greater part of the anal are deep black, while the paired fins are not particularly marked."

*Length*.—260 mm.

*Habitat*.—Singgora, Talé Sap.

I have examined a specimen from Singgora, Talé Sap.

**Taenioides anguillaris** (Linnaeus).

1758. *Gobius anguillaris*, Linnaeus, *Syst. Nat.* ed. 10, p. 264.

? 1800. *Taenioides hermannii*, Lacépède, *Hist. Nat. Poiss.* IV, p. 339, pl. vi, fig. 1.

1801. *Cepola coecula*, Bloch & Schneider, *Syst. Ichth.* p. 241, pl. liv.  
 1876. *Gobioides anguillaris*, Day, *Fish. India*, p. 317, pl. lxvii, fig. 4.  
 1876. *Gobioides caeculus*, Day, *op. cit.*, p. 318, pl. lxviii, fig. 1.  
 1889. *Gobioides anguillaris*, Day, *Faun. Brit. Ind. Fish.* II, p. 299, fig. 99.  
 1889. *Gobioides, caeculus*, Day, *op. cit.*, p. 299.

D. VI. 40-47 ; A. I/37-44 ; p. 15.

Body subcylindrical anteriorly, compressed posteriorly, height 13-15 in length, 14-18 in total length. Head  $6\frac{1}{2}$ - $7\frac{1}{2}$  in length, about  $8\frac{1}{2}$  in total length,  $1\frac{1}{2}$ - $1\frac{2}{3}$  in distance from base of ventral to vent. Teeth on each side about 7 canines in outer row in upper jaw, in lower jaw on each side 4-5 ; behind these outer rows a band of smaller teeth. A pair of canines may be present behind symphysis of lower jaw. A row of 3 short barbels on each side below head. Dorsal, anal and caudal fins continuous. Caudal pointed. Pectoral short, about 3 in head.

*Colour.*—Pinkish. The caudal fin is darker in its centre.

*Length.*—310 mm.

*Habitat.*—India, Andamans, China, Penang.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Calcutta	Capt. Hodge.
Madras	Purchased from F. Day.
Calcutta	Purchased from F. Day.
Garria near Calcutta	N. Annandale.
Pilai Bay, Mergui Archipelago	J. Anderson.
From the muddy sides of the channel below the sluice at Uttarbhag (subject to tidal influence)	S. L. Hora.

*Leiden Museum Collection.*

Madras	F. Day.
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**Odontamblyopus** Bleeker.

1839. *Psilosomus*, Swainson, *Nat. Hist. Class. Fish.* II, p. 183.  
 1874. *Odontamblyopus*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 330.  
 1880. *Cayennia*, Sauvage, *Bull. Soc. Philom. Paris* (7) IV, p. 57.  
 1927. *Sericagobioides*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 335.

Body very elongate, compressed, covered with very many minute, more or less rudimentary scales. Head compressed, nearly totally scaled, with minute rudimentary scales. Eyes very small, near dorsal profile of head. Bony interorbital and snout about 2 eye-diameters. Mouth oblique, lower jaw prominent. Teeth in upper jaw in 2 rows, in lower jaw anteriorly 3 rows, laterally 2 rows. The outer row in both jaws is strongly enlarged, widely set, forming on each side about 4 recurved canines. In lower jaw on each side of symphysis a canine. Tongue truncate. Gill openings wide, isthmus narrow, as broad as the base of ventral fins. Inner edge of shoulder girdle without fleshy flaps. Two rows of barbels on head. Dorsal fins continuous, with 6 simple rays and 34-40 branched rays. Anal with 33-38 rays. Both fins connected with their bases to the caudal fin. Ventral united, oblong. Pectoral about as long as ventral. Caudal pointed, long.

**Odontamblyopus rubicundus** (Hamilton).1822. *Gobioides rubicundus*, Hamilton, *Fish. Ganges*, pp. 37, 365, pl. v, fig. 9.1837. *Amblyopus hermannianus*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 159, pl. cccl.1837. *Amblyopus mayenna*, Cuvier & Valenciennes, *op. cit.*, p. 163.?1861. *Amblyopus taenia*, Günther, *Cat. Fish. Brit. Mus.* III, p. 135.1876. *Gobioides rubicundus*, Day, *Fish. India*, p. 319, pl. lxxvii, fig. 6.1889. *Gobioides rubicundus* Day, *Faun. Brit. Ind. Fish.* II, p. 301.1906. *Taenioides abbotti*, Jordan & Starks, *Proc. U. S. Nat. Mus.* XXXI, p. 524, fig. 4.

D. VI. 35-40 ; A. I/32-39 ; P. 30.

Body compressed, height  $8-13\frac{1}{2}$  in length, 10-14 in total length. Head subcylindrical, obtuse, convex,  $5\frac{1}{3}-6\frac{3}{4}$  in length,  $7\frac{1}{2}-8$  in total length,  $1\frac{1}{4}-1\frac{2}{3}$  in distance from base of ventral to vent. Mouth oblique. Lower jaw prominent. Maxillary extends to beyond eye. Teeth in upper jaw on each side 4 canines of outer row, in lower jaw on each side 4-6 canines. A pair of canines behind symphysis of lower jaw. On each side a row of about 3 barbels on lower side of head, sometimes indistinct. Scales minute, only visible with a lens. Dorsal and anal fins separated from caudal fin by a deep notch. Pectoral about as long as ventral, about  $1\frac{1}{2}$  in head. Caudal pointed, much longer than head,  $4\frac{1}{2}-5\frac{1}{2}$  in total length.

*Colour*.—Green to red above, red to whitish below. Fins green to red. Caudal violet posteriorly.

*Length*.—220 mm.*Habitat*.—India, Indo-Australian Archipelago, Port Arthur.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Calcutta	Purchased from F. Day.
Tribeni, Bengal	B. L. Chaudhuri.
Near Shela F. S., Khulna Dist., Bengal	J. T. Jenkins.
Saugor Is.	V. Ball.
Rangoon, Burma (Fea coll.)	Genova Museum exchange.
River Ichchamutty, Bengal	A. Alcock.
The Hooghly, Serampur Ghat	?
Sunderbans	J. T. Jenkins.
Off False Pt., Bay of Bengal ..	.. Marine Survey.
Off Arrakan Coast, Burma	Marine Survey.
10 miles N. E. of Devi R., Orissa Coast	Marine Survey.
East of Sacramento Shoal ..	Marine Survey.
15 miles S. E. of Ramchandrapur Hill	Marine Survey.
Vizagapatam Coast ..	.. Marine Survey.
Matlah River, Gangetic Delta	S. W. Kemp.
Mouth of River Hooghly	“ Investigator. ”
Chittagong, edge of river opposite town	N. Annandale & S. W. Kemp.
Saltwater lakes, Calcutta	N. Annandale.
Canal near Chingrighatta, outskirts of Calcutta	Museum Staff.
Beam trawl, S. L. “ Kitty ”, Diamond Harbour	T. Southwell.
The Pasar River, Khulna (S. L. “ Kitty ”)	T. Southwell.
On a stake net Manumbam Channel, Travancore State, S. India	H. S. Rao.
Muddy banks of Piali River, Uttarbhag, Bengal	.. S. L. Hora.

*Leiden Museum Collection.*

Calcutta	..	..	F. Day.
Bombay	..	..	Mus. Paris.

Subfamily *TRYPAUCHENINAE.*

Body very elongate, eel-like. At the upper margin of opercle a pit, opening to a cavity, which is separate from the gill-cavity. Eyes small, rudimentary.

*Synopsis of the Indian genera.*

1a. Ventrals completely united, forming a funnel-shaped disk		<i>Trypauchen</i> , p. 305.
1b. Ventrals not completely united, either emarginate posteriorly or separated to base	..	2.
Ventrals separate to the base, teeth like <i>Trypauchen</i>	..	<i>Trypauchenichthys</i> , p. 306.
2b. Ventral united, but emarginate posteriorly		3.
3a. Canines absent	..	<i>Ctenotrypauchen</i> , p. 307.
3b. Canines present		<i>Amblyotrypauchen</i> , p. 308.

**Trypauchen** Cuvier & Valenciennes.

1837. *Trypauchen*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 152.

Body very elongate, compressed, covered with about 100 cycloid scales. Head compressed, naked, with a median crest on occiput. Eyes small, bony interorbital and snout about 2 eye-diameters. Mouth very oblique, lower jaw prominent. Teeth in both jaws in 2-3 rows, the outer one strongly enlarged, caninoid. Tongue rounded. Gill openings not very wide, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. At the upper margin of opercle a pit, which opens to a cavity, which is separate from the gill-cavity. No barbels on head. Dorsal fins continuous, with 6 simple rays and 41-49 branched rays; anal with 40-46 rays. Both fins connected with the caudal fin. Ventral very small with 1 simple and 5 branched rays on each side. Pectoral small. Caudal pointed.

**Trypauchen vagina** (Bloch & Schneider).

1801. *Gobius vagina*, Bloch & Schneider, *Syst. Ichth.*, p. 73.

1822. *Gobioides ruber*, Hamilton, *Fish. Ganges*, pp. 33, 365.

1876. *Trypauchen vagina*, Day, *Fish. India*, p. 320, pl. lxxviii, fig. 2.

1889. *Trypauchen vagina*, Day, *Faun. Brit. Ind. Fish.* II, p. 302, fig. 100.

1929. *Gobioides ruber*, Hora, *Mem. Ind. Mus.* IX, pl. xviii, fig. 2 (MS. drawing of Hamilton).

D. VI. 40-49; A. I/39-46; P. 15-18; L. l. 80-115; L. tr. 21.

Body compressed, height 9-10 in length,  $11\frac{1}{2}$  in total length. Head obtuse compressed,  $6\frac{1}{2}$  in length,  $6\frac{3}{5}$ - $7\frac{1}{4}$  in total length. Eyes very small, covered by skin. Mouth very oblique, lower jaw prominent. Chin very convex. Maxillary extends to behind eye. Teeth in many rows, pointed. Outer row enlarged, caninoid. Head, nape and breast naked. Scales of body cycloid. Dorsal fins continuous, not emarginate between the two parts. Rays of first dorsal very feeble,  $\frac{1}{3}$  of depth of body, 6th far away from 5th. Pectoral  $\frac{1}{2}$  of head, the lower 5 rays much shorter, but branched. Ventral  $2\frac{1}{2}$ -3 in head, disk not emarginate posteriorly. Caudal rounded, about as long as head.

*Colour.*—Reddish.

*Length.*—222 mm.

*Habitat.*—From Persian Gulf to Indo-Australian Archipelago, China.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Calcutta	F. Day.
Singgora, Talé Sap, Siam	N. Annandale.
Makran Coast	F. W. Townsend.
Shrimp-trawl, Hooghly	?
Mormugao Bay, Portuguese India, Goa	S. W. Kemp.
Matlah River, Gangetic Delta	S. W. Kemp.
Sandheads, mouth of Hooghly River	Bengal Pilot Service.
Mandalay	P. V. "Fraser".
Kosamba creek near Bulsan, Western India	J. J. Asana.
Large creek close to Tumidalametta Hill, 336 ft., Vizagapatam	H. S. Rao & G. Varugis.
North of Persian Gulf 15 fathoms	Marine Survey.
Morrison Bay	?

*Leiden Museum Collection.*

Bombay	F. Day.
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**Trypauchenichthys** Bleeker.

1860. *Trypauchenichthys*, Bleeker, *Act. Soc. Indo-Neerl.* VIII, p. 63.

Body very elongate, compressed, covered with 38-55 cycloid scales. Head compressed, naked, with a median crest on occiput. Eyes small, bony interorbital and snout about 2 eye-diameters. Mouth very oblique, lower jaw prominent. Teeth in both jaws in 2 rows, the outer one enlarged, anterior teeth caninoid. Tongue rounded. Gill openings not very wide, isthmus broad. Inner edge of shoulder girdle without fleshy flaps. At the upper margin of opercle a pit which opens to a cavity, which is separate from the gill-cavity. No barbels on head. Dorsal fins continuous, with 5 or 6 simple rays and 37-59 branched rays. Anal with 35-52 rays. Both fins more or less connected with the caudal fin. Ventral separate, with each 1 simple and 3 branched rays, the third ray being very small. Pectoral small. Caudal oblong.

*Synopsis of the Indian species.*

1a. D. V. 37-41 ; A. I/34-38 ; L. 1. 38-40	<i>T. sumatrensis</i> , p. 306.
1b. D. VI. 56-59 ; A. I/49-51 ; L. 1. 50-55	<i>T. typus</i> , p. 307.

**Trypauchenichthys sumatrensis** Hardenberg.

1931. *Trypauchenichthys sumatrensis*, Hardenberg, *Treubia* XIII, Livr. 3-4, p. 417, fig. 7.

D. V 37-41 ; A. I/34-38 ; P. 15 ; L. 1. 38-40.

Body compressed, height 6.3-7.1 in length. Head obtuse, compressed, 5.5.3 in length. Eyes very small. Mouth very oblique, curved. Head naked. On head a rather elevated crest, faintly serrated and pointed in front. Some open pores on head. Dorsal fins continuous with caudal and anal. Lower rays of pectoral much shorter than the upper ones. Ventral without basal membrane, totally separate. Caudal oblong, about 6 in total length.

*Colour.*—Uniform pink. Fins in fresh specimens somewhat blackish.

*Length.*—63 mm.

*Habitat.*—Mouth of River Hooghly and Sumatra.

I have examined specimens from Sandheads, mouth of the river Hooghly.

**Trypauchenichthys typus** Bleeker.

1863. *Trypauchenichthys typus*, Bleeker, *Act. Soc. Indo-Neerl.* VIII, p. 63.

D. VI. 56-59 ; A. I/49-51 ; P. 18 ; L. l. about 50-55.

Body compressed, height 9 in length, 10-10½ in total length. Head obtuse, compressed, 6¼ in length, 7⅔-7¾ in total length. Eyes very small, covered by skin. Snout 4 in head. Mouth very oblique, curved. Lower jaw prominent. Maxillary 3 in head. Teeth of outer row enlarged. Head, nape, breast and belly naked. Scales of body cycloid. Dorsal fins emarginate between the two parts. Pectoral pointed, ½ of head, lower rays shorter. Ventral without basal membrane, totally separated, ½ of head. Caudal rounded, 7 in total length.

*Colour.*—Red. Fins reddish hyaline.

*Length.*—180 mm.

*Habitat.*—Riouw Archipelago, Borneo.

Though I have not seen specimens of this species from India, I give a description of it. I have seen a specimen from Amphitrite Bay in Riouw Archipelago near Singapore, so the species is likely to occur in Burma at least.

**Ctenotrypauchen** Steindachner.

1867. *Ctenotrypauchen*, Steindachner, *Sitz. ber. Ak. Wiss. Wien* LV, p. 530.

Body very elongate, compressed, covered with about 65 cycloid scales. Head compressed, with a median crest on occiput. Mouth very oblique, lower jaw prominent. Teeth of outer row enlarged, but no canines. At the upper margin of opercle a pit which opens into a cavity, which is separate from the gill-cavity. No barbels on head. Dorsal fins continuous with 6 simple rays and about 50 branched rays. Anal with 44-49 rays. Both fins connected with the caudal fin. Ventral united, but deeply emarginate, basal membrane present. Pectoral small. Caudal rounded to pointed.

**Ctenotrypauchen microcephalus** (Bleeker).

1860. *Trypauchen microcephalus*, Bleeker, *Act. Soc. Indo-Neerl.* VIII, p. 62.

1924. *Trypauchenichthys typus*, Hora, *Rec. Ind. Mus.* XXVI, p. 159, figs. 1d, 4b (*nec* Blkr.).

1924. *Trypauchenichthys typus*, Hora, *Mem. As. Soc. Bengal* VI, p. 497 (*nec* Blkr.).

D. VI. 50 ; A. I/44-49 ; P. 17 ; L. l. about 65.

Body compressed, height 8 in length, 8¾ in total length. Head obtuse, compressed, 7 in length, 8½ in total length. Eyes very small, covered by skin. Snout 4 in head. Mouth very oblique, lower jaw prominent. Maxillary 3 in head. Teeth in outer row enlarged, no canines. Head, nape, breast and belly naked. Scales of body cycloid. Dorsal fins continuous. Pectoral ⅓ of head, lower rays shorter. Ventral 4½ in head, united, but deeply emarginate, basal membrane present. Caudal rounded, 7¼ in total length.

*Colour.*—Red. Fins reddish hyaline.

*Length.*—180 mm.

*Habitat.*—From the Persian Gulf to Indo-Australian Archipelago.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Singgora, Talé Sap, Siam	..	N. Annandale.
Stream-trawl, Mutlah River	.. ..	S. W. Kemp.

Mormugao Bay, Portuguese India	..	S. W. Kemp.
On a stake-net Manumbam Channel, Travancore State, S. India	..	H. S. Rao.
Andamans	.. ..	?
North end of Persian Gulf in 15 fathoms	.. ..	Marine Survey.

*Madras Museum Collection.*

Madras	.. ..	F. H. Gravely.
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**Amblyotrypauchen** Hora.

1924. *Amblyotrypauchen*, Hora, *Rec. Ind. Mus.* XXVI, p. 160.

Body very elongate, compressed, covered with about 60 cycloid scales. Head compressed, scaled on cheek, behind eye and on posterior part of opercle. A median crest on occiput. Eyes small. Mouth very oblique, lower jaw prominent. Teeth in a band in each jaw, at the outer side of which in upper jaw in front 2 canines on each side, in lower jaw 2-4 on each side and a median one. At the upper margin of opercle a pit opening into a cavity, which is separate from the gill-cavity. No barbels on head. Dorsal fins continuous, with 6 simple rays and 40-43 branched rays. Anal with 39-41 rays. Both fins more or less connected with the caudal fin. Ventral united, but deeply emarginate, basal membrane present. Pectoral small, lower rays shorter. Caudal oblong.

**Amblyotrypauchen arctocephalus** (Alcock).

1890. *Amblyopus arctocephalus*, Alcock, *Ann. Mag. Nat. Hist.* (6) VI, p. 432.

1924. *Amblyotrypauchen fraseri*, Hora, *Rec. Ind. Mus.* XXVI, p. 160, fig. 4a.

D. VI. 40-43; A. I/39-41; L. l. about 59; L. tr. 18.

Body compressed, height  $6\frac{2}{3}$  in length,  $7\frac{1}{2}$  in total length. Head compressed, 5 in length, 6 in total length. Eye hidden. Snout broad. Maxillary  $2\frac{2}{3}$  in head. Teeth in a narrow band, at the outer side of which in upper jaw in front on each side 1 large and 1 smaller canine. In lower jaw on each side 2-4 canines and a median one. Some scales on head behind eye and on cheek and opercle. Scales of body cycloid. Dorsal and anal fin continuous with caudal fin. Upper rays of pectoral as long as maxillary, lower rays shorter. Ventral  $\frac{1}{2}$  of head.

*Length.*—130 mm.

*Habitat.*—India.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Arabian Sea		Marine Survey.
Gulf of Martaban	..	Marine Survey.
Sandheads, mouth of River Hooghly, 20 fathoms (Type <i>A. fraseri</i> )		P. V. "Lady Fraser"
Ganjam Coast (Type <i>A. arctocephalus</i> on label <i>Amblyopus cyanocephalus</i> )		Marine Survey.
Orissa, Ganjam and Vizagapatam Coasts		Marine Survey.
Bay of Bengal, 12 fathoms		Marine Survey.
Mandalay	.. ..	P. V. "Lady Fraser".



Family **ELEOTRIDAE.**

Gobioidea with separated ventral fins. Two dorsal fins, separated or connected with their bases. Body scaled with ctenoid or cycloid scales, sometimes partly or totally naked.

*Synopsis of the Indian genera.*

- |  |                                |
|--|--------------------------------|
| 1a. Teeth in vomer present. An ocellus on base of caudal fin   | <i>Bostrichthys</i> , p. 309.  |
| 1b. No teeth on vomer ..   | 2.                             |
| 2a. Margin of preopercle with 1-6 spines directed backwards. Head compressed ..                        | <i>Asterropteryx</i> , p. 310. |
| 2b. A single downwards curved strong spine at angle of preopercle. Head subcylindrical to depressed .. | <i>Eleotris</i> , p. 311.      |
| 2c. Preopercle without spines ..   | 3.                             |
| 3a. Bony crests on head in interorbital space  | 4.                             |
| 3b. No bony crests on head ..  | 5.                             |
| 4a. Head flat, pointed, lower jaw prominent ..   | <i>Butis</i> , p. 315.         |
| 4b. Head short, obtuse, jaws subequal ..   | <i>Prionobutis</i> , p. 318.   |
| 5a. Ventral fins long, narrow, rays fringed. L. l. 22-28 ..  | <i>Eviota</i> , p. 320.        |
| 5b. Ventral fins of ordinary shape ..  | 6.                             |
| 6a. Scales moderate, 30-40 in L. l. ..   | <i>Ophiocara</i> , p. 321.     |
| 6b. Scales small, more than 50 in L. l. ..   | 7.                             |
| 7a. Second dorsal fin not very long, with less than 20 rays ..   | 8.                             |
| 7b. Second dorsal fin with many rays I/27-30 ..  | <i>Ptereleotris</i> , p. 324.  |
| 8a. Sides of head naked. Body compressed ..  | <i>Eleotriodes</i> , p. 325.   |
| 8b. Sides of head scaled ..  | 9.                             |
| 9a. Teeth of outer row not or hardly enlarged. Scales of body ctenoid                                  | <i>Bunaka</i> , p. 327.        |
| 9b. In upper jaw 2-4 canines in front. Scales of body cycloid ..                                       | <i>Odonteleotris</i> , p. 328. |

**Bostrichthys** Dumeril.

1801. *Bostrychus*, Lacépède, *Hist. Nat. Poiss.* V, p. 183 or III, 1802, p. 140 (preocc.).  
 1806. *Bostrichthys*, Dumeril, *Zool. Analyt.*, p. 120.  
 1815. *Bostrictis*, Rafinesque, *Analyse*, p. 84.  
 1815. *Ictiopogon*, Rafinesque, *op. cit.* p. 91.  
 1846. *Bostrichichthys*, L. Agassiz, *Nomen Zool. Index Univ.*, p. 49.

Body elongate, anteriorly cylindrical, posteriorly compressed, covered with more than 100 cycloid scales. Head depressed, scaled. Teeth small, in several rows, no canines. A patch of teeth in vomer present, no teeth in palatines and on tongue. Gill openings not continued forward below, isthmus broad. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/10-11; anal I/8.

**Bostrichthys sinensis** (Lacépède).

1801. *Bostrychus sinensis*, Lacépède, *Hist. Nat. Poiss.* V, p. 183.  
 1802. *Boshychus sinensis*, *op. cit.* III, p. 141, pl. xiv, fig. 2.  
 1844. *Philypnus ocellicauda*, Richardson, *Voy. Sulphur Fish.* pp. 58, 149, pl. lvi, figs. 15, 16.  
 1849. *Philypnus ophicephalus*, Bleeker, *Verh. Bat. Gen.* XXII, p. 20.  
 1876. *Bostrichthys sinensis*, Day, *Fish. India*, p. 309, pl. lxxv, fig. 4.  
 1889. *Bostrichthys sinensis*, Day, *Faun. Brit. Ind. Fish.* II, p. 287, fig. 97.

D. 1. VI; D. 2. I/9-10; A. I/8-9; P. 16-17; L. l. about 100; L. tr. 30.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 6 in length,  $7\frac{1}{2}$ - $8\frac{1}{2}$  in total length. Head depressed,  $3\frac{3}{4}$  in length,  $4\frac{1}{5}$ - $4\frac{1}{3}$  in total length. Profile straight or a little concave. Eye 6 in head, interorbital 2 eye-diameters. Snout pointed, about as long as eye or longer than eye, tip before middle of eye. Anterior nostril near margin of snout, tubular. Lower jaw a little prominent. Maxillary extends to below posterior margin of eye. Teeth of outer row distant, inner row small, mixed with larger teeth. Teeth of vomer conical, placed in a half-oval patch. Tongue rounded. Scales very small. Head scaled. First dorsal obtuse, half as high as body. Second dorsal higher than first dorsal. Pectoral obtuse, about as long as postorbital part of head. Ventral a little shorter than or equal to pectoral. Anal a little shorter and lower than second dorsal. Caudal obtusely rounded, shorter than head.

*Colour*.—Green above, yellowish below. Back and sides with oblong spots and violet transverse streaks which do not reach the belly. Fins yellowish. Dorsal fins and anal with longitudinal streaks. Base of caudal above with orange ocellus, bordered with black. Pectoral, ventral and caudal with dark transverse streaks.

*Length*.—111 mm.

*Habitat*.—Andamans to the Pacific.

I have examined specimens from the Andamans.

### **Asterropteryx** Rüppell.

1828. *Asterropteryx*, Rüppell, *Atl. Reise N. Afr. Fische*, p. 138.

1874. *Brachyleotris*, Bleeker, *Versl. Ak. Amst.* (2) VIII, p. 374.

Body a little elongate, compressed, covered with about 25 ctenoid scales. Head compressed, convex, scaled above behind the eyes, on cheek and opercle. Mouth oblique. Teeth in several rows, outer row enlarged, in lower jaw a canine on each side. Preopercle with one to six stout spines at the angle; these spines are directed backwards. Gill openings not continued forward below, isthmus broad. Base of first dorsal extends to base of second dorsal. First dorsal with 6 rays. Second dorsal I/9-11; anal I/8-11. Caudal obtuse, rounded.

### **Asterropteryx semipunctatus** Rüppell.

1828. *Asterropteryx semipunctatus*, Rüppell, *Atl. Reise N. Afr. Fische*, p. 138, pl. xxxiv, fig. 4.

1855. *Eleotris cyanostigma*, Bleeker, *Nat. Tijds. Ned. Ind.* VIII, p. 452.

1901. *Eleotris miniatus*, Seale, *Occ. Pap. Bishop Mus.* I, p. 125.

D. 1. VI; D. 2. I/9-11; A. I/8-10; P. 17; L. l. 24; L. tr. 8; Predorsal scales 7.

Body rather high, compressed, height about  $3$ - $3\frac{1}{2}$  in length,  $4\frac{1}{2}$  in total length. Head compressed,  $3\frac{1}{2}$  in length. Eye  $3$ - $3\frac{1}{2}$  in head, interorbital narrow. Snout blunt, shorter than eye, tip before lower margin of eye. Jaws subequal. Maxillary extends to below middle of eye. Teeth in several rows; in upper jaw outer row enlarged; in lower jaw outer row enlarged, extending to halfway the jaw, last tooth a weak canine, inner row a little enlarged. Tongue rounded. Three to five spines at angle of preopercle. Scales ctenoid. Head scaled above behind the eyes, on cheek and opercle. Anterior rays of first dorsal prolonged beyond the membrane, especially the 3rd ray. Caudal rounded, shorter than head. Pectoral a little longer than head. Ventral a little shorter.

*Colour.*—Brown. Each scale, except those on back, with a bluish spot. Body with large irregular brownish cross bars and blotches. Dorsal fins, anal and caudal brownish with blue dots.

*Length.*—48 mm.

*Habitat.*—Red Sea to the Pacific.

I have examined specimens from Kilakarai and Pamban, Ramnad District. They were collected from coral reefs by Dr. S. W. Kemp.

### **Eleotris** Bloch & Schneider.

1763. *Eleotris*, Gronovius, *Zooph.*, p. 83 (rejected).

1801. *Eleotris*, Bloch & Schneider, *Syst. Ichth.* p. 65.

1856. *Culius*, Bleeker, *Nat. Tijds. Ned. Ind.* XI, p. 411.

Body oblong to elongate, anteriorly cylindrical, posteriorly compressed, covered with 42 to about 70 scales, ctenoid posteriorly, becoming cycloid before first dorsal. Head depressed, scaled above from between the eyes or behind the eyes, laterally totally scaled or partly scaled. Scales of head cycloid. Eye small. Mouth oblique, lower jaw prominent. Teeth in several rows, outer row enlarged. No canines. Tongue rounded. A single downward curved spine at the angle of preopercle. Gill openings not continued forward below, isthmus broad. Dorsal fins separate. First dorsal with 6 rays. Second dorsal and anal I/8-9. Caudal oblong.

### *Synopsis of Indian species.*

- |   |                                      |
|---|--------------------------------------|
| 1a. Head naked between the eyes, cheek naked, opercle partly scaled                             | 2.                                   |
| 1b. Head scaled between the eyes, cheek and opercle scaled                                      | 3.                                   |
| 2a. L. l. about 50 ; L. tr. 12 ; Predorsal scales 23  | .. <i>E. lutea</i> , p. 311.         |
| 2b. L. l. about 60 ; L. tr. 19-20 ; Predorsal scales 38-40                                      | <i>E. andamensis</i> , p. 312.       |
| 3a. L. l. 60-65 ; L. tr. 16-19 ; 12-14 scales in a transverse line in middle of caudal peduncle | .. <i>E. fusca</i> , p. 312.         |
| 3b. L. l. 42-55 ; L. tr. 14-15 ; 11-12 scales in a transverse line in middle of caudal peduncle | .. .. <i>E. melanosoma</i> , p. 314. |

### **Eleotris lutea** Day.

1876. *Eleotris lutea*, Day, *Fish. India*, p. 314.

1889. *Eleotris lutea*, Day, *Faun. Brit. Ind. Fish.* II, p. 294.

D. 1. VI ; D. 2. I/8 ; A. I/8 ; P. 15 ; L. l. 50 ; L. tr. 12 ; Predorsal scales 23.

Body elongate, a little compressed, height  $4\frac{1}{2}$  in length,  $5\frac{1}{2}$  in total length. Head a little depressed, profile concave,  $3\frac{1}{2}$  in length,  $4\frac{1}{4}$  in total length. Eye 4 in head, interorbital  $\frac{3}{4}$  eye-diameter. Snout a little shorter than eye-tip before middle of eye. Anterior nostril tubular. Mouth oblique, lower jaw prominent. Maxillary extends to below middle of eye. At the angle of preopercle a spine, directed downwards. Teeth in several rows, outer row a little enlarged, in lower jaw inner row a little enlarged. Two longitudinal mucous canals over cheek, crossed by short canals, radiating under eye. Head scaled from a little behind the eyes. A few scales on upper part of opercle near the front margin. Scales of body ctenoid, of head, breast and belly cycloid. First dorsal lower than body, first rays a little prolonged. Second dorsal and anal a little lower than body. Pectoral as long as head without snout. Ventral as long as pectoral. Caudal oblong, a little shorter than head. Caudal

peduncle less than 2 times longer than head, about 10 scales in a transverse line in middle of caudal peduncle.

*Colour*.—Dirty grayish with vertical bands which are most distinct on posterior half of body. Head with many dark spots. Dorsal fins and anal with bands of black spots. Caudal nearly black and slightly reticulated.

*Length*.—48 mm.

*Habitat*.—India.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Andamans	..	Purchased from F. Day.
Moulmein, Burma	.. ..	F. Day.
Chingrihatta, outskirts of Calcutta	..	Museum Staff.

**Eleotris andamensis** Herre.

1939. *Eleotris andamensis*, Herre, *Rec. Ind. Mus.* XLI, p. 344.

D. 1. VI ; D. 2. I/8 ; A. I/8 ; L. 1. 58-60 ; L. tr. 19-20 ; Predorsal scales 38-40.

Body elongate, height 4.9 to 5.2 in length. Head 2.8 to 2.9 in length. Eye 5.3 to 5.4 in head, interorbital  $\frac{1}{3}$  eye-diameter. Snout 4.35 in head. Mouth oblique, lower jaw prominent. Maxillary extends to below front of eye. At the angle of preopercle a spine, directed downwards. Head scaled above from behind the eyes, a few scales on upper part of opercle. First dorsal lower than second dorsal. Pectoral 4 to 4.5 in length. Ventral 5.4 to 5.5 in length. Caudal rounded, shorter than head.

*Colour*.—In spirit after Herre : “ brown, the scales on the sides with darker centres which form short longitudinal streaks or bars, and more or less mottled with paler spots or blotches ; at the upper angle of the gill opening is a blackish spot ; 3 black stripes extend back from the eye, the upper one along the supraopercular groove, the other two diagonally on the preopercle. The first dorsal is cross barred by 2 or 3 rows of brown spots, the second dorsal and anal by 3 or 4 rows ; the caudal is barred by 5 or 6 rows of dark brown spots, and the pectoral is faintly barred by 5 to 8 cross rows of spots.”

*Length*.—50 mm. standard length.

*Habitat*.—Andamans.

As I have not seen specimens of this species, the description given above is from the publication of Herre.

**Eleotris fusca** (Bloch & Schneider).

- 1801. *Poecilia fusca*, Bloch & Schneider, *Syst. Ichth.*, p. 453.
- 1801. *Cobitis pacifica* (Foster) Bloch & Schneider, *op. cit.* p. 453.
- 1822. *Cheilodipterus culius*, Hamilton, *Fish. Ganges*, p. 55, pl. v, fig. 16.
- 1824. *Eleotris nigra*, Quoy & Gaimard, *Zool. Voy. Freycinet*, p. 259, pl. lx, fig. 2.
- 1831. *Eleotris mauritianus*, Bennett, *Proc. Comm. Zool. Soc.* I, p. 166.
- 1849. *Eleotris brachyurus*, Bleeker, *Verh. Bat. Gen.* XXII, p. 20.
- 1849. *Eleotris melanurus*, Bleeker, *op. cit.*, p. 21.
- 1853. *Eleotris pseudacanthopomus*, Bleeker, *Nat. Tijds. Ned. Ind.* IV, p. 276.
- 1853. *Eleotris nigra*, Bleeker, *Verh. Bat. Gen.* XXV, p. 105, pl. i, fig. 3.

1860. *Eleotris cavifrons*, Blyth, *Journ. As. Soc. Bengal* XXIX, p. 145.  
 1860. *Eleotris incerta*, Blyth, *op. cit.*, p. 146.  
 1865. *Eleotris fusca*, Day, *Fish. Malabar*, p. 115.  
 1866. *Eleotris soaresi*, Playfair, *Fish. Zanzibar*, p. 74, pl. ix, fig. 4.  
 ? 1875. *Eleotris sandwicensis*, Vaillant & Sauvage, *Rev. Mag. Zool.* (3) III, p. 280.  
 1876. *Eleotris cavifrons*, Day, *Fish. India*, p. 313, pl. lxx, fig. 6.  
 1876. *Eleotris fusca*, Day, *op. cit.*, p. 313, pl. lxx, fig. 7.  
 1889. *Eleotris cavifrons*, Day, *Faun. Brit. Ind. Fish.* II, p. 293.  
 1889. *Eleotris fusca*, Day, *op. cit.*, p. 293.

D. 1. VI ; I/8 ; A. I/8 ; P. 15-18 ; L. 1. 60-65 ; L. tr. 16-19 ; Predorsal scales 50.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $4\frac{1}{4}$ - $4\frac{3}{4}$  in length, 5-6 in total length. Head pointed, depressed,  $3-3\frac{1}{2}$  in length,  $4-4\frac{1}{2}$  in total length. Frontal profile above eye straight to concave. Eye 5-6 in head, interorbital  $1-1\frac{2}{3}$  eye-diameter. Snout pointed, as long as eye, tip before upper part of eye. Anterior nostril near margin of snout, in a short tube. Lower jaw prominent. Maxillary extends to below posterior part of eye or not so far. Teeth in many rows, small ; in upper jaw outer row a little enlarged, subequal ; in lower jaw outer row and laterally inner row enlarged, unequal. In interorbital space 2 longitudinal mucous canals, laterally of which a number of short transverse canals towards the eye. Two longitudinal mucous canals over cheek, crossed by canals radiating under eye. No pores on head. Supraopercular groove distinct. Spine of preopercle pointed, curved. Scales of body ctenoid posteriorly, cycloid anteriorly. Head scaled above between and behind the eyes, on cheek and opercle. Snout and below eye naked. There are 12-14 scales in a transverse line in middle of caudal peduncle. Caudal peduncle much less than 2 times longer than high. First dorsal obtuse,  $\frac{1}{2}$  of height of body, 2nd, 3rd and 4th rays are the longest. Second dorsal and anal higher than first dorsal, but lower than body. Pectoral rounded, longer than head without snout. Ventral shorter than pectoral. Caudal, obtusely rounded, about as long as head or a little longer.

*Colour.*—Blackish-green above, blackish-orange below. Each scale of the side with a dark spot, forming together longitudinal lines. Fin membranes violet, rays orange. First dorsal with 2-3 longitudinal dark bands. Second dorsal, pectoral and caudal with small dark stripes. Base of pectoral above often with red to dark blotch. Often a dark blotch posteriorly at the upper part of caudal peduncle. Young specimens often with dark stripe along supraopercular groove.

*Length.*—160 mm.

*Habitat.*—Red Sea and East coast of Africa to the Pacific.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Calcutta	..	..	..	..	Purchased from F. Day.
Andamans	..				Purchased from F. Day.
Tribeni, Bengal	..				B. L. Chaudhuri.
Panvel Creek, Bombay					Caunter.
Mahosa, Berhampur Id., Chilka Lake		..			Chilka Survey.
Satpara, Chilka Lake			.		Chilka Survey.
From prawn traps and nets at Barkul, Chilka Lake			..		Chilka Survey.
Off Mahosa, Berhampur Id.			..		Chilka Survey.

Edge of lake at Satpara, Chilka Lake	..	Chilka Survey.
Inland Andamans	.. ..	N. Annandale.
Stream of Hope Town just above tidal level	.. ..	N. Annandale.
Port Blair, Andamans		F. Day.
Billing		F. Day.
Salt Lakes, Calcutta		S. W. Kemp.
Gungli stream, Mt. Harriet, Andamans		?
Elphinstone Id., Mergui Archipelago		Marine Survey.
Mormugao Bay, Portuguese India		S. W. Kemp.
Backwater between Ernakulam and Eddappoli, Cochin State, S. India		H. S. Rao.
Puttankari, Travancore State, S. India		H. S. Rao & M. Sharif.
Veli Lake, Trivandrum, Travancore State, S. India		M. Sharif.
Vizagapatam, W. end of Harbour (pools and streams)	..	H. S. Rao.
From lake-like stretch of brackish water near Uttarbhag, Bengal		S. L. Hora.
Pool or tank, P. W. D. Godown, Port Blair		H. S. Rao & K. S. Misra.
Machchi line, Port Blair		H. S. Rao & K. S. Misra.
N. of Wireless Station, Port Blair		H. S. Rao & K. S. Misra.
Near South Corbyn's Cove, Port Blair	..	H. S. Rao & K. S. Misra.
Near Rangat Camp, Middle Andaman	.. ..	H. S. Rao & K. S. Misra.
Long Island, Middle Andaman		H. S. Rao & K. S. Misra.
North of South Corbyn's Cove, Port Blair		H. S. Rao & K. S. Misra.
Near Weli village, Base Camp, Middle Andaman		H. S. Rao & K. S. Misra.
Machchaligaon, Port Blair		H. S. Rao & K. S. Misra.

*Collection of Zoology Department, Madras University.*

Adyar	..	?
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*Leiden Museum Collection.*

Andamans		F. Day.
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**Eleotris melanosoma** Bleeker.

1852. *Eleotris melanosoma*, Bleeker, *Nat. Tijds. Ned. Ind.* III, p. 705.

1853. *Eleotris acanthopomus*, Bleeker, *op. cit.* IV, p. 275.

1857. *Culius macrocephalus*, Bleeker, *op. cit.* XIII, p. 70.

1916. *Eleotris isthmensis*, Meek & Hildebrand, *Field Mus. N. H. Zool. Ser.* X, p. 359.

D. 1. VI ; D. 2. I/8 ; A. I/8 ; P. 15-19 ; L. l. 50-55 ; L. tr. 14-15 ; Predorsal scales 40-45.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $4\frac{1}{2}$ - $5\frac{1}{2}$  in length,  $5\frac{1}{2}$ -7 in total length. Head pointed, depressed,  $2\frac{3}{4}$ - $3\frac{1}{2}$  in length,  $3\frac{2}{3}$ - $4\frac{1}{2}$  in total length. Frontal profile straight to a little concave. Eye  $4\frac{1}{2}$ - $5\frac{1}{2}$  in head, interorbital  $1-1\frac{2}{3}$  eye-diameter. Snout pointed, as long as eye, tip before upper part of eye. Anterior nostril near margin of snout in a short tube. Lower jaw prominent. Maxillary extends to below middle of eye or a little farther. Teeth in many rows, small ; in upper jaw outer row a little enlarged, subequal ; inner row a little enlarged. In lower jaw outer and inner row a little enlarged. Preopercular spine conical, curved. Mucous canals as in *E. fuscus*. Supraopercular groove distinct. No pores on head. Scales of body ctenoid posteriorly, cycloid anteriorly. Snout naked, head scaled between and behind the eyes, on cheek and

opercle. There are 11-12 scales in a transverse line in middle of caudal peduncle. Length of caudal peduncle less than 2 times its depth. First dorsal obtuse, about  $\frac{1}{2}$  of height of body, 2nd, 3rd and 4th rays are the longest. Second dorsal and anal higher than first dorsal, about as high as body. Pectoral obtuse, about as long as head. Ventral a little shorter. Caudal obtuse, a little shorter than head.

*Colour.*—Dusky red to dusky green above, lighter below. Fin membranes dusky to violet, rays orange to dusky. Rays of dorsal fins, caudal and pectoral with dark spots. Dorsal and anal fins with dark longitudinal stripes. Base of pectoral above usually with dusky blotch.

*Length.*—115 mm.

*Habitat.*—India, Indo-Australian Archipelago, Pacific Islands, Atlantic Coast of Canal Zone.

I have examined specimens from Taing, Padan.

### **Butis** Bleeker.

1874. *Butis*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 304.

Body elongate, anteriorly cylindrical, posteriorly compressed, covered with about 30 ctenoid scales. Head flat, pointed subcylindrical, scaled above from between or behind the eyes. Cheek scaled or naked. On head bony crests in interorbital and around the eyes. Lower jaw prominent. Teeth in several rows, outer row a little larger or not enlarged. Dorsal fins separate. First dorsal with 6 rays. Second dorsal and anal I/8-9.

#### *Synopsis of the Indian species.*

- |   |    |                                  |
|---|----|----------------------------------|
| 1a. Interorbital and cheek naked ..   | .. | <i>B. gymnopomus</i> , p. 315.   |
| 1b. Interorbital and cheek scaled ..  | .. | 2.                               |
| 2a. Height of body 5-6 in length. Maxillary extends to anterior part of eye or not so far. Interopercle naked or only with a few scales   | 3. |                                  |
| 2b. Height of body $4\frac{1}{2}$ -5 in length. Maxillary extends to below middle of eye. Interopercle scaled with a row of scales. Teeth of outer row not enlarged. Ctenoid scales between eye and the orbital crest .. .. . |    | <i>B. melanostigma</i> , p. 316. |
| 3a. Teeth of outer row enlarged. Scales of body and head with auxiliary (secondary) scales. Ctenoid scales between eye and the orbital crest  |    | <i>B. butis</i> , p. 317.        |
| 3b. Teeth of outer row not or hardly enlarged. No auxiliary scales. No scales between eye and the orbital crest   |    | <i>B. amboinensis</i> , p. 318.  |

### **Butis gymnopomus** (Bleeker).

1853. *Eleotris gymnopomus*, Bleeker, *Nat. Tijds. Ned. Ind.* IV, p. 274.

D. 1. VI; D. 2. I/8; A. I/8; P. 17; L. l. 30; L. tr. 10; Predorsal scales about 14.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $4\frac{3}{4}$ -5 in length,  $5\frac{1}{2}$ -6 in total length. Head pointed, depressed,  $2\frac{3}{4}$ -3 in length,  $3\frac{2}{5}$ - $3\frac{3}{4}$  in total length. Profile straight to a little concave. Eye 5-6 in head, interorbital 1 eye-diameter. Crest between the eyes denticulated. Snout pointed, 2 eye-diameters, tip before middle of eye or lower margin of eye. Lower jaw prominent. Maxillary extends to below anterior part of eye.

Teeth small, pointed, in many rows, those of outer and inner rows enlarged. Supraopercular groove distinct. A number of mucous canals radiate under eye, one indistinct longitudinal canal over cheek. Two or three open pores on posterior margin of preopercle. An open pore on each side in interorbital, some pores along each orbital crest. Snout, interorbital and cheek naked. Head only scaled above behind the eyes and on opercle with ctenoid scales, partly with auxiliaries. No scales between eye and the orbital crest. Interopercle naked. Scales of breast and belly cycloid, of nape and laterally on body ctenoid, without auxiliaries. Five scales in a transverse line before base of caudal. Caudal peduncle 2 times longer than high. First dorsal pointed,  $\frac{1}{2}$  of height of body, 2nd and 3rd rays are the longest. Second dorsal and anal higher than first dorsal, about as high as body, upper margin concave, posteriorly pointed; in male last ray of second dorsal prolonged. Pectoral obtuse, about as long as head without snout. Ventral a little shorter. Caudal shorter than head.

*Colour*.—Dusky green to olivaceous above, lighter to orange below. Laterally on body 7-8 longitudinal dark stripes and small spots. First dorsal dusky, posteriorly yellowish-red. Pectoral orange to red, base with dark spot. Second dorsal, ventral and anal dusky, bordered with red. Caudal dusky, with dark spots, bordered above and below with red. Rays of second dorsal spotted.

*Length*.—115 mm.

*Habitat*.—India, Indo-Australian Archipelago.

I have examined specimens from Patani River below town, in fresh water.

### **Butis melanostigma** (Bleeker).

1849. *Eleotris melanostigma*, Bleeker, *Verh. Bat. Gen.* XXII, p. 23.

1851 *Eleotris wolffi*, Bleeker, *Nat. Tijds. Ned. Ind.* I, p. 253.

1851. *Eleotris* or *Butis butis* auct. (*nec* or only *ex parte* of Hamilton).

1876. *Eleotris butis*, Day, *Fish. India*, p. 315, pl. lxxvii, fig. 3 (*nec* Hamilton).

1889. *Eleotris butis*, Day, *Faun. Brit. Ind. Fish.* II, p. 296, (*nec* Hamilton).

D. 1. VI; D. 2. I/8; A. I/8; P. 18-20; L. l. 30; L. tr. 9-10; Predorsal scales about 25.

Body elongate, anteriorly cylindrical, posteriorly compressed, height  $4\frac{1}{2}$ -5 in length, 5-6 in total length, more than distance from tip of snout to posterior margin of eye. Head pointed, depressed,  $2\frac{3}{4}$ -3 in length,  $3\frac{2}{5}$ - $3\frac{1}{2}$  in total length. Profile straight to concave. Eye 5-6 in head, interorbital 1- $1\frac{1}{2}$  eye-diameter. Interorbital crest smooth to denticulated. Three crests on snout. Snout pointed, less than 2 eye-diameters, tip before middle or lower part of eye. Lower jaw prominent. Maxillary extends to below middle of eye. Teeth in many rows, outer row not enlarged. Supraopercular groove distinct. Two or three open pores on posterior margin of preopercle, some pores along each orbital crest. Snout scaled, head scaled, from between nostrils, on cheek and opercle with ctenoid scales with auxiliaries. Ctenoid scales between eye and the orbital crest. Interopercle scaled. Scales of nape, breast and belly and laterally on body ctenoid, most of the scales have auxiliaries. Five scales in a transverse line before base of caudal. Caudal peduncle 2 times longer than high. First dorsal pointed,  $\frac{1}{2}$  of height of body, 2nd and 3rd rays are the longest. Second dorsal and anal higher than first dorsal, but lower than body. Pectoral obtuse, about as long as head without snout. Ventral a little shorter. Caudal a little shorter than head.

*Colour*.—Blackish-green, below lighter to orange. Head and body with dark spots, on cheek and below eye radiating from the eye. First dorsal black to dusky. Membranes



of other fins dusky to violet, rays orange to red. Base of pectoral with black blotch, bordered with red. Rays of other fins spotted. Second dorsal, ventral and anal bordered with red.

*Length.*—142 mm.

*Habitat.*—India, Siam, Indo-Australian Archipelago.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

(As <i>E. butis</i> ) Calcutta	..	..	..	..	A. S. B.
Akyab, Burma	..	..	..	..	W. Dodgson.
(As <i>B. butis</i> ) Manikpatna Id., Chilka Lake	..	..	..	..	Chilka Survey.
(As <i>B. butis</i> ) Nontaburi, Siam	..	..	..	..	Malcolm Smith.
(As <i>B. butis</i> ) Bangkok, Siam	..	..	..	..	Malcolm Smith.

*Leiden Museum Collection.*

(As <i>E. butis</i> ) Calcutta	..	..	..	..	F. Day.
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**Butis butis** (Hamilton).

1822. *Cheilodipterus butis* Hamilton, *Fish. Ganges*, pp. 57, 367.

1830-34. *Cheilodipterus butis*, Gray, *Illus. Ind. Zool.* II, pl. xciii, fig. 3 (MS. drawing of Hamilton).

1837. *Eleotris humeralis*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 246.

1852. *Eleotris melanopterus*, Bleeker, *Nat. Tijds. Ned. Ind.* III, p. 706.

1876. *Eleotris amboinensis*, Day, *Fish. India*, p. 316 (*nec* Blkr.).

1889. *Eleotris amboinensis*, Day, *Faun. Brit. Ind. Fish.* II, p. 297 (*neo* Blkr.).

1910. *Eleotris longicauda*, Ogilby, *Proc. Roy. Soc. Queensl.* XXIII, p. 22.

1910. *Eleotris papa* (De Vis MS.) Ogilby, *op. cit.*, p. 24.

D. 1. VI ; D. 2. I/8 ; A. I/8 ; P. 18-21 ; L. l. 30 ; L. tr. 9-10 ; Predorsal scales about 20.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5-6 in length, 6-8 in total length, equal to distance from tip of snout to posterior margin of eye. Head pointed, depressed,  $2\frac{3}{4}$ -3 in length,  $3\frac{1}{2}$ - $3\frac{4}{5}$  in total length. Profile concave. Eye 5-6 in head, interorbital  $1-1\frac{1}{2}$  eye-diameter. Interorbital crest not denticulated, on each side two indistinct crests on snout. Snout pointed, much longer than eye, tip before lower part of eye. Lower jaw prominent. Maxillary extends to below anterior margin of eye or not so far. Teeth in many rows, in both jaws outer row enlarged. In lower jaw inner row enlarged. Supraopercular groove distinct. Two or three open pores on posterior margin of preopercle. An open pore on each side in interorbital, some pores along each orbital crest. Head scaled posteriorly on snout, between nostrils, on cheek and opercle with ctenoid scales. Interopercle naked or only with a few scales. Ctenoid scales between eye and the orbital crest. Scales on nape and laterally on body ctenoid. Five scales in a transverse line before base of caudal. Caudal peduncle more than 2 times longer than high. First dorsal pointed,  $\frac{1}{2}$  of height of body, 2nd and 3rd rays are the longest. Second dorsal and anal higher than first dorsal, but lower than body. Pectoral obtuse, not shorter than head without snout. Ventral shorter than pectoral. Caudal obtuse, about as long as head.

*Colour.*—Blackish, lighter below. Body with irregular cross bands. Head and body with reddish spots. On cheek and below eye rows of spots radiating from eye. First dorsal blackish, top red. Other fins : membranes dusky to violet, rays orange to red. Pectoral with one or with a double black spot, margined by red, at the base. Rays of other fins spotted. Dorsal, anal and caudal bordered with red.

*Length*.—145 mm.

*Habitat*.—India, Singapore, Siam, Andamans, Indo-Australian Archipelago, Philippines, Australia.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Andamans ( <i>E. amboinensis</i> )	..	..	..	F. Day.
Singapore				F. Stoliczka.

*Colombo Museum Collection.*

Chilaw, in lagoon, Ceylon	P. E. P. Deraniyagala.
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**Butis amboinensis** (Bleeker).

1853. *Eleotris amboinensis*, Bleeker, *Nat. Tijds. Ned. Ind.* V, p. 343.

1905. *Butis leurcurus*, Jordan & Seale, *Proc. U. S. Nat. Mus.* XXVIII, p. 794, fig. 13.

D. 1. VI ; D. 2. I/8 ; A. I/8 ; P. 18-19 ; L. 1. 30 ; L. tr. 9-10 ; Predorsal scales about 20.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5-5½ in length, 6-7 in total length. Head depressed, 2½-3 in length, 3¼-4 in total length. Profile straight to concave. Eye 5-6 in head, interorbital 1-1½ eye-diameter. Interorbital crest denticulated, 2 crests on snout. Snout pointed, less than 2 eye-diameters, tip before middle of eye. Lower jaw prominent. Maxillary extends to below anterior margin of eye. Teeth in many rows, in upper jaw outer row not enlarged ; in lower jaw outer row not or nearly not enlarged, laterally inner row enlarged. Short mucous canals radiate under eye. Two or three open pores on posterior margin of preopercle, some open pores along each orbital crest. Supraopercular groove distinct. Head scaled on snout, between nostrils, on cheek and opercle with ctenoid scales, some of which have auxiliary scales. No scales between eye and the interorbital crest. Interopercle naked. Scales of body without auxiliaries, on breast and belly cycloid, on nape and laterally on body ctenoid. Five scales in a transverse line before base of caudal. Caudal peduncle more than 2 times longer than high. First dorsal pointed, about ½ of height of body, 2nd and 3rd rays are the longest. Second dorsal and anal higher than first dorsal, but lower than body. Pectoral obtuse, longer than head without snout. Ventral a little shorter. Caudal a little shorter than head, obtuse.

*Colour*.—Dusky green to olivaceous, lighter below. An indistinct stripe from eye to opercle. Head and body with dark spots. Scales of body with small orange to pearl-like spots. First dorsal dusky, clouded with orange. Membranes of other fins dusky violet, rays orange. Rays of second dorsal, anal and caudal spotted. Second dorsal, ventral, anal and caudal bordered with red. Base of pectoral with black blotch, bordered anteriorly with red.

*Length*.—136 mm.

*Habitat*.—India, Philippines, Indo-Australian Archipelago.

I have examined specimens from Mormugao Bay, Portuguese India.

**Prionobutis** Bleeker.

1874. *Prionobutis*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 305.

Body a little elongate, anteriorly cylindrical, posteriorly compressed, covered with about 30 ctenoid scales. Head obtuse, convex, totally scaled or scaled above behind the

eyes and on upper parts of cheek and opercle ; with or without cutaneous papillae and barbel-like papillae at the ventral side. Bony serrated crests on snout and interorbital. Jaws subequal. Teeth in several rows, outer row enlarged, no canines. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/8 ; anal I/7-8.

**Prionobutis koilomatodon** (Bleeker).

1849. *Eleotris koilomatodon*, Bleeker, *Verh. Bat. Gen.* XXII, p. 21.

1850. *Eleotris caperatus*, Cantor, *Journ. As. Soc. Bengal* XVIII, p. 1179.

1876. *Eleotris caperata*, Day, *Fish. India*, p. 315.

1889. *Eleotris caperata*, Day, *Faun. Brit. Ind. Fish.* II, p. 296.

1897. *Prionobutis serrifrons*, Rutter, *Proc. Acad. Nat. Sci. Philadelphia*, p. 84.

D. 1. VI ; D. 2. I/8 ; A. I/8 ; P. 19-21 ; L. l. 30 ; L. tr. 7-10 ; Predorsal scales 12-14.

Body a little elongate, anteriorly cylindrical, posteriorly compressed, height  $3\frac{3}{4}$ -4 in length,  $4\frac{2}{3}$ -5 in total length. Head obtuse, subcylindrical to a little compressed,  $3$ - $3\frac{1}{4}$  in length, 4 in total length. Profile convex and concave. Eye  $4$ - $4\frac{1}{2}$  in head, interorbital less than 1 eye-diameter. Orbital crest denticulated, 2 crests on each side on snout. Snout obtuse, shorter than eye, tip before or below lower margin of eye. Lower jaw prominent. Maxillary extends to below posterior part of eye or middle of eye. Teeth small ; outer row enlarged, inner row a little enlarged. Supraopercular groove distinct. Two or three indistinct open pores on posterior margin of preopercle. No papillae or barbels on head. Head naked on snout, interorbital, preorbital and lower part of cheek ; scaled above behind eye, upper part of cheek and on opercle with ctenoid scales. Scales of breast and belly cycloid, on nape and on body ctenoid, without auxiliaries. Five scales in a transverse line before base of caudal. Caudal peduncle 2 times longer than high. First dorsal obtuse,  $\frac{1}{2}$  of height of body, 2nd and 3rd rays are the longest. Second dorsal higher than first dorsal, but lower than body, anteriorly higher than in middle, so that the profile is concave. Pectoral obtuse, about as long as head. Ventral a little shorter. Anal anteriorly lower than in middle, as long as second dorsal. Caudal oblong, about as long as head.

*Colour.*—Dusky-green to olivaceous, lighter below. Scales of body often with a red spot. Tip of first dorsal dusky, posterior margin orange to pink. Pectoral red-orange, base with black spot bordered with red. Other fin-membranes dusky, rays orange. Rays of second dorsal and anal spotted. Anal and caudal bordered with red.

*Length.*—80 mm.

*Habitat.*—India, Andamans, Singapore, Siam, China, Philippines, Indo-Australian Archipelago.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Jack and Una Is.	..	..	..	..	Marine Survey.
Ennur Backwater	..	..	..	..	N. Annandale.

*Leiden Museum Collection.*

Colombo Harbour	..	..	..	..	..	P. Buitendijk.
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**Eviota** Jenkins.

1903. *Eviota*, Jenkins, *Bull. U. S. Fish. Comm.* XXII, p. 501.

1904. *Allogobius*, Waite, *Rec. Austral. Mus.* V, p. 176.

Body a little elongate, compressed, covered with 22-28 ctenoid scales. Head slightly compressed, naked. Eye large. Mouth oblique. Teeth in several rows, outer row enlarged. Dorsal fins separate or nearly connected at their bases. First dorsal with 6 rays. Second dorsal I/8-10; anal I/7-9. Ventral fins long and narrow, the rays are fringed. Caudal rounded. Very small fishes.

*Synopsis of the Indian species.*

- 1a. L. 1. 24; D. 2. I/8; A. I/8. Two black spots on base of pectoral *E. distigma*, p. 320.  
 1b. L. 1. 25; D. 2. I/9; A. I/8. Eight dark spots along ventral side  
 of body. A dark dot on caudal peduncle .. .. *E. gymnocephalus*, p. 320.  
 1c. L. 1. 28; D. 2. I/10; A. I/8. Six dark transverse bands on body.  
 A crescent-shaped blotch on caudal peduncle .. .. *E. zonura*, p. 321.

The species of this genus are rather difficult to distinguish.

**Eviota distigma** Jordan & Seale.

? 1901. *Asterropteryx abax*, Jordan & Snyder, *Proc. U. S. Nat. Mus.* XXIV, 1902, p. 40, fig. 2.

1906. *Eviota distigma*, Jordan & Seale, *Bull. Bur. Fisheries* XXV (1905), p. 389, fig. 79.

D. 1. VI; D. 2. I/8; A. I/8; L. 1. 24.

Body compressed, height 4.10 in length. Head 3.10 in length. Eye 3.18 in head. Mouth rather small. Maxillary does not extend to below middle of eye. Teeth minute, sharp. First dorsal a little higher than body, 1st and 2nd rays filiform. Second dorsal and anal lower than body. Pectoral and ventral a little longer than head. Caudal rounded, shorter than head.

*Colour*.—In spirit according to Jordan and Seale: "Yellowish white, with slight shading of dusky. The type specimen has two distinct round spots on base of pectoral, a black spot on side of caudal peduncle with an indistinct vertical band through it and around peduncle; two black spots above opercle; about 10 black blotches taking the form of short bands over the back, in some specimens extending indistinctly to ventral surface; 6 dusky band-like spots along base of anal and caudal peduncle; margin of the scales usually shaded with minute brown dots; opercle and nuchal region with brown blotches, some forming more or less irregular lines; the 2 dorsal fins about equally shaded with dusky; pectoral white; caudal, anal, and ventral with dusky shadings."

*Length*.—23 mm.

*Habitat*.—India, Postillon Islands, Samoa, ? Japan.

I have examined specimens from Camorta Island, Nicobars.

**Eviota gymnocephalus** M. Weber.

? 1903. *Eviota epiphanes*, Jenkins, *Bull. U. S. Fish. Comm.* XXII, p. 501, fig. 42.

1913. *Eviota gymnocephalus*, M. Weber, *Siboga Exped.* LVII, Fische, p. 452, fig. 87.

D. 1. VI; D. 2. I/9; A. I/8; P. 15; L. 1. 25; L. tr. 7.

Body compressed, height  $5\frac{1}{2}$  in total length. Head  $4\frac{3}{4}$  in total length. Eye 3 or more in head. Snout  $\frac{1}{2}$  eye-diameter. Mouth oblique. Maxillary extends to below middle of

eye. Teeth of outer row enlarged. Scales ctenoid, extending in front to middle of first dorsal, before this the scales are smaller and cycloid. Head and nape naked. Dorsal fins nearly connected at the base. First dorsal lower than body (in male ?) the first ray prolonged. Second dorsal and anal much lower than body. Caudal rounded, about as long as head. Pectoral about as long as head. Ventral a little longer.

*Colour.*—Yellowish. From the base of the lower pectoral fin rays to base of caudal 8 transverse dark blotches, most distinct along ventral side of body, they may be absent. In middle of side before base of caudal a dark blotch. Head and nape with blotches consisting of dark points. Sometimes each scale at the back with one or a group of minute points. Anal dusky. Caudal with rows of dark points.

*Length.*—25 mm.

*Habitat.*—? India, Indo-Australian Archipelago, ? Honolulu.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Muthivaratu Paar, S. India	..	..	..	..	?
Henry Lawrence Island, Andamans			..	..	H. S. Rao.

**Eviota zonura** Jordan & Seale.

? 1904. *Allogobius viridis*, Waite, *Rec. Austral. Mus.* V, p. 177, pl. xxiii, fig. 3.

1906. *Eviota zonura*, Jordan & Seale, *Bull. Bur. Fisheries* XXV (1905), p. 386, fig. 75.

D. 1. VI ; D. 2. I/10 ; A. I/8 ; L. 1. 28.

Body compressed, height 4.50 in length. Head 3.50 in length. Eye 3 in head. Mouth oblique, maxillary extends to below middle of eye. Teeth small. Dorsal fins scarcely connected at the bases. First dorsal a little lower than body. Second dorsal and anal lower than first dorsal. Pectoral and ventral longer than head. Caudal rounded, a little shorter than pectoral.

*Colour.*—In spirit according to Jordan and Seale : “ yellowish white, a distinct dark spot on caudal peduncle, three scales from base of caudal fin ; six dusky bands extending a short distance vertically up from base of anal fin ; these are usually darker at base of fin ; shadings of dark spots on sides and top of head (this varies greatly and is absent in some specimens) ; caudal fin black ; spinous dorsal at anterior base is white ; the upper two-thirds and posterior base is black ; soft dorsal shaded slightly with dusky ; caudal with indications of many narrow vertical lines, the fins white.”

*Length.*—20 mm.

*Habitat.*—India, Indo-Australian Archipelago, Samoa, ? Australia.

I have examined specimens from Perseus Reef, N. W. corner of Camorta Island, Nicobars.

**Ophiocara** Gill.

1863. *Ophiocara*, Gill, *Proc. Ac. Nat. Sci. Philadelphia*, p. 270.

1931. *Meuschenula*, Whitley, *Austral. Zool.* VI, p. 325.

Body elongate, anteriorly cylindrical, covered with 28-40 ctenoid scales. Head pointed, depressed, totally scaled. Mouth oblique, lower jaw prominent. Teeth in several rows, outer row a little enlarged. In lower jaw inner row a little enlarged. No canines. Gill openings continued forward below, isthmus narrow. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/8-9 ; anal I/6-9.

## Synopsis of the Indian species.

- 1a. 38-40 scales in L. 1.; 24-26 predorsal scales. A. I/6-7 *O. porocephala*, p. 322.  
 1b. About 30 scales in L. 1.; 13-18 predorsal scales. A. I/9 *O. aporos*, p. 323.

**Ophiocara porocephala** (Cuvier & Valenciennes).

1837. *Eleotris porocephala*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 237.  
 1837. *Eleotris ophicephalus*, Cuvier & Valenciennes, *op. cit.*, p. 239.  
 1837. *Eleotris margaritacea*, Cuvier & Valenciennes, *op. cit.*, p. 240.  
 1849. *Eleotris viridis*, Bleeker, *Verh. Bat. Gen.* XXII, p. 22.  
 1853. *Eleotris porocephaloides*, Bleeker, *Nat. Tijds. Ned. Ind.* V, p. 511.  
 1856. *Eleotris kuak*, Thiolliere, *Ann. Sc. Phys. Nat. Soc. Imp. d'Agric.* Lyon (2) VIII, p. 465.  
 1860. *Eleotris scintillans*, Blyth, *Journ. As. Soc. Bengal* XXIX, p. 146.  
 1861. *Eleotris cantoris*, Günther, *Cat. Fish. Brit. Mus.* III, p. 108.  
 ? 1870. *Eleotris ophicephalus*, Day, *Proc. Zool. Soc. London*, p. 694 (*pro parte*).  
 1876. *Eleotris porocephalus*, Day, *Fish. India*, p. 312, pl. lxxvii, fig. 1.  
 1876. *Eleotris scintillans*, Day, *op. cit.*, p. 314, pl. lxxv, fig. 8.  
 1876. *Eleotris litoralis*, Day, *op. cit.*, p. 314.  
 1878. *Agonostoma darwiniense*, Macleay, *Proc. Linn. Soc. N. S. Wales* II, p. 360, pl. ix, fig. 8.  
 1889. *Eleotris porocephalus*, Day, *Faun. Brit. Ind. Fish.* II, p. 289, fig. 98.  
 1889. *Eleotris scintillans*, Day, *op. cit.*, p. 295.  
 1889. *Eleotris litoralis*, Day, *op. cit.*, p. 295.

D. 1. VI; D. 2. I/8-9; A. I/6-7; P. 15; L. 1. 38-40; L. tr. 11-13; Predorsal scales 24-26.

Body anteriorly cylindrical, posteriorly compressed, height  $4\frac{1}{3}$  in length, 5-6 in total length. Head depressed,  $2\frac{3}{4}$  in length,  $3\frac{1}{2}$ -4 in total length, profile straight to convex. Eye 4-7 in head, interorbital  $1-2\frac{1}{2}$  eye-diameter. Snout pointed, as long as or a little shorter than eye, tip before middle of eye. Anterior nostrils near margin of snout, in short tubes. Lower jaw prominent, maxillary extends to below middle of eye or posterior part of eye. Teeth in many rows, outer row only a little enlarged, subequal; in lower jaw some teeth of inner row may be enlarged. Some mucous canals radiate under eye. Two indistinct longitudinal mucous canals over cheek. Some open pores: one on snout on each side before posterior nostril, in interorbital one open pore medially and 2 open pores on each side near eye; one behind each eye; 2-4 along posterior margin of preopercle. Supraopercular groove distinct. Scales of body ctenoid. Head totally scaled. Scales of head, nape, breast and belly cycloid to ctenoid. First dorsal half as high as body, 2nd, 3rd and 4th rays are the longest. Second dorsal higher than first dorsal. Anal shorter than second dorsal. Pectoral rounded, about as long as head without snout. Ventral about as long as pectoral. Caudal rounded, a little shorter than head, in large specimens more lanceolate and about as long as head.

*Colour*.—Dark green to dark olivaceous above, lighter below. Body with dark longitudinal stripes; in large specimens each scale of body has a dark base, the longitudinal lines become indistinct. Fin membranes dusky to violet, rays orange. Second dorsal, anal and caudal bordered with reddish-orange. Fin rays of second dorsal and caudal spotted. Head, body, second dorsal and anal with yellowish-orange spots, in young specimens irregularly placed, in adults in rows. Young specimens with 2-5 transverse silvery bands, 1st before insertion of first dorsal, 2nd between first dorsal and second dorsal, 3rd below

second dorsal, 4th behind second dorsal, 5th over base of caudal fin. Some of these bands may be absent.

*Length.*—320 mm.

*Habitat.*—From India to the Pacific.

I have examined specimens from the following localities :—

*Indian Museum Collection.*

Andamans ( <i>E. cantoris</i> )	..	.. Purchased from F. Day.
Calcutta ( <i>E. ophiocephalus</i> )	..	.. A. S. B.
Andamans ( <i>E. scintillans</i> )		Capt. Hodge.
Port Blair ( <i>E. ophiocephalus</i> )		?
North of South Corbyn's Cove, Port Blair		H. S. Rao & K. S. Misra.

*Leiden Museum Collection.*

Andamans ( <i>E. cantoris</i> )	F. Day.
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**Ophiocara aporos** (Bleeker).

1854. *Eleotris aporos*, Bleeker, *Nat. Tijds. Ned. Ind.* VI, p. 59.

1854. *Eleotris hoedtii*, Bleeker, *op. cit.*, p. 496.

1854. *Eleotris tolsoni*, Bleeker, *op. cit.*, p. 542.

1870. *Eleotris ophiocephalus*, Day, *Proc. Zool. Soc. London*, p. 694 (*pro parte*).

1876. *Eleotris ophiocephalus*, Day, *Fish. India*, p. 312, pl. lxvii, fig. 2 (*nec C. & V.*).

1877. *Eleotris macrolepidotus*, Günther, *Journ. Mus. Godeffroy XIII*, p. 186 (*nec Bloch.*).

1877. *Eleotris macrocephalus*, Günther, *op. cit.*, pl. cxii, figs. B, B', B" (*nec Blkr.*).

1888. *Eleotris tumifrons*, Day, *op. cit., Suppl.*, p. 795 (*nec C. & V.*).

1889. *Eleotris tumifrons*, Day, *Faun. Brit. Ind. Fish.* II, p. 292 (*nec C. & V.*).

? 1927. *Hypseleotris agilis*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 38, pl. ii, fig. 3.

D. 1. (V) VI; D. 2. I/8-9; A. I/9; P. 14-15; L. l. 30; L. tr. 10-11; Predorsal scales 13-18.

Body anteriorly cylindrical, posteriorly compressed, height  $4-4\frac{3}{4}$  in length,  $5\frac{1}{3}-6$  in total length. Head depressed,  $3\frac{1}{4}-3\frac{1}{2}$  in length,  $4-4\frac{2}{5}$  in total length, profile concave. Eye  $4-5\frac{1}{2}$  in head, interorbital  $1-2\frac{1}{4}$  eye-diameter. Snout pointed, from a little shorter than eye to longer than eye, tip before middle of eye. Anterior nostrils near margin of snout, in short tubes. Lower jaw a little prominent, maxillary extends to below anterior part of eye. Teeth in many rows, small, outer row a little enlarged, subequal. Two longitudinal mucous canals over cheek. Only 2-3 open pores along posterior margin of preopercle no other open pores on head. Supraopercular groove indistinct. Scales of body ctenoid posteriorly, cycloid anteriorly. Head totally scaled. First dorsal obtuse, half as high as body, 2nd, 3rd and 4th rays are the longest. Second dorsal a little higher than first dorsal. Anal equal to second dorsal, but a little lower. Pectoral obtuse, about as long as head without snout. Ventral a little shorter. Caudal obtuse, a little longer than head without snout.

*Colour.*—Dark above, orange below. Scales of back and sides with dark spots. Two or three dark stripes from eye to opercle. Fin membranes dark, rays orange. Dorsal fins, ventral and anal bordered with red. Base of pectoral with dark transverse stripe, bordered with red. Caudal spotted with yellow.

*Length.*—245 mm.

*Habitat.*—India to the Pacific.

This species is represented by two varieties in the Indian fauna :

Variety *aporos* (Blkr.). Laterally 8-10 dark transverse bars on back ending in middle of sides in 8-10 dark spots in a longitudinal row. Ventral dark. 17-18 predorsal scales.

Variety *hoeditii* (Blkr.). Laterally a dark band from head to caudal. Ventral light. 13-15 predorsal scales.

I have examined specimens from the following localities :

*Indian Museum Collection.*

(As <i>E. ophiocephalus</i> ) Andamans	Purchased from F. Day.
Camorta Id., Nicobars	Marine Survey.
Camorta Id. (a small freshwater stream-marsh)	Marine Survey.
Elphinstone Id., Mergui Archipelago	Marine Survey.
Simla ? [ <i>Ophiocara aporos</i> (Blkr.) var. <i>aporos</i> (Blkr.)]	Purchased from F. Day.
Near Rangat Camp, Middle Andaman [ <i>Ophiocara aporos</i> (Blkr.) var <i>hoeditii</i> (Blkr.)] .. .. .	H. S. Rao & K. S. Misra.
North of South Corbyn's Cove .. .. .	H. S. Rao & K. S. Misra.
Port Blair ..	H. S. Rao & K. S. Misra.
Below Machchaligaon, Port Blair	H. S. Rao & K. S. Misra.

**Ptereleotris** Gill.

1863. *Ptereleotris*, Gill, *Proc. Acad. Nat. Sci. Philadelphia*, p. 270.

Body elongate, compressed, covered with 150-170 cycloid scales. Head naked. Mouth very oblique, lower jaw prominent. Teeth in several rows, outer row enlarged, partly canines. No barbels. Gill openings wide, isthmus narrow. Dorsal fins separate. First dorsal with 6 rays. Second dorsal and anal I/24-32. The rays of dorsal and anal fins are undivided. Ventral I/4. Caudal truncate to emarginate.

*Synopsis of the Indian species.*

1a. D. 2. I/25 ; A. I/22-23 ..	<i>P. andamansis</i> , p. 324.
1b. D. 2. I/27 ; A. I/27 ..	<i>P. microlepis</i> , p. 325.

**Ptereleotris andamensis** Herre.

1939. *Ptereleotris andamensis*, Herre, *Rec. Ind. Mus.* XLI, p. 345.

D. 1. VI ; D. 2. I/25 ; A. I/22-23 ; L. 1. more than 150.

Body rounded anteriorly, compressed posteriorly, height 6 in length. Head 3.7 in length. Eye 3.85 in head, interorbital  $\frac{5}{6}$  eye-diameter. Snout short, 4.3 in head. Mouth strongly oblique. Maxillary extends to below anterior part of eye. Teeth minute, the specimens of Herre are too young to have canines developed properly. Scales of body minute, cycloid, embedded, extending forward about to the eyes. First dorsal low, half of height of second dorsal. Pectoral 5.4 in length. Ventral about 2 in head. Caudal 4 in length, forked.

*Colour.*—In spirit after Herre : “ pale yellowish gray, without markings or spots on body or fins.”

*Length.*—27 mm. standard length.

*Habitat.*—Andamans.

As I have not seen specimens of this species, the description given above is from the publication of Herre.



**Ptereleotris microlepis** (Bleeker).

1856. *Eleotris microlepis*, Bleeker, *Nat. Tijds. Ned. Ind.* XI, p. 102.

1877. *Eleotris elongata*, Alleyne & Macleay, *Proc. Linn. Soc. N. S. Wales* I, p. 335, pl. xiii, fig. 1.

D. 1. VI; D. 2. I/27; A. I/27; P. 23; L. 1. more than 100.

Body compressed, height  $6\frac{1}{2}$  in length, 8 in total length. Head pointed, compressed,  $4\frac{1}{2}$ -5 in length,  $5\frac{1}{2}$ -6 in total length. Eye  $3\frac{1}{3}$ - $3\frac{1}{2}$  in head, interorbital less than 1 eye-diameter. Snout a little shorter than eye, tip before upper part of eye. Mouth oblique, lower jaw prominent. Maxillary extends to below anterior half of eye. Teeth in upper jaw in many rows, outer row enlarged, on each side 4-5 distant canines. In lower jaw teeth anteriorly in some rows, laterally in one row; in front 2-4 canines of outer and inner row. Tongue rounded. Some open pores round the eyes and along posterior margin of preopercle. Head and median part of nape naked. Scales of body very small, cycloid, fins nearly connected. First dorsal lower than second dorsal, 5th ray is the longest; 6th ray at some distance from the 5th. Second dorsal lower than body. Pectoral about as long as head without snout. Ventral a little shorter than head. Caudal a little longer than head, truncate to emarginate.

*Colour*.—Greenish-red above, pearly-red below. Snout and cheek with oblong blue spots. Behind eye and on opercle blue stripes which are a little recurved. Fins yellowish-orange. Dorsal fins bordered with purple. First dorsal with an oblique stripe. Base of anal with a double stripe, the superior bluish, the lower orange. Base of pectoral in its lower part with a blue and a bluish-violet transverse stripe.

*Length*.—120 mm.

*Habitat*.—Zanzibar, Mergui Archipelago, Indo-Australian Archipelago, Darnley Id. (Australia).

I have examined specimens from Elphinstone Island, Port Maria, Mergui Archipelago.

**Eleotriodes** Bleeker.

1856. *Valenciennesia*, Bleeker, *Nat. Tijds. Ned. Ind.* XI, p. 412 (*nomen nudum*).

1858. *Eleotriodes*, Bleeker, *op. cit.* XV, p. 212.

1863. *Calleleotris*, Gill, *Proc. Acad. Nat. Sci. Philadelphia*, p. 270.

1874. *Valenciennesia*, Bleeker, *Arch. neerl. sc. ex. nat.* IX, p. 307.

1874. *Valenciennesia*, Bleeker, *Versl. Ak. Amst.* (2) VIII, p. 372.

1930. *Gergogobius*, Whitley, *Mem. Queensl. Mus.* X, p. 22.

Body elongate, compressed, covered with 70-130 ctenoid scales. Head obtuse, naked. Nostrils not tubular. Jaws subequal. Teeth in upper jaw in one row, in front caninoid, sometimes rudimentary inner rows of teeth. In lower jaw in more rows, outer row curved canines. Isthmus broad. Dorsal fins subcontinuous. First dorsal with 6 rays. Second dorsal and anal I/11-19. Caudal obtuse to lanceolate.

*Synopsis of the Indian species.*

- 1a. Height of body 8-9 in total length. Maxillary extends to below anterior part of eye. Cheek, opercle and dorsal fins with pink longitudinal bands .. .. . *E. muralis*, p. 326.
- 1b. Height of body about 7 in length. Maxillary extends to below middle of eye. Cheek with blue spots, bordered with violet.
- D. 1 with violet spots .. .. . *E. sexguttatus*, p. 326.

**Eleotriodes muralis** (Cuvier & Valenciennes).

1837. *Eleotris muralis*, (Quoy & Gaimard) Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 253, pl. ccclvii.  
 1843. *Eleotris trabeatus*, Richardson, *Icones Piscium*, p. 5, pl. ii, fig. 2.  
 1867. *Eleotris lineato-oculatus*, Kner, *Sitz. ber. Ak. Wiss. Wien* LVI, p. 720, pl. iii, fig. 1.  
 1876. *Eleotris muralis*, Day, *Fish. India*, p. 312, pl. lxxix, fig. 1.  
 1888. *Eleotris muralis*, Day, *op. cit.*, *Suppl.*, p. 794.  
 1889. *Eleotris muralis*, Day, *Faun. Brit. Ind. Fish.* II, p. 290.  
 1910. *Valenciennesia aruensis*, Ogilby, *Proc. Roy. Soc. Queensland* XXIII, p. 21.

D. 1. VI; D. 2. I/12; A. I/12; P. 19-20; L. 1. 85-95; L. tr. 25.

Body compressed, height  $5\frac{1}{2}$  in length, 7-9 in total length. Head obtuse, compressed,  $3\frac{1}{2}$  in length,  $4\frac{1}{2}$ -5 in total length. Eye 4-5 in head, interorbital  $\frac{1}{2}$ - $\frac{2}{3}$  eye-diameter. Snout obtuse, convex, longer than eye, tip before or a little below lower margin of eye. Jaws equal. Maxillary extends to below anterior half of eye. Teeth conical; in upper jaw in one row, on each side 3-5 caninoid teeth in front; in lower jaw in front in two rows, laterally in one row, in front on each side 5-6 enlarged teeth of outer row, laterally of these teeth a curved canine, inner row in front with 3-7 enlarged teeth. Supraopercular groove not very distinct. Along posterior margin of preopercle 3-4 open pores. Two open pores medially in interorbital space, one medially of anterior nostril, some open pores behind eye. Head and median part of nape naked, scales laterally on nape very small. Scales of body ctenoid, becoming larger towards caudal. Dorsal fins subcontinuous. First dorsal about as high as or a little lower than body, 3rd and 4th, sometimes 2nd, 3rd and 4th rays are the longest, a little prolonged beyond the membrane. Second dorsal and anal anteriorly lower than body, posteriorly higher than body. Pectoral obtuse, longer than head without snout. Ventral shorter than head without snout. Caudal in young specimens rounded, in adult rhombic.

*Colour*.—Greenish-red above, lighter to pearl-like red below. Head on each side with 3 oblique stripes. Body with 3 longitudinal red stripes, the uppermost near dorsal profile, the undermost from axilla to caudal. Fins yellow to orange. First dorsal with many oblique red stripes, tip most with small black spot. Second dorsal on basal half 2 longitudinal red bands, outer half with many transverse oblong red spots. Base of pectoral most with irregular red blotch. Anal with red basal stripe. Caudal with red ocelli, irregularly placed. Inner side of mouth black.

*Length*.—170 mm.

*Habitat*.—India to the Pacific.

I have examined specimens from Mergui and Pilai Bay in Burma.

**Eleotriodes sexguttatus** (Cuvier & Valenciennes).

1837. *Eleotris sexguttata*, Cuvier & Valenciennes, *Hist. Nat. Poiss.* XII, p. 254.  
 1876. *Eleotris sexguttata*, Day, *Fish. India*, p. 311.  
 1889. *Eleotris sexguttata*, Day, *Faun. Brit. Ind. Fish.* II, p. 291.  
 1906. *Valenciennesia violifera*, Jordan & Seale, *Bull. Bur. Fisheries* XXV (1905), p. 383, pl. lii, fig. 2.

D. 1. VI; D. 2. I/12; A. I/11-12; P. 19-20; L. 1. 85-90; L. tr. 22-23.

Body compressed, height  $5-5\frac{1}{4}$  in length,  $6\frac{3}{4}$ - $7\frac{1}{3}$  in total length. Head obtuse, compressed,  $3\frac{1}{2}$  in length,  $4-4\frac{3}{5}$  in total length. Eye  $4\frac{1}{3}$ - $4\frac{2}{3}$  in head, interorbital  $\frac{2}{5}$ - $\frac{2}{3}$  eye-dia-

meter. Snout obtuse, about as long as eye, tip before or below lower margin of eye. Jaws equal. Maxillary extends to below lower margin of eye. Teeth in upper jaw in one row, in front on each side 3-6 caninoid teeth; in lower jaw in front in two rows, laterally in one row, in front in outer row on each side 5-6 enlarged teeth, laterally of them a curved canine, inner row about 5 enlarged teeth, laterally of them sometimes a curved canine. Supraopercular groove distinct. Along posterior margin of preopercle 3-4 open pores. Two open pores medially in interorbital space, one medially of anterior nostril, some open pores behind eye. Head and median part of nape naked, scales laterally on nape very small. Scales of body ctenoid, becoming larger towards caudal. Dorsal fins subcontinuous. First dorsal pointed, lower or higher than body, 2nd, 3rd and 4th rays are the longest, some times prolonged beyond the membrane. Second dorsal and anal anteriorly lower than body, posteriorly pointed and a little higher than body. Pectoral obtuse, about as long as head without snout. Ventral a little shorter. Caudal obtuse, convex, a little shorter or longer than head.

*Colour.*—Reddish-green above, reddish pearl-like below. Cheek, jaws, opercle and base of pectoral with 6-9 blue spots, bordered with violet, placed in 2-3 longitudinal rows. Sometimes on back before first dorsal an oblong deep violet blotch. Laterally on lower part of body a red longitudinal streak. Fins yellowish-orange to red. First dorsal with many violet spots, tip with a small violet-black spot. Second dorsal with 4-6 longitudinal violet to red streaks. Anal with a longitudinal violet streak near margin. Base and posterior margin of anal with 8-10 orange ocelli, bordered with violet; these ocelli are sometimes coalesced to a streak. Caudal above and below with red to orange ocelli, bordered with violet, in young specimens above in middle of fin an oblong violet spot. Inner side of mouth blackish.

*Length.*—136 mm.

*Habitat.*—Ceylon, Philippines, Indo-Australian Archipelago, Samoa.

I have examined specimens from Weligama and Colombo Harbour.

### **Bunaka** Herre.

1927. *Bunaka*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 60.

1936. *Lizettea*, Herre, *Philipp. Journ. Sci.* LIX, p. 275.

Body elongate, anteriorly cylindrical, posteriorly compressed, covered with about 60 ctenoid scales. Head depressed, scaled above behind the eyes, on cheek and opercle. Mouth oblique, lower jaw prominent. Teeth in several rows, outer and inner row not or hardly enlarged, no canines. Isthmus moderate. Dorsal fins separate. First dorsal with 6 rays. Second dorsal and anal I/8-9.

### **Bunaka gyrinoides** (Bleeker).

1853. *Eleotris gyrinoides*, Bleeker, *Nat. Tijds. Ned. Ind.* IV, p. 272.

1876. *Eleotris canarensis*, Day, *Fish. India*, p. 313, pl. lxxix, fig. 2.

1889. *Eleotris canarensis*, Day, *Faun. Brit. Ind. Fish.* II, p. 294.

1927. *Bunaka pinguis*, Herre, *Monogr. 23 Bur. Sci. Manila*, p. 61, pl. xxvii, fig. 2.

1936. *Lizettea pelewensis*, Herre, *Philipp. Journ. Sci.* LIX, p. 276, pl. i, fig. 1 (abnormal specimen).

D. 1. VI; D. 2. I/8; A. I/8; P. 18-19; L. 1. 60; L. tr. 16-17; Predorsal scales 40.

Body anteriorly cylindrical, posteriorly compressed, height 4-5 in length,  $5-6\frac{1}{2}$  in total length. Head pointed, depressed,  $2\frac{3}{4}-3\frac{1}{2}$  in length,  $3\frac{1}{2}-4$  in total length. Profile above the eyes a little concave. Eye  $5-5\frac{1}{2}$  in head, interorbital 1 eye-diameter or more. Snout pointed, shorter than eye or as long as eye, tip before upper half of eye. Anterior nostril in a very short tube. Lower jaw a little prominent. Maxillary extends to below posterior half of eye or middle of eye. Teeth equal, small. Tongue rounded. Two or three longitudinal mucous canals over cheek. Supraopercular groove distinct. Scales of body ctenoid, those of head, nape and breast cycloid. Head scaled above from between the eyes, snout naked, cheek and opercle scaled. First dorsal obtuse, half as high as body. Third ray is the longest. Second dorsal and anal a little higher than first dorsal. Base of pectoral scaled. Pectoral about as long as head without snout. Ventral a little shorter. Caudal obtusely rounded, shorter than head.

*Coloured.*—Blackish-green above, orange-green below. Each scale with a dark spot, often forming longitudinal stripes on body. Fins orange, rays spotted with dark spots, forming bands. Base of pectoral with blackish spot. Head sometimes with a broad dark longitudinal stripe from snout to eye, some narrower radiating under eye.

*Length.*—320 mm.

*Habitat.*—India, Ceylon, Philippines, Indo-Australian Archipelago, Admiralty Id., Pelew Id.

I have examined specimens from Mangalore, S. India.

### **Odonteleotris** Gill.

1863. *Odonteleotris*, Gill, *Proc. Acad. Nat. Sci. Philadelphia*, p. 270.

Body elongate, anteriorly cylindrical, posteriorly compressed, covered with 45-100 scales, at least anteriorly cycloid. Head depressed, scaled, except on snout. Mouth oblique, lower jaw prominent. Teeth in several rows, in front on each side 2-4 canines in upper jaw. In lower jaw inner row enlarged laterally. Isthmus broad. Dorsal fins separate. First dorsal with 6 rays. Second dorsal I/9-11 : anal I/8-9.

### **Odonteleotris macrodon** (Bleeker).

1853. *Eleotris macrodon*, Bleeker, *Verh. Bat. Gen.* XXV, p. 104, pl. ii, figs. 1, 1a, 1b.

1876. *Eleotris macrodon*, Day, *Fish. India*, p. 311, pl. lxxv, fig. 5.

1889. *Eleotris macrodon*, Day, *Faun. Brit. Ind. Fish.* II, p. 292.

D. I. VI : D. 2. I/9-10 : A. I/8 ; P. 17 ; L. l. 90 ; L. tr. 30 ; Predorsal scales 60.

Body anteriorly cylindrical, posteriorly compressed, height 5 in length, 6 in total length. Head a little depressed,  $3\frac{1}{2}-3\frac{3}{4}$  in length,  $4\frac{1}{2}$  in total length. Profile between the eyes a little concave. Eye 8 in head, interorbital 3 eye-diameters. Snout rounded, less than eye-diameter, tip before upper part of eye. Anterior nostril tubular. Maxillary extends to below posterior part of eye. Teeth in several rows ; in upper jaw outer row 4-6 canines, inner row behind symphysis with a curved canine. In lower jaw outer row with 4 canines. Four mucous canals radiate under eye, crossed by 2 longitudinal canals over cheek. Above eye some short radiating canals ; on each side from snout to interorbital a longitudinal canal. On lower side of head many short transverse canals along ramus of lower jaw. On chin on each side a longitudinal canal. Some (about 3) open pores on each side in interorbital round the eye. Head scaled, except on snout. Scales cycloid. First dorsal low,

height less than half of height of body, 3rd and 4th rays are the longest. Second dorsal and anal higher than body, pointed posteriorly. Pectoral as long as postorbital part of head. Ventral a little shorter. Caudal obtuse,  $\frac{2}{3}$  of head.

*Colour.*—Blackish-green above, pink below. Two to four blackish stripes radiate on cheek from eye. Rays of dorsal fins and caudal spotted, membrane violet. Ventral anteriorly with red margin. Anal with red margin. Caudal above at base with red spot.

*Length.*—134 mm.

*Habitat.*—India, Nias, Java.

I have examined specimens from the following localities :

	<i>Indian Museum Collection.</i>					
Akyab	..	..	..	..	..	.. Purchased from F. Day.
Calcutta	..			..		.. Do.
	<i>Leiden Museum Collection.</i>					
Bengal	..	..	..	..		P. Bleeker.

LIST OF UNCERTAIN SPECIES OMITTED FROM THE FOREGOING ACCOUNT.

*Gobius sexfasciatus* Day, 1876, *Fish.* p. 285 ; 1889, *Faun.* p. 250.

*Gobius thurstoni* Day, 1888, *Fish. Suppl.* p. 793 ; 1889, *Faun.* p. 255.

*Gobius bleekeri* Day, 1868, *P. Z. S.*, p. 195 ; 1876, *Fish.* p. 289 ; 1889, *Faun.* p. 257.

*Gobius zonalternans* Day, 1876, *Fish.* p. 289 ; 1889, *Faun.* p. 257.

*Gobius magniloquus* Day, 1876, *Fish.* p. 296 ; 1889, *Faun.* p. 267.

*Gobius planiceps* Day, 1876, *Fish.* p. 296 ; 1889, *Faun.* p. 267.

*Gobius littoreus* Day, 1888, *P. Z. S.*, p. 261 ; 1888, *Fish. Suppl.* p. 793 ; 1889, *Faun.* p. 269.

*Periophthalmus fuscatus* Blyth, 1859, *Journ. As. Soc. Bengal*, p. 271 ; 1860, p. 111 (see Day, 1876, *Fish.* p. 303).

*Gobius novemradiatus* Ham., 1822, p. 47 (see Day, 1876, *Fish.* p. 304).

*Boleophthalmus inornatus* Blyth, 1860, *Journ. As. Soc. Bengal*, p. 148 (see Day, 1876, *Fish.* p. 308).

*Eleotris macrolepidotus* Bloch., 1785, pl. ccxcviii, Bloch Schn., 1801, p. 80 (see Day, 1876, *Fish.* p. 310).

*Eleotris feliceps* Blyth, 1860, *Journ. As. Soc. Bengal*, p. 146 (see Day, 1876, *Fish.* p. 311).

*Eleotris ellioti* Day, 1888, *P. Z. S.*, p. 262 ; 1888, *Fish. Suppl.*, p. 794 ; 1889, *Faun.* p. 290.

*Eleotris buccata* Blyth, 1860, *Journ. As. Soc. Bengal*, p. 145 (see Day, 1876, *Fish.* p. 316).

*Amblyopus gracilis* C. & V., 1837, *Hist. Nat. Poiss.* XII, p. 166 (see Day, 1876, *Fish.* p. 317).

*Amblyopus rosaceus* C. & V., 1837, *Hist. Nat. Poiss.* XII, p. 164.

*Gobioides tenuis* Day, 1876, *Fish.* p. 317 ; 1889, *Faun.* p. 301.

*Periophthalmus phya* Johnstone, 1903, in Annandale & Robinson, *Fascic. Malay. Zool.* II, p. 296.

*Gobius bombayensis* Annandale, 1919, *Rec. Ind. Mus.* XVI, p. 138.

*Pleurosicya annandalei* Hornell & Fowler, 1922, *Journ. Bombay N. H. Soc.* XXVIII, p. 924.

*Glossogobius mas* Hora, 1923, *Mem. Ind. Mus.* V, p. 742.

*Taenioides chilkenensis* Hora, 1923, *Mem. Ind. Mus.* V, p. 757.

*Raogobius andamanicus* Mukerji, 1935, *Rec. Ind. Mus.* XXXVII, p. 264.

*Amblyeleotris (Andameleotris) raui* Herre, 1939, *Rec. Ind. Mus.* XLI, p. 346.