

14. Genus **SCAPHIODON**\*, Heckel.

Syn. *Capoëta*, sp., and *Chondrostoma*, sp., Cuv. & Val.; *Dillonina*, *Gynnostomus*, sp., Heckel.

Abdomen rounded. Snout rounded. Mouth transverse, inferior, with the mandibular edge nearly straight and sharp; without any knob above the symphysis. The mandibles angularly bent inwards. A horny layer inside the lower jaw, which is not covered by lip. No lower labial fold. Barbels four, two, or absent. Pharyngeal teeth plough-shaped, 5 or 4, 3, 2/2, 3, 4 or 5. Dorsal fin of moderate extent, its last undivided ray being osseous and serrated or entire, or else articulated. Anal rather short. Scales large, of moderate or small size, and sometimes irregularly disposed. Lateral line passing to the centre of the base of the caudal fin.

*Geographical Distribution.* Rivers of Western Asia extending from those of Eastern Arabia to those in Sind and along the Western Ghats, as low as the Nilgiri hills and rivers at their base.

*Synopsis of Indian Species.*

- A. A pair of maxillary barbels. Last undivided dorsal ray osseous, serrated.

D. 13, L. 1. 33, L. tr. 6/6.....	1. <i>S. watsoni</i> , p. 284.
D. 13, L. 1. 36, L. tr. 9/9.....	2. <i>S. irregularis</i> , p. 284.

- B. Barbels absent.

D. 14-15, L. 1. 39. Last undivided dorsal ray articulated. Silvery.....	3. <i>S. thomassi</i> , p. 285.
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\* Genus **CARASSIUS**, Nilsson.

Abdomen rounded. Snout obtuse and rounded. Mouth anterior, arched, and rather narrow; lips thin. No barbels. Pharyngeal teeth compressed and in a single series, 4/4. Dorsal fin long, commencing opposite the ventrals, and having its last undivided ray osseous and serrated; last undivided anal ray osseous and normally serrated. Scales of moderate size. Lateral line complete.

*Geographical Distribution.* Temperate portions of Europe and Asia.

**CARASSIUS AURATUS.**

*Cyprinus auratus*, Linn. *Syst. Nat.* vol. i, p. 527.

*Carassius auratus*, Day, *Fish. India*, p. 552 (see synon.).

- B. iii. D. 19-21 (3/16-18). P. 17. V. 9. A. 8 (3/5). C. 19. L. 1. 27-29.  
L. tr.  $6\frac{1}{2}/10$ . Vert. 18/13.

The gold carp is too well known to require any detailed description. Domesticated forms exhibit almost endless variation.

Mr. Masters is said to have sent three adult specimens from Bombay to the British Museum. Dr. J. Anderson brought examples from high up in Upper Burma, or rather within the borders of China. I doubt whether this fish has ever been found wild in India or Burma.





- D. 14-15, L. 1. 40-43. Last undivided dorsal ray articulated. A black band along the side; fins with black marks ..... 4. *S. nashii*, p. 285.  
D. 14, L. 1. 40. Last undivided dorsal ray osseous, entire. Silvery ..... 5. *S. brevidorsalis*, p. 286.

### 327. (1.) *Scaphiodon watsoni*.

*Scaphiodon watsoni*, Day, J. A. S. B. xli, pt. 2, 1872, p. 324; *Fish. India*, p. 551, pl. cxxxv, fig. 2 (see synon.).

- B. iii. D. 13 (3/10). P. 15. V. 8. A. 9 (2/7). C. 19. L. 1. 33.  
L. tr. 6/6.

Length of head one fifth, height of body two ninths of the total length. *Eyes*—situated in the last part of the anterior half of the head, diameter two ninths of length of head,  $1\frac{1}{2}$  diameters from end of snout. Interorbital space rather convex. Snout rounded, rather overhanging the mouth, and covered with glands; mouth transverse, inferior; mandibles sharp, not enveloped by lip, and having a horny layer inside. *Barbels*—a maxillary pair as long as the eye. *Teeth*—pharyngeal, plough-shaped, 4, 3,  $2\frac{1}{2}$ , 3, 4. *Fins*—dorsal commences rather in front of the ventrals, its last undivided ray strong, osseous, serrated, as long as the head without the snout, and nearly as long as the branched rays, which are two thirds as high as the body. Pectoral as long as the head excluding the snout, but not reaching the ventrals. Caudal forked. *Lateral line*—very slightly curved,  $3\frac{1}{2}$  rows of scales between it and ventral fin. *Colour*—silvery, dashed with gold; lightest on the abdomen. Various and very irregular black spots on the body.

*Hab.* Rivers on Sind hills and Salt Range of the Punjab.

### 328. (2.) *Scaphiodon irregularis*.

*Scaphiodon irregularis*, Day, J. A. S. B. xli, pt. 2, p. 324; *Fish. India*, p. 551, pl. cxxxv, fig. 3; also *Suppl.* p. 807.

- B. iii. D. 13 (3/10). P. 17. V. 8. A. 2/7. C. 19. L. 1. 36.  
L. tr. 9/9.

Length of head one fifth, height of body one fifth of the total length. *Eyes*—situated rather before the middle of the length of head,  $1\frac{1}{2}$  diameters from end of snout, and also apart. Interorbital space nearly flat. Snout somewhat rounded, covered with glands and having a depression across it from eye to eye. Mouth transverse; upper jaw slightly the longer. *Barbels*—a maxillary pair nearly as long as the eye. *Fins*—dorsal commences rather before the ventrals: its third undivided ray is osseous, weak, and serrated, nearly half as long as the head, whilst the fin is three fourths as high as the body. Pectoral nearly as long as the head. Caudal forked, its lower lobe the longer. *Scales*—two or three rows above the lateral line are of a large oblong form, above these are numerous little irregular ones continued forwards to the head;





4½ rows between the lateral line and the base of the ventral fin.  
*Colour*—olive, shot with gold.

*Hab.* Sind hills to 3500 feet elevation.

329. (3.) *Scaphiodon thomassi*.

*Scaphiodon thomassi*, Day, *Fish. India*, p. 551, pl. cxxxiv, fig. 1.

B. iii. D. 14-15 (3/11-12). P. 16. V. 9. A. 8 (2/6). C. 19.  
L. 1. 39. L. tr. 7/7.

Length of head  $5\frac{1}{4}$  to 6, height of body  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $4\frac{1}{2}$  in the length of the head, 2 to  $2\frac{1}{4}$  diameters from the end of snout, and 2 apart. Height of head almost equals its length; its width is much less. Snout obtuse, overhanging the mouth, which is transverse; its width equalling that of the head behind the middle of the eyes. Mandible anteriorly with a horny covering. Lips not continuous; the upper one fringed. Large pores on the snout and upper lip, and a line of them continued to under the eye. *Barbels*—absent. *Fins*—dorsal arises slightly nearer to the snout than to the base of the caudal; it is three fourths as high as the body, its last undivided ray weak, articulated. Pectoral as long as the head. Ventral arises under the fourth or fifth dorsal ray; it does not quite reach the anal; the latter when laid flat extends to the caudal, which is deeply forked. *Scales*— $4\frac{1}{2}$  rows between the lateral line and the base of the ventral fin. *Colour*—of a dull silvery colour along the back, with an indistinct silvery band along the side, and of a dull white beneath. A dark band along the dorsal fin, and caudal with a dark outer edge.

*Hab.* South Canara.

330. (4.) *Scaphiodon nashii*.

*Barbus nashii*, Day, *P. Z. S.* 1868, p. 584.

*Scaphiodon nashii*, Day, *Fish. India*, p. 552, pl. cxxxiii, fig. 3.

B. iii. D. 14-15 (2-3/11-12). P. 15. V. 9. A. 7 (2/5). C. 20.  
L. 1. 40-43. L. tr. 7/7.

Length of head  $5\frac{1}{4}$  to 6, height of body 4 to 5 in the total length. *Eyes*—diameter 3 to 4 in the length of the head, 1 to  $1\frac{1}{2}$  diameters from the end of snout, and  $1\frac{1}{2}$  to  $1\frac{3}{4}$  apart. Mouth broad, inferior, transverse, and overhung by the snout. In the young the jaws are compressed, each with a cartilaginous covering; the lips at the angle are thick and continuous, not continued across the chin. As age increases the mouth widens, the cartilaginous covering becomes more horny, and the colours of the fish alter. Lips thin, without any transverse fold across the lower one. Snout in the adult covered by papillæ. A thick horny covering inside the lower jaw in adults. *Barbels*—absent. *Teeth*—pharyngeal, crooked, sharp, 5, 4, 3/3, 4, 5. *Fins*—dorsal commences nearer to the snout than to the base of the caudal; it is three fourths as high as the body, its upper edge concave; no osseous ray. Pectoral about as long as



the head. Ventral arises below the middle of the dorsal fin, and does not quite reach the anal, nor the latter the caudal, which is deeply forked. *Scales*— $4\frac{1}{2}$  rows between lateral line and base of ventral fin. *Colour*—reddish brown along the back; abdomen silvery. A black band passes from the eye to the centre of the caudal fin. A dark band along the middle third of the dorsal, which is edged above by scarlet; a dark band on anal having a light anterior edge; a dark edging to the caudal. The young are silvery grey along the back, becoming silvery on the sides; the lateral band terminates in a black blotch at the base of the caudal fin.

*Hab.* Coorg, hill-streams of South Canara, and the Wynaad.

331. (5.) *Scaphiodon brevidorsalis*. (Fig. 98.)

*Semiplotus brevidorsalis*, Day, P. Z. S. 1873, p. 239.

*Scaphiodon brevidorsalis*, Day, Fish. India, p. 552, pl. cxxxiii, fig. 2.

*Mean-candee*, Tamil.

B. iii. D. 14 (3/11). V. 9. A. 7. L. 1. 39-40. L. tr. 7-8/9.

Length of head 6, height of body  $3\frac{1}{2}$  in the total length. *Eyes*—diameter 3 to 4 in the length of head, and situated in or rather before the middle of its length, and  $2\frac{1}{2}$  diameters apart. Dorsal profile much more convex than that of the abdomen. Snout

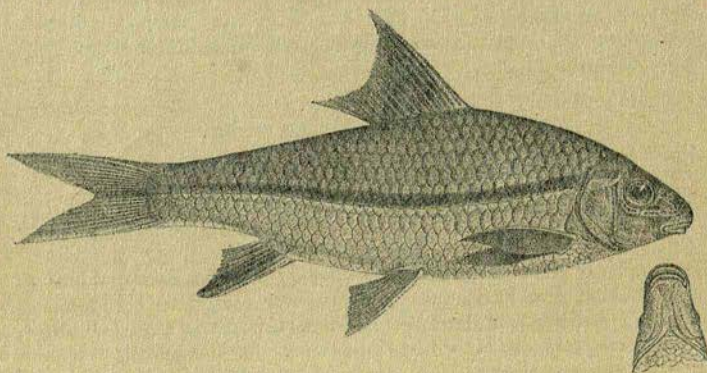


Fig. 98.—*Scaphiodon brevidorsalis*.

swollen, overhanging the jaws; mouth inferior, transverse; three rows of large pores across the snout, and extending on to the pre-orbital bone; knob at symphysis badly developed; a thin cartilaginous covering to both jaws. Upper lip crenulated. *Barbels*—absent. *Fins*—last undivided dorsal ray osseous, very strong, entire, longer than the head by a distance equal to one diameter of the orbit. Dorsal fin commences midway between the snout and the





base of the caudal; the fin two thirds as high as the body below it. Pectoral falciform, extending to over the ventral, which last is long, reaching to the anal; caudal deeply forked. *Scales*— $4\frac{1}{2}$  rows between lateral line and base of ventral fin. *Colour*—silvery, darkest along the back, fins stained with grey.

*Hab.* Rivers below the Nilgiri hills in the Madras Presidency.

15. Genus **CATLA**, Cuvier and Valenciennes.

(Syn. *Gibelion*, Heckel; *Hyppselobarbus*, Bleeker.)

Head broad; snout with very thin integuments, upper lip absent, the lower moderately thick, having a continuous and free posterior margin. The lower jaw with a movable articulation at the symphysis, but destitute of any prominent tubercle. No barbels. Gill-rakers long, fine, and closely set. Eyes with free orbital margins. Pharyngeal teeth plough-shaped, 5, 3,  $2\frac{2}{3}$ , 3, 5. Dorsal fin rather long, without osseous ray, commencing somewhat in advance of the ventrals; anal short; caudal forked. Scales of moderate size, no tile-like row along the base of the anal fin. Lateral line continuous to the centre of the base of the caudal fin.

332. (1.) **Catla buehanani**. (Fig. 99.)

*Cyprinus catla*, *Ham. Buch. Fish. Ganges*, pp. 287, 387, pl. 13, fig. 81.  
*Catla buehanani*, *Cuv. & Val. xvii*, p. 411, pl. 515; *Day, Fish. India*, p. 553, pl. cxxxiv, fig. 5 (see synonym.).

*Botchee*, Telugu; *Catla*, Bengal, Hind. and Punj.; *Barkur*, Ooriah; *Nga-theing*, Burmese; *Tambra*, Hind. in Bembay; *Boassa*, Hind. in N.W. Provinces; *Tay-lee*, Sind.

B. iii. D. 17–19 (3–4/14–16). P. 21. V. 9. A. 8 (3/5). C. 19.  
L. l. 40–43. L. tr.  $7\frac{1}{2}$ /9. Vert. 17/18.

Length of head  $4\frac{1}{4}$  to  $4\frac{3}{4}$ , height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—in the anterior half of the length of the head, diameter 6 to 7 in the length of the head, 2 diameters from the end of the snout, and 3 apart. Mouth wide, lower jaw prominent; in large specimens some pores on the snout. *Fins*—dorsal commences in advance of the ventrals, is two thirds as high as the body, and has a concave upper edge. Pectoral extends to the ventral, and the latter, in males, to the anal. Anal laid flat reaches to beyond the commencement of the caudal. The fins in some specimens are much elongated. *Scales*—from  $5\frac{1}{2}$  to  $6\frac{1}{2}$  rows between lateral line and base of ventral fin. *Colour*—greyish above, becoming silvery on the sides and beneath. Fins dark-coloured, in some specimens nearly black.

This fish is largely employed for stocking tanks. In May 1875, Mr. Mitchell had a tank, 65 × 58 feet and 13 feet deep, dug upon his ground at Garden Reach, near Calcutta; into it were put some





fry of this species, from  $\frac{1}{2}$  to 1 inch or less in length. September 22nd the tank was netted, and several dozens captured, one of the largest weighing 14 oz. and measuring 11 inches in length; the others were 1 or 2 oz. lighter. ('Nature,' Dec. 9th, 1875, xiii, p. 107.)

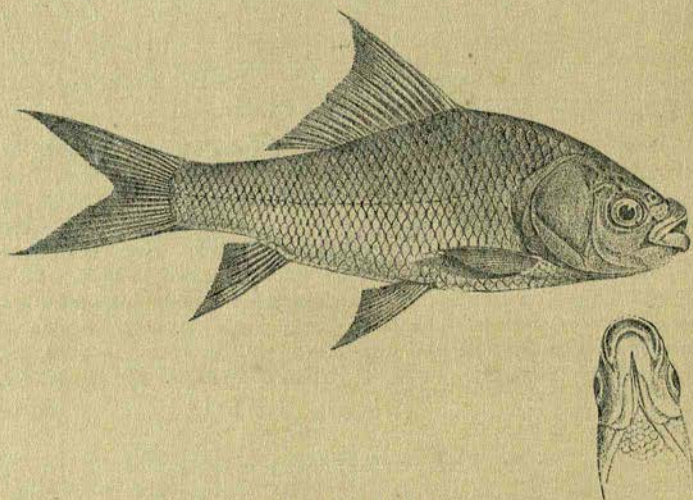


Fig. 99.—*Catla buechanani*.

*Hab.* Sind, Punjab, throughout India to the Kistna, and eastwards through Bengal, and Burma to Siam; not known to occur in India south of the Kistna, nor in Tenasserim. This fish attains at least 6 feet in length, and is much esteemed as food when not exceeding 2 feet, larger ones are coarse. It resides in fresh or brackish water, being found within tidal influence. "It is a very strong active animal, and often leaps over the seine of the fishermen, on which account, when fishing for the *Catla*, they usually follow the net in canoes, and make a noise by shouting and splashing with their paddles" (*Ham. Buchanan*).

16. Genus **THYNNICHTHYS**, Bleeker.

Syn. *Mola*, pt., Blyth.

Pseudobranchiæ present. Abdomen rounded. Head somewhat compressed; integuments over snout thin; upper lip absent; only a short labial fold on the side of the mandible. Mouth rather wide, antero-lateral, with the lower jaw somewhat prominent. No barbels. Gill-rakers short or absent. Eyes in the middle of the depth of the head, and without any adipose lid. Pharyngeal teeth molariform, compressed, close together, 5, 3 or 4, 2 or 3/3 or 2, 4 or 3, 5. Dorsal fin, short, without osseous ray; ventral





commencing below the dorsal; anal short and entirely posterior to the dorsal. Scales small. Lateral line complete, running to the centre of the base of the caudal fin or a little below. Intestinal tract narrow, and with numerous convolutions.

*Geographical Distribution.* The Kistna and Godáviri rivers from the Deccan to their terminations; also the Malay Archipelago.

333. (1.) *Thynnichthys sandkhol*. (Fig. 100.)

*Leuciscus sandkhol*, *Sykes*, *Tr. Z. S.* ii, p. 363.

*Thynnichthys sandkhol*, *Day*, *Fish. India*, p. 554, pl. cxxxiv, fig. 2 (see synon.).

*Kala-tala* and *Akhu-chappah*, Tel.; *Bareino*, Ooriah.

B. iii. D. 12 (3/9). P. 19. V. 9. A. 8 (3/5). C. 19.

L. r. 120. L. tr. 25-30/25.

Length of head 4 to  $4\frac{1}{2}$ , height of body  $3\frac{1}{4}$  to 4 in the total length. *Eyes*—diameter 3 to 5 in the length of the head, 1 to  $1\frac{1}{2}$  diameters from the end of snout, and  $1\frac{1}{2}$  to  $2\frac{1}{2}$  apart. The width of the head equals one half, and the height four fifths, of its length. *Teeth*—pharyngeal 5, 4, 3/3, 4, 5. *Fins*—dorsal three fourths as high

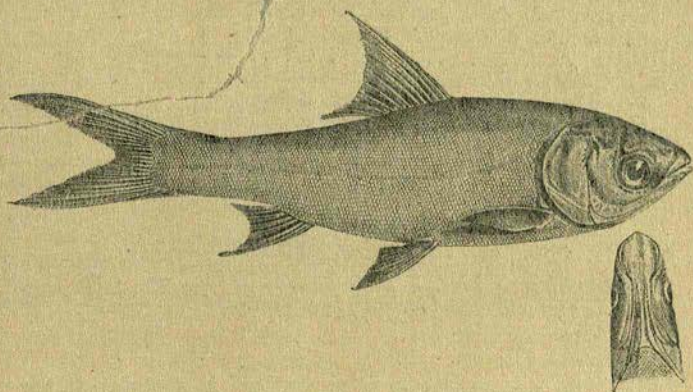


Fig. 100.—*Thynnichthys sandkhol*.

as the body, its upper edge concave, its origin slightly in advance of that of the ventral, and about midway between the snout and the base of the caudal fin, which latter is deeply lobed, the lower lobe being the longer. Anal at some distance behind the vertical from the posterior end of the dorsal. *Scales*—17 to 19 rows between lateral line and base of ventral fin. *Colour*—silvery; head purplish.

*Hab.* Godáviri and Kistna rivers, also the adjacent tanks; attaining above 18 inches in length.



17. Genus **AMBLYPHARYNGODON**, Bleeker.

Syn. *Mola*, Heckel and Blyth; *Brachygramma*, Day.

Pseudobranchiæ present. Abdomen rounded. Head somewhat compressed; integuments over snout thin; upper lip absent; only a short labial fold on the side of the mandible. Mouth rather wide, antero-lateral, with the lower jaw prominent. No barbels. Gill-rakers short or absent. Eyes in the middle of the depth of the head, and without any adipose membrane. Pharyngeal teeth molariform, with the crowns flat or concave, 3, 2, 1/1, 2, 3. Dorsal fin short, without osseous ray, and extending to nearly or quite above the commencement of the anal; ventral in advance of the dorsal. Scales small. Lateral line incomplete.

*Geographical Distribution.* From Sind throughout the plains of India, Ceylon, and Burma.

*Synopsis of Indian Species.*

- D. 9-10, L. 1. 55-65. 9 or 10 rows of scales between lateral line and base of ventral fin. Height of body  $3\frac{1}{2}$  in the total length 1. *A. atkinsonii*, p. 290.  
D. 9, L. 1. 65-75. 9 or 10 rows of scales between lateral line and base of ventral fin. Height of body 4 to  $4\frac{1}{2}$  in the total length ..... 2. *A. mola*, p. 291.  
D. 9, L. 1. 55-60. Five rows of scales between lateral line and base of ventral fin. Height of body  $4\frac{2}{3}$  to 5 in the total length ..... 3. *A. microlepis*, p. 291.  
D. 9-10, L. 1. 50-57. Four rows of scales between lateral line and base of ventral fin. Height of body 5 to  $5\frac{1}{2}$  in the total length. 4. *A. melettinus*, p. 292.

334. (1.) **Amblypharyngodon atkinsonii**.

*Mola atkinsonii*, Blyth, *J. A. S. B.* xxix, 1860, p. 164.

*Amblypharyngodon atkinsonii*, Day, *Fish. India*, p. 555, pl. cxxxiv, fig. 4 (see synon.).

*Nga-pan-na*, Burmese.

B. iii. D. 9-10 (2-3/7). P. 15. V. 9. A. 8 (2/6). C. 19.  
L. 1. 55-65. L. tr. 14/12.

Length of head 4 to  $4\frac{2}{3}$ , height of body  $3\frac{1}{2}$  in the total length. *Eyes*—in the front half of the head, 4 to  $4\frac{1}{4}$  diameters in the length of the head, 1 diameter from end of snout, and  $1\frac{1}{2}$  apart. Abdominal and dorsal profiles about equally convex. *Fins*—dorsal two thirds as high as the body, its upper edge concave, it commences slightly behind the origin of the ventral. Anal arising on the vertical just posterior to the end of the dorsal. *Lateral line*—ceases after 19 scales; there are 9 or 10 rows between it and the base of the ventral fin. *Colour*—silvery, with a golden gloss about the head.

*Hab.* Throughout Burma; attaining at least 6 inches in length.



335. (2.) *Amblypharyngodon mola*. (Fig. 101.)

*Cyprinus mola*, *Ham. Buch. Fish. Ganges*, pp. 334, 392, pl. 38, fig. 92.  
*Amblypharyngodon mola*, *Day, Fish. India*, p. 555, pl. cxxxv,  
fig. 4 (see synon.).

*Talla-maya*, Tel.; *Morarua*, Ooriah; *Moah*, Assam; *Mukni*, Punj.;  
*Nga-beh-byoo* and *Nga-zen-zap*, Burmese.

B. iii. D. 9 (2/7). P. 15. V. 9. A. 7 (2/5). C. 19.

L. l. 65-75. L. tr. 12/12.

Length of head about 5, height of body 4 to  $4\frac{1}{4}$  in the total length. *Eyes*—diameter  $3\frac{1}{2}$  to 4 in length of head,  $\frac{3}{4}$  to 1 diameter from end of snout, and  $1\frac{1}{2}$  apart. Dorsal profile more convex than that of the abdomen. *Fins*—origin of dorsal behind

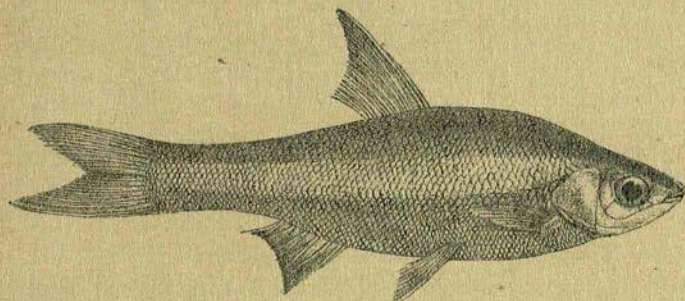


Fig. 101.—*Amblypharyngodon mola*.

the insertion of the ventral, upper edge concave. Caudal deeply forked. *Lateral line*—extends along about 15 scales, and there are 9 or 10 rows between it and the base of the ventral fin. *Colour*—a silvery lateral band, and usually dark markings on the dorsal, caudal, and anal fins.

*Hab.* From Sind throughout India (except the Malabar coast), Assam and Burma.

336. (3.) *Amblypharyngodon microlepis*.

*Leuciscus microlepis*, *Bleeker, Batav. Genootsch. Verhand.* xxv, *Beng en Hind.* p. 141.

*Amblypharyngodon microlepis*, *Day, Fish. India*, p. 555, pl. cxxxv,  
fig. 5 (see synon.).

B. iii. D. 9 (2/7). P. 14. V. 9. A. 7 (2/5). C. 19. L. l. 55-60.

L. tr. 11/8.

Length of head  $4\frac{1}{2}$  to 5, height of body  $4\frac{1}{2}$  to 5 in the total length. *Eyes*—diameter  $3\frac{2}{3}$  to 4 in length of head, less than 1 diameter from end of snout. Dorsal profile rather more convex than that of the abdomen. *Fins*—origin of dorsal slightly behind the origin of the ventral, its upper edge concave, its last ray divided to its base; caudal forked, lower lobe the longer. *Lateral line*—ceases after a few scales, 5 rows between it and base of ventral fin. *Colour*—a rather broad silvery lateral band.

*Hab.* From the Hooghly through Orissa and down the Coromandel coast to Madras.



337. (4.) *Amblypharyngodon melettina*.

*Leuciscus melettina*, Cuv. & Val. H. N. Poiss. xvii, p. 304, pl. 501.

*Amblypharyngodon melettinus*, Day, Fish. India, p. 555, pl. cxxxiv, fig. 3 (see synon.).

Wumboo, Mal.; Oolaree, Tam.; Kali-korafi, Hind.; Paraga, Can.

B. iii. D. 9-10 (2-3/7). P. 15. V. 9. A. 7-8 (2-3/5). C. 19.  
L. l. 50-57. L. tr. 10/8.

Length of head 5 to  $5\frac{1}{2}$ , height of body 5 to  $5\frac{1}{2}$  in the total length. *Eyes*—4 diameters in the length of the head, 1 diameter from end of snout, and  $1\frac{1}{4}$  apart. *Teeth*—pharyngeal, with rather concave summits. *Fins*—origin of dorsal behind the insertion of the ventral, its upper edge concave; caudal rather deeply forked. *Lateral line*—extends along 15 to 20 rows of scales, 4 rows between it and the base of the ventral fin. *Colour*—greenish along the back, becoming silvery on the sides and beneath; a bright greenish-yellow band divides the colours of the back from a silvery line passing along the side.

*Hab.* (Bombay, according to Cuv. and Val.) Malabar coast, and Southern India, from the Nilgiris to Madras, also Ceylon.

18. Genus **MATSYA**, gen. nov.

Syn. *Acanthonotus*, Tickell, nec Bloch & Schneider.

Mouth arched, anterior; barbels absent, eyes without adipose lids. Dorsal fin rather short, commencing slightly in front of the root of the ventral, its osseous ray strong, serrated and preceded

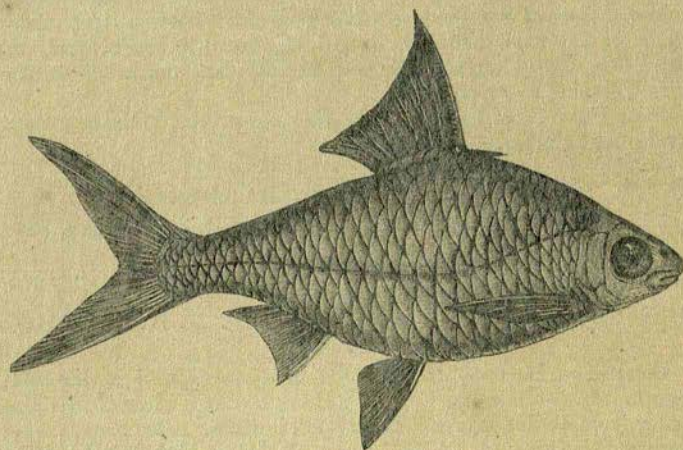


Fig. 102.—*Matsya argentea*.

at its base by a small forwardly directed spine; anal short. Scales large, no enlarged row at base of anal fin. Lateral line complete and continued to opposite the centre of the base of the caudal.



338. (1.) *Matsya argentea*. (Fig. 102.)

*Acanthonotus argenteus*, Tickell, MSS.; Day, *Fish. India, Supplement*, p. 807.

D. 9 (1/8). P. 14. V. 8. A. 7. C. 18. L. 1. 30.

Length of head as delineated 6, height of body  $3\frac{1}{3}$  in the total length. *Eyes*—diameter  $3\frac{1}{4}$  in the length of the head, 1 diameter from the end of the snout. Snout blunt, rather overhanging the mouth, body compressed; profile with a considerable rise from snout to base of dorsal fin. *Fins*—dorsal spine strong and posteriorly serrated, caudal deeply forked, its lobes acutely pointed. A small horizontal spine in front of the dorsal fin pointing forwards and scarcely protruding from beneath the skin. *Lateral line*—complete. *Colour*—brilliant silvery, with lilac and blue shades and a tinge of olive-yellow on the back. Dorsal fin orange-scarlet, superiorly bordered with black except on the last two rays, the other fins lemon-yellow. Dorsal ridge black in its upper portion.

*Hab.* Very common in the streams of the interior of the Tenasserim district, the largest obtained being about 5·4 inches in length.

19. Genus **BARBUS**, Cuvier & Valenciennes.

Syn. *Puntius*, pt., Ham. Buch.; *Laheobarbus*, *Varicorhinus*, pt., Rüpp.; *Systomus*, pt., McClell.; *Capoëta*, sp., Cuv. & Val.; *Pseudobarbus*, Bielz.; *Luciobarbus*, Heckel; *Cheilobarbus*, sp., Smith; *Balantiocheilus*, *Hemibarbus*, *Cyclocheilichthys*, *Siaja*, *Anematichthys*, *Hypselobarbus*, *Gonoproktopterus*, *Gnathopogon*, *Hampala*, sp., Bleeker; *Enteromius*, sp., Cope.

Mouth arched, and anterior or inferior; jaws closely invested by the lips, which may have leathery lobes, but no horny covering\*. Barbels four (*Barbodes*, Bleeker); or two (*Capoëta*, Cuv. & Val.); or none (*Puntius*, H. Buch.). Eyes without adipose lids. Pharyngeal teeth 5 or 4, 3 or 4, 2 or 3/3 or 2, 3 or 4, 4 or 5. Dorsal fin rather short, commencing nearly opposite the root of the ventral; its last undivided ray either ossified and serrated or entire, or articulated and not osseous; anal rather short, in some species its second ray ossified, or its last undivided ray may even be serrated (*B. prodozyson*, Bleeker). Scales large, of moderate or small size; anal scales not enlarged. Lateral line complete or incomplete†, when complete it is continued to opposite the centre of the base of the caudal fin.

*Barbus mahecola*, C. V., which has two barbels, is very similar to

\* *Barbus lithopidos* is an exception.

† The number of rows of scales between the lateral line and insertion of the ventral fin, in species in which the former is incomplete, is counted from the row of scales on which the lateral line would have existed had it been complete.





*B. filamentosus*, C. V., with none. If a number of examples are examined, it will be found that in some these appendages are minute, the barbels being as a rule smallest in specimens obtained furthest from the hills. In South Canara, the Wynad, and base of the Nilgiris, where the barbels are large, the *B. mahecola* abounds; towards Cochin and up the Coromandel coast as far as Madras that species is small or absent, and the *B. filamentosus* is the type. Here, undoubtedly, the question must force itself on one's notice, Are we dealing with two distinct species, or one in a state of transition? The adults of *Barbus punctatus* and *B. plutunio* are often exactly similar, but in the immature form the first retains its original colour, not so the second. *Barbus chola* and *B. tetrapugus* are similar, except as to the presence of a black spot behind the opercle in the latter; whilst *Barbus ticto* shows considerable variations. Great changes evidently occur in some species if they are removed to another locality; thus *Barbus conchoniis*, which has been imported from the plains and introduced into the Naini Tal lake, is evidently losing the serrature of its dorsal spine; in time, if this change goes on, the species will become more like *B. torio* than the original form.

The majority of those species which constitute the subgenus *Barbodes* (4 barbels), provided they are soberly coloured, attain a large size; the brilliantly coloured forms are mostly residents in clear and rapid mountain-streams or rivers contiguous to hills and are generally small. A strong dorsal spine is usually (if not invariably) a sign that the species lives in the vicinity of high mountains, up the streams of which it ascends to breed; an exception, however, has to be made of those forms having serrated dorsal spines, and which are usually residents of waters of the plains. Considerable individual variations exist as to the comparative length and size of the dorsal spine; as a rule it increases in strength in the adult.

Species of the subgenus *Capoëta* (2 barbels) never attain the size reached by many of the *Barbodes*; some, more especially when residing in mountain-streams, have vivid colours. The species of the subgenus *Puntius* are mostly of small size; a few are brilliantly coloured.

*Geographical Distribution.* Europe, and throughout Asia and Africa. Representatives of this genus exist in most, if not all, Indian and Burmese rivers and tanks, the larger species being generally termed Mahseers. Some attain an enormous size, as much as 90 lb. and upwards; these are more frequently residents in rivers along the bases of hills or in large rapids, but a few have a more extended range. The number of species appears to diminish as the Malay Archipelago is approached, whilst those forms having 4 barbels and also an osseous and serrated dorsal ray increase largely in proportion to the others.



*Synopsis of Indian Species.*A. With four barbels. (*Barbodes*.)

## a. Last undivided dorsal ray osseous and serrated.

- D. 3/3, A. 3/5, L. 1. 44-47. Pores on snout and head. Colour uniform . . . 1. *B. chagunio*, p. 299.  
D. 3/3, A. 3/5, L. 1. 42. Pores on snout. Colour uniform . . . . . 2. *B. clavatus*, p. 300.  
D. 3-4/8, A. 3/5, L. 1. 32-34. Colour uniform; in Burma the caudal has a dark inner edge . . . . . 3. *B. sarana*, p. 300.  
D. 4/8, A. 3/5, L. 1. 28-30. A dark lateral blotch . . . . . 4. *B. chrysopoma*, p. 301.  
D. 3/8, A. 2/5, L. 1. 29-30. A black lateral blotch, fins orange . . . . . 5. *B. pinnauratus*, p. 301.  
D. 3/8, A. 3/5, L. 1. 28. A black band from eye to middle of tail . . . . . 6. *B. pleurotenia*, p. 302.  
D. 3/8, A. 2/5, L. 1. 24. Serrated dorsal ray weak. Colour uniform . . 7. *B. goniosoma*, p. 302.  
D. 3/8, A. 2/5, L. 1. 22. Caudal, anal, and ventrals red . . . . . 8. *B. roseipinnis*, p. 303.

## b. Last undivided dorsal ray osseous and entire.

- D. 4/9, A. 2/5, L. 1. 42. No pores on snout. 5 scales between l. l. and ventral. Dorsal spine strong, nearly as long as head . . . . . 9. *B. dubius*, p. 303.  
D. 4/9, A. 2-3/5, L. 1. 39-41. Dorsal spine strong, a little longer than head, 3 scales between l. l. and ventral . . . . . 10. *B. micropogon*, p. 304.  
D. 3/7-8, A. 2/5, L. 1. 32-35. Lower lip with a continuous transverse fold. Dorsal spine strong. 3 scales between l. l. and ventral . . . . . 11. *B. chilinoïdes*, p. 304.  
D. 4/8, A. 2/5, L. 1. 30-32. Lower labial fold interrupted. Dorsal spine strong.  $3\frac{1}{2}$  scales between l. l. and ventral . . . . . 12. *B. carnaticus*, p. 305.  
D. 3/9, A. 2/5, L. 1. 28-31. Lower labial fold interrupted. Dorsal spine strong, as long as the head excluding the snout.  $2\frac{1}{2}$  scales between l. l. and ventral . . . . . 13. *B. hexagonolepis*, p. 305.  
D. 4/9, A. 2/5, L. 1. 28-29. Lower labial fold interrupted. Large pores on cheeks. Dorsal spine strong, as long as head excluding the snout.  $2\frac{1}{2}$  scales between l. l. and ventral . . 14. *B. dukai*, p. 306.  
D. 3/9, A. 2/5, L. 1. 25-27. Dorsal spine strong, as long as the head excluding the snout. Upper jaw the longer, lips lobed.  $2\frac{1}{2}$  scales between l. l. and ventral . . . . . 15. *B. tor*, p. 307.



- D. 3-4/9, A. 2/5-6, L. 1. 25-26. Dorsal spine strong.  $2\frac{1}{2}$  scales between l. l. and ventral ..... 16. *B. hexastichus*, p. 308.
- D. 3/9, A. 3/5, L. 1. 24-26. Lower labial fold entire. Dorsal spine of moderate strength and as long as the head excluding the snout.  $2\frac{1}{2}$  scales between l. l. and ventral ..... 17. *B. bovaniores*, p. 308.
- D. 3/9, A. 2/5, L. 1. 25. Dorsal spine weak,  $2\frac{1}{2}$  scales between l. l. and ventral ..... 18. *B. sophore*, p. 309.
- D. 2/9, A. 2/5, L. 1. 23. Dorsal spine strong.  $2\frac{1}{2}$  scales between l. l. and ventral ..... 19. *B. stracheyi*, p. 309.
- c. Last undivided ray articulated, or if osseous very weak.
- D. 3/9, A. 3/5, L. 1. 41.  $3\frac{1}{2}$  scales between l. l. and ventral ..... 20. *B. curmuca*, p. 310.
- D. 3/9, A. 3/5, L. 1. 38-39. 4 scales between l. l. and ventral. Of a slate colour ..... 21. *B. lithopidos*, p. 310.
- D. 3-4/9, A. 3/5, L. 31/34.  $2\frac{1}{2}$  scales between l. l. and ventral. Each scale with a red mark; dorsal and caudal fins lake colour ..... 22. *B. thomassi*, p. 311.
- D. 3/9, A. 3/7 ..... 23. *B. spinulosus*, p. 311.
- D. 3/9, A. 2/5, L. 1. 30-32.  $3\frac{1}{2}$  scales between l. l. and ventral. Upper half of body dark; a light band from eye to tail ..... 24. *B. pulchellus*, p. 311.
- D. 3-4/9, A. 3/5, L. 1. 30-32. Length of head 6 in total.  $3\frac{1}{2}$  scales between l. l. and ventral ..... 25. *B. dobsoni*, p. 312.
- D. 3/9, A. 3/5, L. 1. 27-28. Length of head 5 to  $5\frac{1}{4}$  in total.  $2\frac{1}{2}$  to  $3\frac{1}{2}$  scales between l. l. and ventral ..... 26. *B. jerdoni*, p. 312.
- D. 4/9, A. 3/5, L. 1. 26-28.  $2\frac{1}{2}$  to 3 scales between l. l. and ventral ..... 27. *B. wynnaadensis*, p. 313.
- D. 3/9, A. 3/5, L. 1. 27.  $2\frac{1}{2}$  scales between l. l. and ventral ..... 28. *B. stevensoni*, p. 313.
- D. 4/9, A. 3/5, L. 1. 24-26.  $3\frac{1}{2}$  scales between l. l. and ventral ..... 29. *B. neilli*, p. 314.
- D. 3-4/9, A. 3/5, L. 1. 24.  $1\frac{1}{2}$  scales between l. l. and ventral ..... 30. *B. malabaricus*, p. 314.
- D. 3/9, A. 2/5, L. 1. 24. 3 scales between l. l. and ventral ..... 31. *B. innominatus*, p. 315.
- D. 3/9, A. 3/5, L. 1. 22.  $3\frac{1}{2}$  scales between l. l. and ventral ..... 32. *B. compressus*, p. 315.
- D. 4/9, A. 3/5, L. 1. 22.  $2\frac{1}{2}$  scales between l. l. and ventral ..... 33. *B. blythii*, p. 315.
- D. 3/9, A. 2/5, L. 1. 20. 2 scales between l. l. and ventral. Red, with three vertical black bands ..... 34. *B. melanampyx*, p. 316.



B. With two barbels. (*Capoeta*.)

## a. Last undivided dorsal ray osseous, serrated.

D. 4/8, A. 2/5, L. 1. 26.  $2\frac{1}{2}$  scales between l. l. and ventral. . . . . 35. *B. macrolepidotus*, p. 318.

## b. Last undivided dorsal ray osseous, entire.

D. 3/8, A. 2/5, L. 1. 26-28. Narrow suborbitals. 3 to  $3\frac{1}{2}$  scales between l. l. and ventral. A lateral blotch, and two bands on dorsal fin . . . . . 36. *B. chola*, p. 317.

D. 3/8, A. 3/5, L. 1. 25. Wide suborbitals.  $3\frac{1}{2}$  scales between l. l. and ventral. A dark lateral blotch . . . . . 37. *B. parrah*, p. 317.

D. 4/8, A. 2/5, L. 1. 20. 2 scales between l. l. and ventral . . . . . 38. *B. burmanicus*, p. 318.

D. 2-3/8, A. 2/5, L. 1. 24-26.  $3\frac{1}{2}$  scales between l. l. and ventral. A black spot behind gill-opening, a second near base of caudal fin; a band on dorsal fin . . . . . 39. *B. tetrapagus*, p. 318.

D. 3-4/8, A. 3/5, L. 1. 24-25.  $2\frac{1}{2}$  scales between l. l. and ventral. A black spot at end of base of dorsal fin. . . . . 40. *B. dorsalis*, p. 319.

## c. Last undivided dorsal ray articulated, or if osseous very weak.

D. 3-4/8, A. 3/5, L. 1. 40-43. 4 to 5 scales between l. l. and ventral . . . . . 41. *B. kolus*, p. 319.

D. 2-3/8, A. 3/5, L. 1. 28.  $2\frac{1}{2}$  scales between l. l. and ventral. Body longitudinally banded . . . . . 42. *B. denisonii*, p. 320.

D. 2/8, A. 2/5. 3 scales between l. l. and ventral. A light band along the side; a deep black lateral blotch . . . . . 43. *B. melanostigma*, p. 320.

D. 2/8, A. 3/5, L. 1. 26.  $3\frac{1}{2}$  scales between l. l. and ventral . . . . . 44. *B. arenatus*, p. 321.

D. 2/7, A. 3/5, L. 1. 24.  $2\frac{1}{2}$  scales between l. l. and ventral. A black mark along base of dorsal. A dark lateral blotch sometimes present . . . . . 45. *B. puckeri*, p. 321.

D. 2-3/8, A. 2/5, L. 1. 23-24. 2 scales between l. l. and ventral. A dark lateral blotch sometimes present . . . . . 46. *B. amphibius*, p. 322.

D. 3/8, A. 2/5, L. 1. 23.  $2\frac{1}{2}$  scales between l. l. and ventral. Body vertically banded . . . . . 47. *B. arulius*, p. 322.

D. 3/8, A. 2/5, L. 1. 21.  $2\frac{1}{2}$  scales between l. l. and ventral. A deep lateral blotch . . . . . 48. *B. mahecola*, p. 323.

C. Without barbels. (*Puntius*.)

## a. Last undivided dorsal ray osseous, serrated.

D. 4/8, L. 1. 36, complete.  $5\frac{1}{2}$  scales between l. l. and ventral. Each scale with a dark base . . . . . 49. *B. apogon*, p. 324.

D. 3/8, L. 1. 36, incomplete. 6 scales



- between l. l. and ventral. A black lateral blotch, another at base of anterior dorsal rays ..... 50. *B. ambassia*, p. 324.
- D. 3/8, L. l. 26, incomplete.  $4\frac{1}{2}$  scales between l. l. and ventral. A black spot on side over anal fin ..... 51. *B. couchonius*, p. 325.
- D. 3/8, L. l. 23-26, incomplete. Two black spots, one at commencement of l. l., another at side of tail .... 52. *B. ticto*, p. 325.
- D. 2-3/8, L. l. 25, complete. Two black marks on lateral line ..... 53. *B. sto'iczkanus*, p. 326.
- D. 3/8, L. l. 23, complete. Two black spots, one below commencement of l. l., the other near its termination.. 54. *B. punctatus*, p. 326.
- D. 2-3/8, L. l. 23-24, incomplete. A black band over tail, a black spot across the bases of the first six dorsal rays, and another over base of anal . 55. *B. gelius*, p. 327.
- D. 2-3/8, L. l. 20-23, incomplete. Four vertical black bands on a brown body, and a dark one down the centre of the dorsal fin ..... 56. *B. phutunio*, p. 327.
- D. 3/8, A. 3/5, L. l. 21, incomplete. 3 scales between l. l. and ventral. Two dark vertical bands..... 57. *B. cunningii*, p. 328.
- D. 3/8, L. l. 20, complete. Three vertical black bands on body ..... 58. *B. nigrofasciatus*, p. 328.
- D. 2/8, L. l. incomplete ..... 59. *B. gujanio*, p. 328.
- b. Last undivided dorsal ray osseous, entire.
- D. 3/8, L. l. 23-26, complete. A dark mark near posterior extremity of l. l., another across base of middle dorsal rays ..... 60. *B. stigma*, p. 329.
- D. 3/8, L. l. 23-25, complete. Fins black-tipped ..... 61. *B. chrysopterus*, p. 329.
- D. 3/8, A. 3/5, L. 24, incomplete.  $3\frac{1}{2}$  scales between l. l. and ventral. A dark mark at side of base of tail . 62. *B. thermalis*, p. 330.
- D. 3/8, L. l. 22-23, incomplete. A black mark on side above anal, sometimes continued by a band to the caudal, a second indistinct one under posterior end of dorsal. .... 63. *B. terio*, p. 330.
- c. Last undivided dorsal ray articulated, or if osseous very weak.
- D. 3/8, L. l. 43, incomplete. A silvery band along side, a black spot at base of caudal, and two first dorsal rays black. 64. *B. punjabensis*, p. 331.
- D. 3/8, L. l. 24, incomplete. A black mark at base of each dorsal ray. .... 65. *B. unimaculatus*, p. 331.
- D. 2-3/8, A. 2/5, L. l. 23, incomplete. A lateral blotch ..... 66. *B. waagenii*, p. 332.
- D. 3/8, L. l. 22, incomplete. Uniform, a dark spot across middle of anterior dorsal rays ..... 67. *B. cosuatis*, p. 332.
- D. 2/8, L. l. 20-22, incomplete. Four black spots on side, and a black streak down dorsal fin ..... 68. *B. vittatus*, p. 333.





- D. 3/8, L. 1. 21, complete. Branched dorsal rays elongated. A black mark near posterior end of l. l., and each caudal lobe with a black extremity. 69. *B. filamentosus*, p. 333.  
D. 3/8, L. 1. 23, incomplete. A black band encircles the free portion of the tail. . . . . 70. *B. puntio*, p. 334.

A. With four barbels (*Barbodes*).

339. (1.) *Barbus chagunio*. (Fig. 103.)

*Cyprinus chagunio*, Ham. Buch. *Fish. Ganges*, pp. 295, 387.

*Barbus chagunio*, Day, *Fish. India*, p. 559, pl. cxxxvi, fig. 1 (variety *spilopholus*), and pl. cxi, fig. 2 (see synon.).

Jerruah, Beng.; *Chaguni*, Behar.; *Potee keintah*, Assam.

B. iii. D. 11 (3/8). P. 15. V. 9. A. 8 (3/5). C. 19.

L. l. 44-47. L. tr. 11/9.

Length of head  $4\frac{1}{2}$  to 5, height of body 4 to  $4\frac{1}{4}$  in the total length. *Eyes*—diameter 5 to  $6\frac{1}{2}$  in length of head, 2 to 3 diameters from end of snout,  $1\frac{1}{2}$  diameters apart. Suborbital region, cheeks, and anterior upper margin of the orbit usually covered with numerous pores. *Barbels*—both pairs rather longer than the orbit. *Fins*—dorsal commences midway between the end of the snout and the base of the caudal fin, its last undivided ray is osseous, strong, with coarse teeth: some of the last few anal rays in large specimens may be elongated (*B. spilophilus*), but more

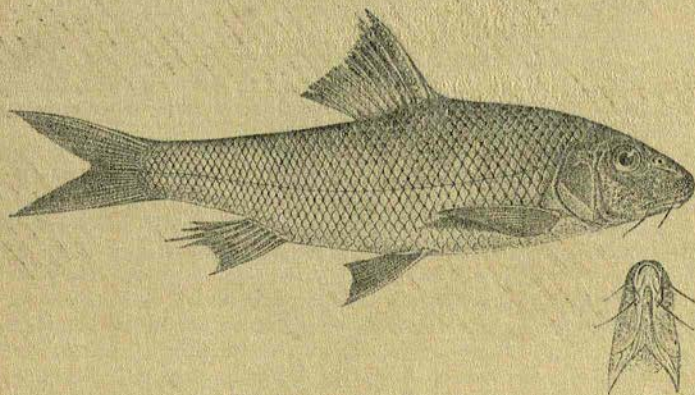


Fig. 103.—*Barbus chagunio*.

frequently are not so. *Lateral line*—complete, with from  $5\frac{1}{2}$  to  $6\frac{1}{2}$  rows of scales between it and the base of the ventral; 15 rows before the dorsal fin. Free portion of the tail as high as long. *Colour*—uniform silvery, with a pinkish tinge, the scales towards the back sometimes being darkest at their bases; fins reddish with light outer edges, the summit of the dorsal fin sometimes black. The young have a silvery band along the side.





*Hab.* From Orissa, throughout Bengal, Assam, Behar, and the N.W. Provinces to the Punjab, but not recorded from Sind, the Deccan, Western coast, Mysore, Madras, or Burma. This species attains at least 18 inches in length.

340. (2.) *Barbus clavatus*.

*Barbus clavatus*, McClelland, *Cal. Journ. N. H.* v, 1845, p. 280, pl. 21, fig. 2; *Day, Fish. India*, p. 560 (see synonym.).

B. iii. D. 11 (3/8). P. 16. V. 10. A. 8 (3/5). C. 19.  
L. l. 42. L. tr. 6/4.

Height of the body one fourth of the length excluding the caudal fin. *Eyes*—large and in the middle of the length of the head. Snout covered with small thorax tubercles. *Barbels*—two well-developed pairs. *Fins*—last undivided dorsal ray osseous, strong, serrated, and as long as the body is high. *Scales*—11½ rows in an oblique line from the base of the ventral to the dorsal. The figure shows 4½ rows between the lateral line and base of the ventral, which would give 6½ above the lateral line. *Colour*—blue superiorly, becoming white beneath: the fins pale bluish white.

*Hab.* A single specimen (7 inches long) was obtained from a river at the base of the Sikhim mountains in Bengal.

341. (3.) *Barbus sarana*.

*Cyprinus sarana*, *Ham. Buch. Fish. Ganges*, pp. 307, 388.

*Barbus saranaus*, *Day, Fish. India*, p. 560, pl. cxxvi, fig. 2 (see synonym.).

*Pangella*, Tam.; *Giddi-kaoli*, *Durkie and Potah*, Hind.; *Gid-pakke*, Can.; *Kannaku*, Tel.; *Sarana*, Oorish and Beng.; *Jundoori*, Punj.; *Kudali* and *Pilule*, Marathi; *Poppree* and *Kuh-nah-nee*, Sind.; *Sen-nee*, Assam; *Nga-khon-mah-gyee* and *Nga-chong*, Burmese.

B. iii. D. 11 (3/8). P. 15. V. 9. A. 8 (3/5). C. 19. L. l. 32–34.  
L. tr. 5½–6/6.

Length of head 5 to 5½, height of body 3½ to 3¾ in the total length. *Eyes*—diameter 4¼ to 4¾ in the length of head, 1 to 1½ diameters from the end of snout, and 2 diameters apart. No pores on the snout. *Barbels*—the rostral pair about as long as the orbit, the maxillary pair longer, sometimes equalling 1½ diameters of the orbit. *Fins*—dorsal commences slightly nearer to the snout than to the base of the caudal fin, and opposite the insertion of the ventral; its last undivided ray osseous, strong in the adult, finely serrated posteriorly, and with its stiff portion two thirds as long as the head, the fin is one half to two thirds as high as the body, with its upper edge concave. *Lateral line*—complete, from 3½ to 4 rows of scales between it and the base of the ventral fin: 10 to 11 rows before the dorsal fin. *Colour*—silvery, darkest superiorly, opercles shot with gold; the young have occasionally a dull blotch on the lateral line before the base of the caudal fin.





Mostly some dark spots behind the opercle. When the fish is fresh there are sometimes horizontal bands along the rows of scales in the upper half of the body. Fins whitish or yellowish white, and externally stained with grey.

*Hab.* Sind and the Punjab, throughout India, Assam, and Burma, in which latter country the caudal fin has sometimes a black upper and lower edge and a dark mark at the base of each scale. This fish attains at least a foot in length.

342. (4.) *Barbus chrysopoma*.

*Barbus chrysopoma*, Cuv. & Val. *H. N. Poiss.* xvi, p. 165, pl. 466;  
*Day, Fish. India*, p. 561 (see synonym.).

*Munduttee*, Mal.; *Pungela*, Tamil.

B. iii. D. 12 (4/8). P. 17. V. 9. A. 8 (3/5). C. 19. L. 1. 28-30.  
L. tr. 6/6.

Length of head  $4\frac{1}{2}$  to 5, height of body  $3\frac{2}{3}$  in the total length. *Eyes*—diameter  $3\frac{1}{4}$  to  $3\frac{1}{2}$  in the length of the head (in a specimen 2·6 inches in length the eye is at least  $2\frac{1}{4}$  in the length of the head), 1 diameter from the end of snout, and 1 to  $1\frac{1}{4}$  apart. *Barbels*—the rostral very thin, not so long as the eye; the maxillary as long as the orbit. *Fins*—dorsal commences midway between the front edge of the eye and the base of the caudal fin and opposite the insertion of the ventral; its last undivided ray osseous, of moderate strength, finely serrated posteriorly, and with its stiff portion as long as the head excluding the snout; the height of the fin is two thirds to three fourths that of the body below it, the upper edge concave. *Lateral line*—complete, and a little more concave than in the next species, whilst it is sometimes sinuous in the last part of its course; 4 rows of scales between it and the base of the ventral fin; 12 rows before the base of the dorsal fin. *Colour*—dark silvery, lightest beneath, opercles shot with purple and gold. A dark vertical band behind the opercles and a dull spot on the lateral line just anterior to the base of the caudal fin. Upper and lower margins of the caudal greyish; the other fins golden.

The eyes in this species are larger than in *B. sarana*, and not so far apart.

*Hab.* Fresh waters along the coasts of India from Cutch to Bengal, also the Deccan, Mysore, and Madras. I have likewise received this species from Darjeeling.

343. (5.) *Barbus pinnauratus*.

*Puntius pinnauratus*, *Day, Fish. Malabar*, p. 209, pl. xv, fig. 2.

*Barbus pinnauratus*, *Day, Fish. India*, p. 561, pl. cxxxix, fig. 3 (see synonym.).

B. iii. D. 11 (3/8). P. 17. V. 8. A. 7 (2/5). C. 19. L. 1. 29-30.  
L. tr.  $5\frac{1}{2}$ -6/6.

Length of head 5 to  $5\frac{1}{3}$ , height of body  $3\frac{1}{2}$  to  $3\frac{1}{2}$  in the total





length. *Eyes*—diameter  $3\frac{1}{2}$  in the length of head, nearly or quite 1 diameter from the end of snout, and  $1\frac{1}{2}$  to  $1\frac{3}{4}$  apart. Body compressed. *Barbels*—the maxillary pair are one half longer than the orbit, the rostral pair a little shorter. *Fins*—dorsal commences slightly in advance of the insertion of the ventral, and two thirds as high as the body, having its upper edge concave, its last undivided ray osseous (weak in the young, but strengthening with age), as long as the head excluding the snout, and posteriorly serrated. *Lateral line*—complete,  $3\frac{1}{2}$  or 4 rows of scales between it and the base of the ventral fin; 10 rows before the dorsal fin. *Colour*—silvery along the back and upper half of the body, becoming white shot with gold beneath; most of the scales with black bases. A dark band behind the opercles and a black blotch on the lateral line, commencing about the twenty-fourth scale. Opercles and fins orange, caudal with a black superior and inferior edge.

*Hab.* From fresh waters at Cocanada down the East coast of India to Ceylon, and inland as far as the Nilgiris, also along the Western ghats and rivers at their bases. The largest example obtained was  $10\frac{1}{2}$  inches in length.

#### 344. (6.) *Barbus pleurotænia*.

*Puntius* (*Barbodes*) *pleurotænia*, *Bleeker, Cobit. et Cypr. Ceylon, in Haarlem, Nat. Verh. Holland, Maatsch.* xx, 1864, p. 13, t. 3, fig. 2.  
*Barbus pleurotænia*, *Day, Fish. India*, p. 562 (see synon.).

B. iii. D. 11 (3/8). P. 14. V. 9. A. 8 (3/5). C. 19. L. 1. 27–29.  
L. tr.  $5\frac{1}{2}$ .

Length of head about  $5\frac{1}{4}$ , height of body 4 in the total length. *Eyes*—diameter two sevenths of length of head, 1 to  $1\frac{1}{4}$  diameters from end of snout, and slightly more apart. *Barbels*—both pairs somewhat longer than the orbit. *Fins*—dorsal commences over the ventral, and midway between the end of the snout and the base of the caudal; its last undivided ray is osseous, very strong, serrated posteriorly, and as long as the head, the upper margin of the fin concave; caudal forked. *Lateral line*—complete,  $2\frac{1}{2}$  rows of scales between it and the root of the ventral; 10 rows before the dorsal fin. *Colour*—a black band extends from the eye to the termination of the central caudal rays.

*Hab.* Ceylon.

#### 345. (7.) *Barbus goniosoma*.

*Puntius* (*Barbodes*) *goniosoma*, *Bleeker, Atl. Ich.* iii, p. 105, t. 31, fig. 1.  
*Barbus goniosoma*, *Day, Fish. India*, p. 562, pl. cxxxvii, fig. 2 (see synon.).

B. iii. D. 11 (3/8). P. 15. V. 8. A. 7 (2/5). C. 19. L. 1. 24.  
L. tr.  $4\frac{1}{2}/4\frac{1}{2}$ .

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





*Eyes*—diameter two sevenths of length of head, 1 diameter from end of snout, and  $1\frac{1}{4}$  apart. Body elevated to the base of dorsal fin, whilst it is strongly compressed. Rostral barbels extend to below the middle of the eye; maxillary to opposite the posterior margin of the orbit. *Fins*—origin of dorsal slightly posterior to the insertion of the ventrals; dorsal spine osseous, strong, as long as the head without the snout, and finely serrated posteriorly in its whole extent; the fin is one half as high as the body. Caudal forked, the lower lobe the longer. *Scales*— $2\frac{1}{2}$  rows between lateral line and base of ventral fin; 9 rows before dorsal. *Colour*—silvery, fins orange.

*Hab.* Mergui to Sumatra, growing to 6 inches in length.

346. (8.) *Barbus roseipinnis*.

*Barbus roseipinnis*, *Cuv. & Val. H. N. Poiss.* xvi, p. 169; *Day, Fish. India*, p. 562 (see synon.).

B. iii. D. 11 (3/8). A. 7 (2/5). C. 20. L. l. 22.

Dorsal profile elevated. *Eyes*—large. *Barbels*—four, thin and long. *Fins*—dorsal with its last undivided ray osseous, of moderate strength and serrated. *Colour*—silvery; ventral, anal, and caudal fins reddish, the lower border of the last tinged with black.

*Hab.* Pondicherry, whence M. Bélanger brought specimens  $4\frac{1}{2}$  inches in length.

347. (9.) *Barbus dubius*.

*Puntius* (*Barbodes*) *dubius*, *Day, P. Z. S.* 1867, p. 291.

*Barbus dubius*, *Day, Fish. India*, p. 562, pl. cxxxvii, fig. 1 (see synon.).

*Collec-arungean candee*, Tam.

B. iii. D. 13 (4/9). P. 17. V. 9. A. 7 (2/5). L. l. 42–45.  
L. tr. 9/8.

Length of head  $5\frac{1}{4}$ , height of body  $4\frac{1}{2}$  in the total length. *Eyes*—diameter  $4\frac{1}{2}$  in length of head,  $1\frac{1}{3}$  diameters apart, and also from end of snout. *Barbels*—rather short, the rostral pair being about equal to half the diameter of the orbit, whilst the maxillary are a little longer. Snout somewhat elevated. *Fins*—dorsal spine osseous, smooth, and strong; it is nearly as long as the head, the fin commences somewhat nearer to the end of the snout than to the base of the caudal, and a little in advance of the insertion of the ventral. *Lateral line*—complete,  $4\frac{1}{2}$  to 5 rows of scales between it and the base of the ventral fin; 14 rows before the dorsal fin. *Colour*—uniform silvery, with the bases of the scales darkest.

*Hab.* Bhavani river at the foot of the Nilgiris.



348. (10.) *Barbus micropogon*.

*Barbus micropogon*, *Cuv. & Val. H. N. Poiss.* xvi, p. 188; *Day Fish. India*, p. 563, pl. cxxvi, fig. 3, and pl. cxxviii, fig. 4 (see *synon.*).

*Coatee candee*, Tamil.

B. iii. D. 13 (4/9). P. 17. V. 10. A. 7-8 (2-3/5). C. 19.  
L. 1. 39-41. L. tr. 6-7/7.

Length of head  $4\frac{3}{4}$  to  $5\frac{1}{2}$ , height of body 4 to  $4\frac{1}{2}$  in the total length. *Eyes*—in the middle of the length of the head, diameter  $3\frac{1}{2}$  to  $4\frac{1}{2}$  in length of head,  $1\frac{1}{4}$  diameters apart and also from end of snout. Snout conically pointed, and adults have pores on the preorbital, and even all across the snout. Cleft of mouth extending about half the distance to below the anterior margin of the orbit. *Barbels*—the rostral extend to below the anterior third of the orbit, the maxillary to below its posterior margin. *Teeth*—pharyngeal, crooked, pointed, 4, 3,  $2\frac{1}{2}$ , 3, 4. *Fins*—dorsal commences slightly before insertion of ventrals, and midway between end of the snout and base of caudal fin; its osseous ray is strong, smooth, and somewhat compressed, the stiff portion being slightly longer than the head. Pectoral three fourths as long as the head. Caudal deeply forked. *Lateral line*—complete, but becomes lost in old specimens; 3 to  $3\frac{1}{2}$  rows of scales between it and the ventral fin; 15 rows anterior to the dorsal fin. *Colour*—cheeks golden, body with a greenish tinge superiorly, becoming white tinged with gold below the lateral line, the base of each scale somewhat the darkest. Fins darkest along their centres.

*Hab.* Rivers around the base of the Nilgiris, and Wynaad and South Canara range of hills, also Mysore, attaining a large size. Some were introduced by myself into the Ootacamund lake. The example figured in 'The Fishes of India,' on plate cxxvi (7.5 inches in length), was from the Wynaad; the specimen on plate cxxviii (life size) was from the Bhaváni.

349. (11.) *Barbus chilinooides*.

*Barbus cheilynooides*, *McClelland, As. Res.* xix, pt. 2, *Ind. Cyp.* pp. 271, 340, pl. 57, fig. 5.

*Barbus chilinooides*, *Day, Fish. India*, p. 563, pl. cxxix, fig. 5 (see *synon.*).

*Chit-rah-too*, Punj.

B. iii. D. 10-11 (3/7-8). P. 17. V. 9. A. 7 (2/5). C. 19.  
L. 1. 32-35. L. tr.  $5\frac{1}{2}/6$ .

Length of head 5, height of body  $5\frac{1}{2}$  in the total length. *Eyes*—diameter 4 to 5 in the length of head,  $1\frac{1}{4}$  diameters from end of snout, and 2 diameters apart. The snout overhangs the mouth. Some examples have a depression across the snout; numerous fine glands over the cheeks and opercles; lips moderately thick, the lower without a lobe, but with a continuous transverse fold.





*Barbels*—the rostral and maxillary pairs of about the same length, equal to  $1\frac{1}{2}$  diameters of the orbit. *Fins*—dorsal commences about midway between end of snout and base of caudal fin; its last undivided ray is osseous, very strong, entire, the stiff portion being about three fifths of the length of the head. Anal laid flat reaches the base of the caudal, which is deeply forked. *Lateral line*—complete; there are 3 rows of scales between it and the base of the caudal fin. *Colour*—golden above, becoming silvery beneath, the margins of the scales with numerous fine black dots; a black mark behind the opercle. Fins reddish.

*Hab.* Himalayas, as far to the east as Assam; also found in the Ganges. This fish attains  $2\frac{1}{2}$  feet in length.

### 350. (12.) *Barbus carnaticus*.

*Barbus carnaticus*, Jerdon, *Mad. Jour. L. S.* xv, 1849, p. 311; Day, *Fish. India*, p. 563, pl. cxxxvii, fig. 3 (see synon.).

*Pooree candee*, *Saal candee*, *Shellee*, Tamil; *Giddi-kaoli*, Hind.; *Gid-pakke*, Can.

B. iii. D. 12 (4/8). P. 15. V. 9. A. 7 (2/5). C. 19. L. 1. 32.  
L. tr. 5/6.

Length of head  $5\frac{1}{2}$ , height of body 3 to 4 in total length. *Eyes*—diameter 3 to 4 in length of head, 1 diameter from end of snout, and  $1\frac{1}{2}$  to 2 apart. *Teeth*—pharyngeal, pointed, curved, 5, 3, 2/2, 3, 5. *Barbels*—thin, both pairs shorter than the eye. *Fins*—the dorsal three fourths as high as the body, with a concave upper edge; it commences in front of the insertion of the ventral, and midway between the snout and the base of the caudal fin; its last undivided ray is a strong, broad, smooth spine, nearly as long as the head in the immature, and sometimes longer in the adult, especially in specimens from Canara. Pectoral as long as the head or rather longer. Anal laid flat reaches the caudal. *Lateral line*—complete,  $3\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 12 rows anterior to the dorsal fin. *Colour*—greenish brown along the back, becoming dull white glossed with gold on the sides and beneath. Fins greyish. Eyes golden.

*Hab.* Rivers along the bases of the Nilgiris, Wynnad, and South Canara hills, attaining at least 25 lbs. in weight. Some have been introduced into the Ootacamund lake.

### 351. (13.) *Barbus hexagonolepis*.

*Barbus hexagonolepis*, McClelland, *As. Res.* xix, pt. 2, *Ind. Cyp.* pp. 270, 336, pl. 41, fig. 3; Day, *Fish. India*, p. 564, pl. cxxxvii, fig. 4 (see synon.).

*Bokar* and *Boo-pah*, Assam.

B. iii. D. 32 (3/9). P. 17. V. 9. A. 7 (2/5). C. 19.  
L. 1. 28–31. L. tr.  $4\frac{1}{2}/4\frac{1}{2}$ .





Length of head 5 to  $5\frac{1}{2}$ , height of body 5 to  $5\frac{1}{2}$  in the total length. *Eyes*—diameter 5 to 6 in the length of the head,  $1\frac{1}{2}$  to 2 diameters from the end of the snout, and  $2\frac{1}{2}$  apart. Lower labial fold interrupted. Sometimes pores on the cheeks. *Barbels*—the maxillary reach nearly to below the hind edge of the preopercle, the rostral are shorter. *Fins*—dorsal two thirds as high as the body, it commences somewhat in front of the insertion of the ventral; its last undivided ray is strong, osseous, smooth, with its stiff portion as long as the head excluding the snout. Pectoral as long as the head excluding the snout, and not reaching the ventral. Anal laid flat does not extend to the base of the caudal, which is deeply forked. *Lateral line*—complete, 2 to  $2\frac{1}{2}$  rows of scales between it and the ventral; 10 to 11 rows before the dorsal. Exposed portion of scales somewhat hexagonal. *Colour*—deep bluish grey, fins darker.

*Hab.* Assam in the larger rivers, and in those from the Himalayas. This fish attains upwards of 2 feet in length, and takes a fly or bait freely. McClelland considered *Cyprinus putitora*, Ham. Buch., a variety of this species; it is said to attain 9 feet in length.

### 352. (14.) *Barbus dukai*.

*Barbus dukai*, Day, *Fish. India*, p. 564, pl. cxliii, fig. 3.

B. iii. D. 13 (4/9). P. 15. V. 9. A. 7 (2/5). C. 19.

L. l. 28–29. L. tr.  $4\frac{1}{4}$ .

Length of head  $4\frac{3}{4}$  to 5, height of body  $4\frac{1}{4}$  to 5 in the total length. *Eyes*—diameter  $3\frac{2}{3}$  to 4 in the length of the head,  $1\frac{1}{4}$  diameters from the end of snout and  $1\frac{1}{2}$  apart. Sides of snout and area below the eye with large open tubercles. *Barbels*—the rostral pair are slightly longer than the orbit, the maxillary almost reach the angle of the preopercle. *Fins*—the dorsal commences a little in advance of the insertion of the ventral; its last undivided ray is strong, osseous, with its stiff portion as long as the head excluding the snout; the fin is three fourths as high as the body below it, having its upper edge very concave. *Lateral line*—complete,  $2\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 9 rows before the dorsal fin. The scales covered with numerous horizontal striae. *Colour*—of a leaden tinge along the upper portion of the body, becoming dull white shot with gold on the sides and beneath, edges of scales darkest. Fins yellow, with a dark band having a lighter outer edge along the upper and lower edge of the caudal fin.

*Hab.* Teesta river, Darjeeling, whence Dr. Duka sent me several examples.



353. (15.) *Barbus tor*. (Fig. 104.)

*Cyprinus tor*, *Ham. Buch. Fish. Ganges*, p. 305.

*Barbus tor*, *Day, Fish. India*, p. 564, pl. cxxxvi, fig. 5, and pl. cxl, fig. 1 (see synon.).

*Burapatra*, Assam; *Poo-meen-candee*, Tam.; *Naharn*, Hind.; *Kukhiah*, Punj.; *Joon-gah*, *Petiah*, and *Kurreah*, Sind; *Khadchi* and *Masta*, Marathi; *Cooriah*, *Layl-cooriah* or *Lela*, Ceylon.

B. iii. D. 12 (3/9). P. 19. A. 7-8 (2-3/5). L. l. 25-27.  
L. tr. 4/4.

Length of head 4 to 5, height of body  $4\frac{1}{2}$  to  $5\frac{1}{2}$  in the total length. *Eyes*—diameter  $6\frac{1}{4}$  to  $7\frac{1}{2}$  in the length of the head in moderately sized specimens, but much larger in the young (in specimens 3.5 inches long being  $3\frac{1}{2}$  in the length of the head; in those 5 inches long  $4\frac{1}{2}$ ), 2 to  $2\frac{1}{4}$  diameters from the end of snout, and 2 apart. Lips thick, with an uninterrupted fold across the lower jaw, and with both the upper and lower lips in some specimens produced in the mesial line. *Barbels*—the maxillary pair

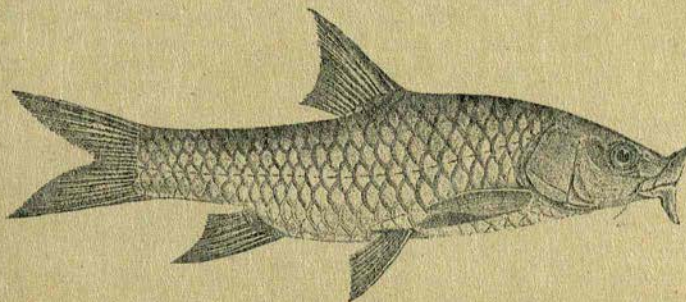


Fig. 104.—*Barbus tor*.

longer than the rostral, and extending to below the last third of the eye. *Fins*—the dorsal arises opposite the ventral, and is three fourths as high as the body; its last undivided ray is smooth, osseous, strong, and of varying length and thickness. Himalayan, Bengal, and Central Indian specimens generally have the spine strong, and from one half to two thirds the length of the head, it rarely exceeds this extent. In Canara, Malabar, and Southern India, where the lips are largely developed, the spine is very much stronger and as long as the head excluding the snout. Pectoral as long as the head excluding the snout; it reaches the ventral, which is little shorter. Anal laid flat does not reach the base of the caudal, which is deeply forked. *Lateral line*—complete, 2 to  $2\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 9 rows before the dorsal. *Colour*—silvery or greenish along the upper half of the body, becoming silvery shot with gold on the sides and beneath. Lower fins reddish yellow.





This fish is the celebrated "Maha seer" (or Mahseer) of sportsmen in India. The various large barbels in Assam are termed "*Petiah*," with a specific name prefixed to denote the species alluded to.

*Hab.* Generally throughout India, but found of the largest size and in the greatest abundance in mountain-streams or those which are rocky; also found in Ceylon.

354. (16.) *Barbus hexastichus*.

*Barbus hexastichus*, McClelland, *As. Res.* xix, pt. 2; *Ind. Cyp.* pp. 269, 333, pl. 39, fig. 2; *Day, Fish. India*, p. 565, pl. cxxxvi, fig. 4 (see synonym.).

*Lohura*, Assam.

B. iii. D. 12-13 (3-4/9). P. 17. V. 9. A. 7 (2/5). C. 19.  
L. l. 25-26. L. tr. 4/5.

Length of head 5 to 6, height of body  $4\frac{1}{2}$  to 5 in the total length. *Eyes*—diameter one fifth of length of head,  $1\frac{1}{2}$  diameters from end of snout, 2 diameters apart. Lips moderately thick, the lower one without or with a badly developed lobe, but having a shallow and continuous transverse fold. Sometimes pores on the cheeks. *Barbels*—longer than the eye. *Fins*—dorsal fin with its osseous ray strong, smooth, and from half as long as the head to as long as the head without the snout, it commences somewhat nearer the snout than the base of the caudal, the latter being deeply forked, with the lower lobe the longer. Pectoral as long as the head excluding the snout. *Lateral line*—complete, 2 to  $2\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 10 rows before the dorsal fin. *Colour*—brownish, tinged with green along the upper edge of the body, becoming dull white shot with yellow on the sides and below; caudal and anal reddish. The fry have a black spot before the base of the caudal fin.

*Hab.* Rivers on and around Himalayas, Kashmir, Sikkim, and Assam; growing to 3 feet in length. Specimens from the plains appear to have the head comparatively longer than those from the hills.

355. (17.) *Barbus bovanicus*.

*Barbus bovanicus*, *Day, Fish. India*, p. 566, pl. cxxxviii, fig. 1.

B. iii. D. 12 (3/9). P. 17. V. 9. A. 8 (3/5). C. 19.  
L. l. 24-26. L. tr.  $4\frac{1}{2}/4\frac{1}{2}$ .

Length of head  $4\frac{2}{3}$ , height of body  $3\frac{2}{3}$  in the total length. *Eyes*—diameter  $3\frac{2}{3}$  in the length of the head, 1 to  $1\frac{1}{4}$  diameters from the end of snout, and  $1\frac{1}{3}$  apart. Dorsal profile somewhat more convex than that of the abdomen. Lower labial fold in the adult complete, with a moderately developed median lobe, which is not apparent in the young. *Barbels*—rostral pair extend to beneath the first third of the eye, the maxillary pair to the posterior edge of the preopercle. *Fins*—dorsal two thirds as high as the





body, with a concave upper edge, it commences in front of the ventrals; its last undivided ray is osseous, of moderate strength, its stiff portion being as long as the head excluding the snout. Pectoral as long as the head posterior to the nostrils and longer than the ventral. Anal laid flat reaches the caudal. *Lateral line*—complete,  $2\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 10 rows before the dorsal fin. *Colour*—greenish, with a golden tinge, darkest along the back.

*Hab.* Bhavani (Bowany) river, at base of Nilgiri hills in Madras. The largest specimen obtained was 5 inches in length.

356. (18.) *Barbus sophore*.

*Cyprinus sophore*, *Ham. Buch. Fish. Ganges*, pp. 310, 389 (part), (pl. 19, fig. 86 is not the same species).

*Barbus sophore*, *Day, Fish. India*, p. 566, pl. cxliii, fig. 4 (see *synon.*).

B. iii. D. 12 (3/9). P. 15. V. 9. A. 7 (2/5).  
L. l. 25. L. tr.  $3\frac{1}{2}/4\frac{1}{2}$ .

Length of head  $4\frac{1}{2}$ , height of body  $3\frac{1}{2}$  in the total length. *Eyes*—3 to  $3\frac{1}{4}$  in the length of the head, nearly 1 diameter from end of snout, and also apart. *Barbels*—long and thin, the maxillary pair one half longer than the eye; the rostral pair slightly shorter. *Fins*—dorsal ray weak, osseous, entire, and as long as the head without the snout; the fin arises slightly before the ventral, and midway between the end of the snout and the root of the caudal. *Lateral line*—complete,  $2\frac{1}{2}$  rows between it and the base of the ventral; 9 rows before the dorsal fin. *Scales*—with numerous longitudinal striæ. *Colour*—silvery, with a lateral blotch.

*Hab.* Assam and Khasi hills.

357. (19.) *Barbus stracheyi*.

*Barbus (Barbodes) stracheyi*, *Day, J. A. S. B.* xl, 1871, p. 307.

*Barbus stracheyi*, *Day, Fish. India*, p. 566, pl. cxxxix, fig. 4 (see *synon.*).

B. iii. D. 11 (2/9). P. 17. V. 9. A. 7 (2/5). C. 17.  
L. l. 23. L. tr.  $3\frac{1}{2}/5$ .

Length of head  $4\frac{1}{2}$ , height of body  $4\frac{1}{2}$  in the total length. *Eyes*—diameter 5 in length of head,  $1\frac{1}{2}$  diameters from end of snout,  $2\frac{1}{2}$  diameters apart. Mouth without enlarged lips; lower labial fold interrupted. *Barbels*—long, the rostral pair reaching to below the centre of the orbit, and the maxillary pair to beneath its posterior margin. *Fins*—dorsal osseous ray strong, smooth, and as long as the head without the snout, the fin commences midway between the end of the snout and the base of the caudal fin. *Lateral line*—complete,  $2\frac{1}{2}$  rows of scales between it and the base of the ventral fins. *Colour*—uniform silvery.

*Hab.* Akyab and Moulmein.



358. (20.) *Barbus curmuca*.

*Cyprinus curmuca*, *Buchanan's Journey in Mysore*, iii, p. 344, pl. xxx.  
*Barbus curmuca*, *Day, Fish. India*, p. 566, pl. cxli, fig. 1 (see synon.).

B. iii. D. 12 (3/9). P. 16. V. 9. A. 8 (3/5). C. 18.  
L. 1. 41. L. tr. 8/7.

Length of head 5, height of body 5 in the total length. *Eyes*—diameter  $4\frac{1}{2}$  in the length of the head,  $1\frac{1}{2}$  diameters from the end of the snout, and also apart. Snout conical, head compressed, interorbital space transversely concave. Dorsal profile more convex than that of the abdomen. In adults there is a band of open pores from the preorbital along the cheek. *Barbels*—two maxillary pairs, the lower as long as the eye, the upper half as long. *Fins*—dorsal as high as the body, its upper edge concave, it arises in front of the insertion of the ventral, its last undivided ray weak and articulated. *Lateral line*—complete,  $3\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 10 rows anterior to the dorsal fin. Caudal deeply forked, its lobes pointed. *Colour*—silvery, lightest on the sides and beneath; tips of the caudal blackish. In the young the middle third of the caudal is orange, and it is tipped with black.

*Hab.* Western Ghats of India; attaining to at least 4 feet in length.

359. (21.) *Barbus lithopidos*.

*Barbus (Barbodes) lithopidos*, *Day, P. Z. S.* 1873, p. 708.

*Barbus lithopidos*, *Day, Fish. India*, p. 567, pl. cxxxviii, fig. 2.

*Kuri meen*, Canarese.

B. iii. D. 12 (3/9). P. 15. V. 10. A. 8 (3/5). C. 19.  
L. 1. 38-39. L. tr. 7/7.

Length of head  $5\frac{3}{4}$  to  $6\frac{1}{2}$ , height of body  $4\frac{3}{4}$  in the total length. *Eyes*— $3\frac{3}{4}$  to  $4\frac{1}{2}$  diameters in length of head, 1 to  $1\frac{1}{2}$  diameters from end of snout, and  $1\frac{1}{2}$  apart. Body compressed, dorsal and abdominal profiles equally and moderately convex. Lower labial fold interrupted; a thin cartilaginous covering internally to either jaw. Large examples have pores on the preorbital. *Barbels*—both pairs thin, and about as long as the orbit. *Fins*—dorsal high in front, equalling the height of the body, its upper edge concave, its origin anterior to the insertion of the ventral, its last undivided ray weak and articulated. Pectoral and ventral of equal length, and as long as the head. Caudal very deeply forked. *Lateral line*—complete, 4 rows of scales between it and base of ventral fin; 14 rows before the dorsal. Free portion of the tail as high at its base as it is long. *Colour*—slaty, as are the fins, having their outer rays whitish. Pectoral yellowish, tail greenish. Adults are more yellow, with a grey band behind the opercle, and some of the scales scarlet.

*Hab.* South Canara, where it is not uncommon in the rivers, and attains 2 feet in length.



360. (22.) *Barbus thomassi*.

*Barbus* (*Barbodes*) *thomassi*, Day, *P. Z. S.* 1873, p. 707.

*Barbus thomassi*, Day, *Fish. India*, p. 567, pl. cxxxvii, fig. 5 (see synon.).

*Kem-pu-per-ru-ucul*, Canarese (Red Mahaseer).

B. iii. D. 12-13 (3-4/9). P. 17. V. 10. A. 8 (3/5). C. 19.  
L. 1. 31-34. L. tr. 6/6.

Length of head  $5\frac{3}{4}$  to  $6\frac{1}{2}$ , height of body 4 to  $4\frac{1}{2}$  in the total length. *Eyes*—high up, diameter  $3\frac{3}{4}$  to 4 in length of head,  $1\frac{1}{2}$  diameters from end of snout, and also apart. Dorsal profile about equally convex with that of the abdomen. Lower labial fold interrupted. *Barbels*—thin, the maxillary not so long as the eye, the rostral pair shorter. *Fins*—dorsal high anteriorly, equalling the height of the body; its origin is anterior to the insertion of the ventral; its upper edge very concave, and its last undivided ray weak and articulated. Pectoral and ventral of equal length, and four fifths as long as the head; caudal deeply forked, the upper lobe the longer. *Lateral line*—complete,  $2\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 12 rows anterior to the dorsal. *Colour*—silvery along the back, each scale with a red lunule; dorsal and caudal fins lake-colour, the last being usually edged with black. Ventral and anal also lake-colour, stained with greyish-black. Most of the scales with a dark base.

*Hab.* South Canara; attaining at least  $3\frac{1}{2}$  feet in length.

361. (23.) *Barbus spinulosus*.

*Barbus spinulosus*, McClelland, *Cal. Journ. N. H.*, v, p. 280, pl. 21, fig. 3; Day, *Fish. India*, p. 567 (see synon.).

B. iii. D. 12 (3/9). P. 15. V. 9. A. 10 (3/7). C. 19. L. 1. 32.

Length of head 5, height of body  $4\frac{1}{2}$  in the total length. Back a little elevated. *Eyes*—before the middle of the length of the head. Dorsal profile but slightly arched. Snout short. *Fins*—dorsal without osseous ray, commencing midway between the end of the snout and the base of the caudal. *Colour*—greenish above, white below; fins pale.

*Hab.* Sikhim, whence a single specimen, 7 inches long, was obtained by McClelland.

362. (24.) *Barbus pulchellus*.

*Barbus* (*Barbodes*) *pulchellus*, Day, *P. Z. S.* 1870, p. 372.

*Barbus pulchellus*, Day, *Fish. India*, p. 568, pl. cxl, fig. 3 (see synon.).

*Khattadi*, Canarese; *Tadu*, Mal.; *Khudia*, Maráthi.

B. iii. D. 12 (3/9). P. 17. V. 9. A. 7 (2/5). C. 19.

L. 1. 30-32. L. tr. 5-6/5 $\frac{1}{2}$ .

Length of head 6 to  $6\frac{1}{2}$ , height of body 4 to  $4\frac{1}{2}$  in the total length. *Eyes*—diameter  $3\frac{1}{2}$  in length of head,  $1\frac{1}{4}$  diameters from the end of the snout, and  $1\frac{3}{4}$  apart. Pores on the snout. *Barbels*—four, the maxillary pair being the longest, equalling one third of





the length of the head. *Teeth*—pharyngeal, crooked, pointed, 4, 3, 2/2, 3, 4. *Fins*—dorsal arises slightly before the ventral; its upper border is concave, it is two thirds the height of the body, having its last undivided ray weak, smooth, and articulated. Caudal deeply forked. *Scales*— $3\frac{1}{2}$  rows between the lateral line and the base of the ventral fin. *Colour*—all the scales above a line going direct from the eye to centre of the caudal fin are deep grey, with dark bases; below all are silvery grey; fins with dark edges.

*Hab.* South Canara, frequenting the inland streams, attaining at least  $17\frac{1}{2}$  inches in length.

363. (25.) *Barbus dobsoni*.

*Barbus* (*Barbodes*) *dobsoni*, *Day, Jour. L. S., Zool.* xii, 1876, p. 574.

*Barbus dobsoni*, *Day, Fish. India*, p. 568, pl. cxxxix, fig. 6.

B. iii. D. 12–13 (3–4/9). P. 14. V. 9. A. 8 (3/5). C. 19.  
L. l. 30–32. L. tr.  $5\frac{1}{2}$ – $6\frac{1}{2}$ .

Length of head 6, height of body  $3\frac{1}{4}$  to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $3\frac{1}{4}$  in the length of the head, nearly 1 diameter from end of snout, and  $1\frac{1}{2}$  apart. Snout a little obtuse. Mouth narrow. Lower labial fold interrupted. *Barbels*—thin, the maxillary as long as the eye, the rostral somewhat shorter. *Teeth*—pharyngeal, crooked and pointed, 5, 3, 2/2, 3, 5. *Fins*—dorsal commences somewhat in advance of the insertion of the ventral; it is about two thirds as high as the body, its last undivided ray articulated and smooth. Pectoral as long as the head. *Lateral line*—complete,  $3\frac{1}{2}$  rows of scales between it and the ventral fin; 12 rows anterior to the dorsal. *Colour*—bluish above, becoming lighter on the sides and beneath; fins edged with grey, upper corner of dorsal and ends of caudal blackish.

*Hab.* Deccan.

364. (26.) *Barbus jerdoni*.

*Barbus* (*Barbodes*) *jerdoni*, *Day, P. Z. S.* 1870, p. 372.

*Barbus jerdoni*, *Day, Fish. India*, p. 568, pl. cxxxviii, fig. 5.

*Say-meen*, Can.; *Cha-meen*, Tel.; *Ta-meen*, Mal.

B. iii. D. 12 (3/9). P. 15. V. 9. A. 8 (3/5). C. 19.  
L. l. 27–28. L. tr. 6/4.

Length of head 5 to  $5\frac{1}{4}$ , height of body 4 in the total length. *Eyes*—diameter 3 to  $3\frac{1}{2}$  in length of head, 1 to  $1\frac{1}{2}$  diameters from end of snout, and  $1\frac{1}{2}$  apart. A considerable rise to the commencement of the dorsal fin. Mouth narrow. Lower labial fold interrupted. *Barbels*—thin, the maxillary as long as the orbit, the rostral slightly shorter. *Fins*—last undivided dorsal ray articulated, weak and not enlarged; the fin, which is four fifths as high as the body below it, commences midway between the snout and the base of the caudal. Pectoral as long as the head and nearly reaching the ventral, which is of the same length.





Anal laid flat reaches somewhat beyond the root of the caudal fin, which is deeply forked. *Lateral line*—complete, rather concave:  $2\frac{1}{2}$  to  $3\frac{1}{2}$  rows of scales between it and the base of the ventral; 12 rows before the dorsal fin. *Colour*—silvery; the fins have an orange tint, tipped with black.

*Hab.* Rivers in Canara below the Ghats, attaining at least 18 inches in length.

365. (27.) *Barbus wynaadensis*.

*Barbus* (*Barbodes*) *wynaadensis*, *Day, Jour. L. S., Zool.* xi, 1873, p. 528.

*Barbus wynaadensis*, *Day, Fish. India*, p. 568, pl. cxxxviii, fig. 3, and pl. cxxxix, fig. 2.

B. iii. D. 13 (4/9). P. 17. V. 9. A. 8 (3/5). C. 19.

L. l. 26-28. L. tr. 4/6.

Length of head  $4\frac{3}{4}$  to 5, height of body  $4\frac{1}{4}$  to 5 in the total length. *Eyes*—diameter 5 in length of head,  $1\frac{1}{2}$  to 2 diameters from end of snout, and  $1\frac{1}{2}$  apart. Snout conical. Lower labial fold interrupted. *Barbels*—the maxillary pair as long as the orbit or longer, the rostral one fourth shorter. *Fins*—the dorsal two thirds as high as the body, its origin a little anterior to the insertion of the ventral; its last undivided ray weak, osseous, with an articulated extremity. *Lateral line*—complete,  $2\frac{1}{2}$  to 3 rows of scales between it and the base of the ventral fin: 10 rows before the dorsal fin. *Colour*—leadensilvery along the back, with a dark band running from behind the eye to the middle of the base of the caudal fin, where it sometimes ends in a round black blotch. Abdomen of a light orange colour. Fins stained with grey at their edges.

*Hab.* Vithry in the Wynaad, where it is common in the larger streams, attaining at least 8 inches in length.

366. (28.) *Barbus stevensonii*.

*Barbus* (*Barbodes*) *stevensonii*, *Day, P. Z. S.* 1870, p. 100.

*Barbus stevensonii*, *Day, Fish. India*, p. 560, pl. cxxxv, fig. 6.

B. iii. D. 12 (3/9). P. 17. V. 9. A. 8 (3/5). C. 19. L. l. 27.

L. tr.  $4\frac{1}{2}$ /5.

Length of head  $4\frac{1}{2}$ , height of body  $4\frac{1}{2}$  in the total length. *Eyes*—diameter two sevenths of length of head, 1 diameter from end of snout and apart. Body elongated and compressed. Lower labial fold interrupted. *Barbels*—the maxillary extend to below the posterior extremity of the orbit; the rostral are shorter. *Fins*—dorsal with a smooth, weak, osseous ray, as long as the head excluding the snout; its height is rather less than that of the body, and it arises slightly in advance of the ventrals. *Lateral line*—complete,  $2\frac{1}{2}$  rows of scales between it and the base of the ventral fin, and 9 before the dorsal fin. *Colour*—silvery, upper portion of body darker; numerous black specks along the side; a black spot at the base of the caudal, and a dark band along the dorsal fin.

*Hab.* Hills near Akyab.



367. (29.) *Barbus neilli*.

*Barbus neilli*, Day, P. Z. S. 1868, p. 581; and *Fish. India*, p. 569, pl. cxl, fig. 4 (see synonym.).

B. iii. D. 13 (4/9). P. 15. V. 10. A. 8 (3/5). C. 19. L. 1. 24–26.  
L. tr.  $4\frac{1}{2}/4$ .

Length of head  $4\frac{1}{2}$  to 5, height of body  $3\frac{1}{2}$  to 4 in the total length. *Eyes*—diameter  $4\frac{1}{2}$  to 5 in length of head,  $1\frac{1}{2}$  diameters from end of snout and also apart. Dorsal and abdominal profiles about equally convex. Snout conical. Lower labial fold continuous. *Barbels*—the rostral pair reach the front edge of the eye, the maxillary pair equal  $1\frac{1}{2}$  diameters of the orbit. *Teeth*—pharyngeal, curved, 5, 3, 2/2, 3, 5. *Fins*—origin of dorsal anterior to the insertion of the ventral; the fin is two thirds as high as the body, its upper edge concave, its last undivided ray osseous, entire, and very weak. Pectoral as long as the head excluding the snout, and longer than the ventral. Anal laid flat reaches the base of the caudal, which is forked. *Lateral line*—complete,  $3\frac{1}{2}$  rows of scales between it and the ventral fin; 9 rows anterior to the dorsal. *Colour*—silvery above the lateral line, with a tinge of yellow below it. Fins with a bluish tinge in some specimens, reddish in others. The young have a dark spot at the base of the caudal fin. Eyes golden.

*Hab.* Kurnool on the Tungabhadra river. The largest specimen seen by myself was 38 lbs. in weight, but this species is said to attain to 50 or 60 lbs.

368. (30.) *Barbus malabaricus*.

*Barbus malabaricus*, Jerdon, *Mad. Jour. L. S.* xv, 1849, p. 312; Day, *Fish. India*, p. 569, pl. cxxxviii, fig. 6.

B. iii. D. 12–13 (3–4/9). P. 17. V. 9. A. 8 (3/5). C. 19.  
L. 1. 24. L. tr.  $4/4$ .

Length of head  $4\frac{2}{3}$  to 5, height of body  $4\frac{1}{2}$  to  $4\frac{3}{4}$  in the total length. *Eyes*—diameter 5 in length of head,  $1\frac{2}{3}$  diameters from end of snout, and 2 apart. Dorsal and abdominal profiles about equally and moderately convex; lower labial fold complete, and with a median lobe. *Barbels*—the maxillary pair reach to below hind edge of eye; the rostral pair are shorter. *Fins*—dorsal two thirds as high as the body; its origin is anterior to the insertion of the ventral; its upper edge concave, its last undivided ray osseous, weak, with its bony portion equalling the postorbital length of the head. *Lateral line*—complete,  $1\frac{1}{2}$  rows of scales between it and the ventral fin; 9 rows anterior to the dorsal. *Colour*—bluish, becoming white on the abdomen. Fins usually blue. Eyes red. Sometimes the fish is brown; and the dorsal, pectoral, and ventral red; or the front edge of the dorsal and anal and upper and lower borders of the caudal may be dark.

*Hab.* From South Canara down the Western Ghats to the Travancore hills; attaining at least 18 inches in length.



369. (31.) *Barbus innominatus*.

*Barbus* (*Barbodes*) *innominatus*, Day, P. Z. S. 1869, p. 556.

*Barbus innominatus*, Day, *Fish. India*, p. 570 (see synon.).

B. iii. D. 12 (3/9). P. 15. V. 9. A. 7 (2/5). C. 17. L. 1. 24.  
L. tr.  $4\frac{1}{2}/4\frac{1}{2}$ .

Length of head  $3\frac{1}{2}$ , height of body  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $3\frac{1}{2}$  in length of head, 1 diameter from end of snout and also apart. *Barbels*—the rostral nearly reach the orbit, the maxillary pair are shorter. *Fins*—dorsal commences midway between the snout and the base of the caudal; its last undivided ray osseous, weak, and entire. Caudal forked. *Scales*—3 rows between lateral line and base of ventral fin. *Colour*—a black spot at the base of the caudal fin; none now apparent on the dorsal.

*Hab.* Ceylon, whence Mr. Blyth received specimens up to 1.1 inches in length.

370. (32.) *Barbus compressus*.

*Barbus* (*Barbodes*) *compressus*, Day, P. Z. S. 1869, p. 555.

*Barbus compressus*, Day, *Fish. India*, p. 570.

B. iii. D. 12 (3/9). P. 15. V. 9. A. 8 (3/5). C. 17. L. 1. 22.  
L. tr. 4/5.

Length of head 5, height of body 4 in the total length. *Eyes*—diameter two ninths of length of head,  $1\frac{1}{2}$  diameters from end of snout, and also apart. Head much compressed: the whole of the cheeks covered with pores. *Barbels*—the rostral reaches to beneath the centre of the orbit, the maxillary to the angle of the preopercle. *Fins*—dorsal half as high as the body; it arises midway between the snout and the base of the caudal, commencing slightly in advance of the ventrals; its last undivided ray is osseous, not enlarged, and entire. Upper caudal lobe the longer. *Lateral line*—complete,  $3\frac{1}{2}$  rows of scales between it and the base of the ventral fin. *Colour*—silvery, fins stained darker.

*Hab.* The native country of the type specimen is uncertain, but the fish was found in a bottle in the Calcutta Museum with an *Oreinus* labelled as from Kashmir.

371. (33.) *Barbus blythii*.

*Barbus* (*Barbodes*) *blythii*, Day, P. Z. S. 1869, p. 555.

*Barbus blythii*, Day, *Fish. India*, p. 570 (see synon.).

B. iii. D. 12 (3/9). P. 15. V. 9. A. 8 (3/5). C. 17. L. 1. 22.  
L. tr. 4/5.

Length of head 4, height of body  $3\frac{1}{2}$  in the total length. *Eyes*—diameter two fifths of length of head, three fourths of a diameter from the end of snout, and also apart. Preorbital covered with pores. *Barbels*—well developed, the rostral reaching the eye, and the maxillary to below the centre of the orbit.





*Fins*—dorsal arises midway between the snout and the base of the caudal, its last undivided ray articulated: it commences slightly in advance of the ventrals. Caudal deeply forked. *Lateral line*—complete,  $2\frac{1}{2}$  rows between it and the base of the ventral fin. *Colour*—uniform silvery in spirit.

*Hab.* Tenasserim provinces. Specimen 2 inches long.

372. (34.) *Barbus melanampyx*.

*Labeo melanampyx*, Day, P. Z. S. 1865, p. 298.

*Barbus melanampyx*, Day, Fish. India, p. 570, pl. cxxxix, fig. 1 (see synon.).

B. iii. D. 11 (3/8). P. 15. V. 8. A. 7 (2/5). C. 15. L. 1. 20.  
L. tr.  $3\frac{1}{2}/3\frac{1}{2}$ .

Length of head  $4\frac{1}{2}$ , height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter 3 to  $3\frac{1}{2}$  in the length of head, from  $\frac{3}{4}$  to 1 diameter from end of snout, 1 diameter apart. Numerous pores on the snout. Lower labial fold interrupted. *Barbels*—rostral short, the maxillary equal in length to one diameter of the orbit. *Teeth*—pharyngeal, in three rows, curved, sharp, 5, 3,  $2\frac{1}{2}$ , 3, 5. *Fins*—dorsal scarcely higher than long, no osseous ray; it commences midway between the end of the snout and the base of the caudal fin, which latter is deeply forked. *Lateral line*—complete, 2 rows of scales between it and the base of the ventral fin; 7 rows before the dorsal fin. *Colour*—of a deep dull red, with three black cross bands, the first from below the whole of the base of the dorsal to just beneath the lateral line, the second commences four scales beyond the posterior extremity of the base of the dorsal and descends to one scale below the lateral line, whilst the last is just before the base of the caudal and often wanting. Fins pinkish, edged with black.

*Hab.* The Wynnad, Nilgiri and Travancore ranges of hills and streams along their bases; also the Cauvery river. This fish rarely attains 3 inches in length.

B. With two barbels (*Capoëta*).

373. (35.) *Barbus macrolepidotus*.

*Capoëta macrolepidota*, Cuv. & Val. H. N. Poiss. xvi, p. 280, pl. 477.

*Barbus macrolepidotus*, Day, Fish. India, p. 571, pl. cxlii, fig. 1 (see synon.).

B. iii. D. 12 (4/8). P. 17. V. 9. A. 7 (2/5). C. 19. L. 1. 26.  
L. tr. 5/5.

Length of head  $4\frac{1}{2}$ , height of body  $4\frac{1}{2}$  in the total length. *Eyes*—diameter 5 to  $5\frac{1}{4}$  in length of head,  $1\frac{1}{2}$  diameters from end of snout and also apart. Snout pointed, without pores; head compressed. *Barbels*—the maxillary as long as the orbit. *Fins*—dorsal commences slightly nearer the snout than the base of the caudal, and opposite the insertion of the ventrals, its last undivided





ray is weak (scarcely osseous), and finely serrated in nearly its whole extent. Caudal deeply forked. Scales— $2\frac{1}{2}$  rows between lateral line and base of ventral fin; 10 rows before the dorsal fin. Colour—silvery, lightest on the sides and below; fins orange, anterior edge of the dorsal and outer margins of the caudal black. A badly developed darkish band from the dorsal to the ventral fin.

*Hab.* Tavoy to the Malay Peninsula.

374. (36.) *Barbus chola*.

*Cyprinus chola*, Ham. Buch. *Fish. Ganges*, pp. 312, 389.

*Barbus chola*, Day, *Fish. India*, p. 571, pl. cxlii, fig. 4 (see synon.).

Koroon, Tam.; Kerrundi, Beng.; Nga-khon-ma and Nga-lowah, Burmese; Pittha-kerrundi, "bitter carp," Ooriah; Chadda paddaka, Tel.; Katcha karawa, Hind.

B. iii. D. 11 (3/8). P. 15. V. 9. A. 7 (2/5). C. 19.

L. l. 26–28. L. tr.  $5\frac{1}{2}/5$ .

Length of head  $4\frac{1}{2}$  to  $4\frac{3}{4}$ , height of body  $3\frac{1}{4}$  to  $3\frac{3}{4}$  in the total length. Eyes—diameter  $3\frac{1}{2}$  to 4 in the length of the head,  $\frac{3}{4}$  to 1 diameter from end of snout, and  $1\frac{1}{4}$  apart. Suborbital ring of bones narrow, their depth not being one third of that of the uncovered portion of the cheek. Barbels—a single maxillary pair not so long as one diameter of the orbit. Fins—dorsal three fifths as high as the body, it commences opposite the ventrals and midway between the end of the snout and the base of the caudal fin, its last undivided ray is osseous and smooth, with the stiff portion moderately strong and as long as the head excluding the snout. Lateral line—complete, from 3 to  $3\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 10 to 12 rows before the dorsal fin. Colour—silvery, opercles shot with purple and gold. A dark blotch is usually present on the side of the free portion of the tail from the 23rd to the 25th scales of the lateral line; in some Malabar examples this blotch is intensely black. A dark mark along the base of the anterior dorsal ray, and a row of dark spots along its centre. Occasionally there is a dark mark behind the gill-opening, especially in Bengal and Assam examples.

*Hab.* From Malabar and the Wynaad, through Madras, Orissa, the Punjab, Bengal, and Gangetic Provinces, the Central Provinces, Assam, also Akyab and Burma to Mergui. This fish grows to about 5 inches in length. As food it is bitter; in some localities in Burma oil is obtained from it during the breeding-season.

375. (37.) *Barbus parrah*.

*Puntius parrah*, Day, *P. Z. S.* 1865, p. 301.

*Barbus parrah*, Day, *Fish. India*, p. 572, pl. cxlii, fig. 3 (see synon.).

*Parrah perlee*, Mal.; Kutchi karawa, Hind.

B. iii. D. 11 (3/8). P. 15. V. 9. A. 8 (3/5). C. 19.

L. l. 25–26. L. tr.  $5/5$ .

Length of head 5, height of body  $3\frac{3}{4}$  to 4 in the total length.





*Eyes*—diameter 3 to  $3\frac{1}{4}$  in the length of the head,  $\frac{3}{4}$  to 1 diameter from end of snout,  $1\frac{1}{2}$  diameters apart. The third suborbital bone two thirds as deep as the uncovered portion of the cheek below it. *Barbels*—fine, and equal to two thirds of the length of the orbit. *Fins*—dorsal commences midway between the end of the snout and the base of the caudal fin; its last undivided ray is osseous, weak in the young but strengthening with age, and as long as the head without the snout; height of fin two thirds of that of the body. *Lateral line*—complete,  $3\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 8 rows before the dorsal fin. *Colour*—back greenish, divided from the silvery abdomen by a dark bluish line. Cheeks golden red. Pectoral, ventral, and anal tinged with yellow; dorsal and caudal dusky. A diffused black spot on the lateral line extending from the twentieth to the twenty-second scales. Eyes golden.

*Hab.* Malabar, Mysore, and Madras; attaining at least 6 inches in length.

376. (38.) *Barbus burmanicus*.

*Barbus burmanicus*, Day, *Fish. India*, p. 572, pl. cxli, fig. 4.

B. iii. D. 12 (4/8). P. 15. V. 9. A. 7 (2/5). C. 17.

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

Length of head  $4\frac{1}{2}$  to 5, height of body  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $3\frac{1}{4}$  to  $3\frac{1}{2}$  in the length of the head, 1 diameter from the end of snout, and  $1\frac{1}{2}$  apart. A considerable rise from the snout to the base of the dorsal fin. Snout pointed. Lower labial fold interrupted. *Barbels*—a very short maxillary pair. *Fins*—dorsal two thirds as high as the body, it commences opposite the insertion of the ventral, its last undivided ray is osseous, strong, entire, and about as long as the head. *Scales*—2 rows between lateral line and base of ventral fin; 10 rows before dorsal fin. *Colour*—silvery along the back, becoming lighter on the sides and beneath; a dull blotch before the base of the caudal fin. Fins silvery, with a dull band down the centre of the dorsal.

*Hab.* Burma.

377. (39.) *Barbus tetrapagus*.

*Systomus tetrapagus*, McClell. *As. Res.* xix, pt. 2; *Ind. Cyp.* pp. 285, 381, pl. 44, fig. 3.

*Barbus tetrapagus*, Day, *Fish. India*, p. 572, pl. cxlii, fig. 6 (see *synon.*).

*Tü pungti*, Bengali; *Borajalee*, Assamese; *Pet-toh-ee*, Sind.

B. iii. D. 10–11 (2–3/8). P. 17. V. 9. A. 7 (2/5). C. 19.

L. l. 24–26. L. tr.  $5-5\frac{1}{5}$ .

Length of head 4 to  $4\frac{1}{2}$ , height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $\frac{2}{3}$  of length of head, 1 diameter from end of snout, and  $1\frac{1}{2}$  apart. Dorsal profile considerably elevated. *Barbels*—a maxillary pair, thin, and equal to two thirds of the





length of the orbit. *Fins*—dorsal two thirds as high as the body, it commences opposite the insertion of the ventral; osseous dorsal ray of moderate strength, and the stiff portion as long as the head excluding the snout. *Lateral line*—complete,  $3\frac{1}{2}$  rows of scales between it and the base of the ventral; 8 to 10 rows before the dorsal fin. *Colour*—a round black spot on the lateral line behind the gill-openings, and a second midway between end of anal and base of caudal fin, and rather more forward than in *B. chola*, being on the 18th to 20th scales of the lateral line. Dorsal and anal tipped with black, sometimes the upper half of the former stained darkish, and a black band along its centre, most distinct anteriorly, and more so in Assam than in Bengal specimens.

*Hab.* Orissa, Bengal, Assam, N.W. Provinces, Punjab and Sind, also the Deccan; attaining nearly 5 inches in length.

### 378. (40.) *Barbus dorsalis*.

*Systemus dorsalis*, Jerdon, *Mad. Jour. L. Sc.* xv, 1849, p. 314.

*Barbus dorsalis*, Day, *Fish. India*, p. 573, pl. cxlii, fig. 2 (see synon.).

*Lambi kaoli*, Hin.; *Saal candee*, Tam.; *Mar-pakke*, Can.

B. iii. D. 11–12 (3–4/8). P. 15. V. 9. A. 8 (3/5). C. 19.

L. 1. 24–25. L. tr.  $4\frac{1}{2}/4$ .

Length of head  $4\frac{1}{2}$ , height of body 4 to  $4\frac{1}{4}$  in the total length. *Eyes*—diameter 4 to  $4\frac{1}{2}$  in length of head, from  $1\frac{1}{4}$  to  $1\frac{1}{2}$  diameters from end of snout,  $1\frac{1}{2}$  diameters apart. Third suborbital bone as wide as the cheek below it. Snout pointed. Lower labial fold interrupted. *Barbels*—a maxillary pair two thirds as long as the eye. *Teeth*—pharyngeal, 5, 3, 2, 2, 3, 5. *Fins*—dorsal commences rather in front of ventral, and nearly midway between the end of the snout and base of the caudal fin; its last undivided ray is osseous, smooth, moderately strong, and the stiff portion of the ray as long as, or a little longer than, the head without the snout. Caudal forked. *Lateral line*—complete. *Scales*—8 or 9 rows between occiput and base of dorsal fin;  $2\frac{1}{2}$  rows between lateral line and base of ventrals. *Colour*—uniform silvery, frequently the scales in the upper two thirds of the body with dark bases. A black spot at the posterior portion of the base of the dorsal, which disappears more or less in spirit.

*Hab.* Kurnool, Mysore, throughout Madras as low as the Cauvery and Coleroon rivers, and Ceylon. This species does not attain a large size.

### 379. (41.) *Barbus kolus*.

*Barbus kolus*, Sykes, *Tr. Z. S.* ii, p. 357, pl. 62, fig. 1; Day, *Fish. India*, p. 573, pl. cxli, fig. 2 (see synon.).

*Nitusu*, Telugu; *Kolis* and *Kolashi*, Maráthi.

B. iii. D. 12–13 (3–4/9). P. 15. V. 9. A. 8 (3/5). C. 19.

L. 1. 40–43. L. tr. 10/8.

Length of head  $5\frac{1}{4}$  to  $5\frac{1}{2}$ , height of body 4 to  $4\frac{1}{2}$  in the total





length. *Eyes*—upper margin near the profile, diameter  $3\frac{3}{4}$  to 4 in the length of the head,  $1\frac{1}{4}$  diameters from end of snout and also apart. Body compressed, a considerable rise in the profile from the occiput to the dorsal fin. *Barbels*—extend rather beyond the middle of the eye. *Teeth*—pharyngeal, pointed, uncinat, 5, 3,  $2\frac{1}{2}$ , 3, 5. *Fins*—the dorsal three fourths as high as the body, inserted in advance of the ventral. Caudal deeply forked. *Lateral line*—complete, 4 or 5 rows of scales between it and the base of the ventral fin. *Colour*—silvery, with a tinge of yellow; dorsal, caudal, and anal tipped with grey.

*Hab.* Central Provinces, Deccan, and throughout the Kistna, Tungabhadra, and Godavari rivers; attaining upwards of a foot in length.

### 380. (42.) *Barbus denisonii*. ✓

*Labeo denisonii*, Day, P. Z. S. 1865, p. 299.

*Barbus denisonii*, Day, Fish. India, p. 573, pl. exliii, fig. 2 (see synon.).

B. iii. D. 10–11 (2–3/8). P. 15. V. 9. A. 8 (3/5). C. 19.  
L. l. 28. L. tr.  $4\frac{1}{2}/4\frac{1}{2}$ .

Length of head 6, height of body 5 in the total length. *Eyes*—diameter  $3\frac{1}{2}$  in the length of head, 1 diameter from end of snout, and  $1\frac{1}{2}$  apart. Dorsal and abdominal profiles slightly and about equally convex. Snout obtuse. *Barbels*—a maxillary pair one third longer than the orbit. *Teeth*—pharyngeal, pointed and curved at their extremities, 4, 3,  $2\frac{1}{2}$ , 3, 4. *Fins*—dorsal arises rather before the ventrals, none of its rays osseous. Caudal deeply forked. *Lateral line*—complete, 21 rows of scales between it and ventral fin; 9 rows before dorsal fin. *Colour*—silvery, with a black band, above which runs a horizontal scarlet stripe passing from the snout to the centre of the base of the caudal fin. Caudal with an oblique black band crossing the posterior third of each lobe.

*Hab.* Mundikvum in the Travancore hill-ranges. This fish attains 6 inches in length.

### 381. (43.) *Barbus melanostigma*.

*Barbus melanostigma*, Day, Fish. India, p. 573, pl. exliii, fig. 1 (see synon.).

B. iii. D. 10 (2/8). P. 15. V. 9. A. 7 (2/5). C. 19.  
L. l. 26. L. tr.  $5/4$ .

Length of head  $4\frac{1}{2}$  to  $4\frac{2}{3}$ , height of body  $3\frac{1}{2}$  to  $3\frac{2}{3}$  in the total length. *Eyes*—diameter  $3\frac{1}{3}$  in length of head, 1 diameter from end of snout, and  $1\frac{1}{2}$  apart. Mouth narrow; lower labial fold interrupted. Third suborbital bone as deep as the uncovered portion of the cheek below it or rather deeper. *Barbels*—a maxillary pair about half as long as the orbit. *Fins*—dorsal three fourths as high as the body, having a concave upper edge, commencing rather in advance of the insertion of the ventral; last





undivided dorsal ray very weak, osseous inferiorly, and articulated in its upper half. Caudal deeply forked. *Lateral line*—complete, very slightly concave; 3 rows of scales between it and the base of the ventral fin; 8 rows before the dorsal. *Colour*—silvery above, becoming white on the sides and beneath, a light band along the side; a deep black blotch on the side of the tail, commencing on the twenty-first or twenty-second scale; dorsal and caudal stained with grey, sometimes a dark band along the side.

*Hab.* Wynaad hills in Malabar. Jerdon also obtained specimens in the Bhavāni river and from the Cauvery.

382. (44.) *Barbus arenatus*.

*Barbus arenatus*, Day, *Fish. India*, p. 574, pl. cxlii, fig. 7.

B. iii. D. 10 (2/8). P. 15. V. 9. A. 8 (3/5). C. 19.

L. l. 26. L. tr. 4/6.

Length of head  $4\frac{3}{4}$ , height of body 4 in the total length. *Eyes*—diameter  $4\frac{1}{2}$  to 5 in the length of the head,  $1\frac{1}{2}$  diameters from end of snout, and 2 apart. Suborbital ring of bones very narrow. Body thick, its width equalling four sevenths of its height. *Barbels*—a single maxillary pair which reaches to beneath the first third of the eye. No pores on the head. *Fins*—last undivided dorsal ray fine, smooth, osseous inferiorly, becoming articulated superiorly; the fin commences before the insertion of the ventral. *Lateral line*—complete,  $3\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 11 rows anterior to the dorsal fin. *Colour*—silvery, without any markings. In some examples a darkish band along the dorsal fin.

*Hab.* Madras.

383. (45.) *Barbus puckelli*.

Puntius (Capoëta) *puckelli*, Day, *P. Z. S.* 1868, p. 197.

*Barbus puckelli*, Day, *Fish. India*, p. 574, pl. cxliii, fig. 5.

B. iii. D. 9 (2/7). P. 15. V. 9. A. 8 (3/5). C. 19.

L. l. 24. L. tr. 4/5.

Length of head  $5\frac{1}{4}$ , height of body  $4\frac{1}{2}$  in the total length. *Eyes*—diameter  $3\frac{1}{2}$  in the length of head, two thirds of a diameter from end of snout, and  $1\frac{1}{2}$  diameters apart. No pores on the head, its summit rather convex. *Barbels*—a thick maxillary pair, reaching to beneath the anterior edge of the eye. *Teeth*—pharyngeal, plough-shaped, 5, 3, 2/2, 3, 5. *Fins*—last undivided dorsal ray weak and cartilaginous, the fin commences before the ventral. *Lateral line*—complete,  $2\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 10 rows before the base of the dorsal fin. *Colour*—greenish yellow along the back, with a red mark on the opercle, and a scarlet stripe extending along the middle of the side. A deep black mark on the dorsal fin from the base of the



third to that of the sixth branched ray. Very fine dark spots over the scales, especially at their bases. An indistinct black mark on the lateral line from the nineteenth to the twenty-first scale.

*Hab.* Bangalore, where it is said to be common.

384. (46.) *Barbus amphibius*.

Capoëta *amphibia*, *Cuv. & Val. H. N. Poiss.* xvi, p. 282, pl. 478.

*Barbus amphibius*, *Day, Fish. India*, p. 574, pl. cxlii, fig. 8 (see synon.).

*Oolee perlee*, Mal.; *Rhondgi*, Marāthi.

B. iii. D. 10-11 (2-3/8). P. 15. V. 9. A. 7 (2/5). C. 19.

L. l. 23-24. L. tr. 5/4.

Length of head  $4\frac{1}{4}$  to 5, height of body  $4\frac{1}{4}$  to 5 in the total length. *Eyes*—diameter  $3\frac{1}{2}$  in the length of head, 1 diameter from end of snout, and  $1\frac{1}{4}$  apart. *Barbels*—a thin maxillary pair reaching to below the centre of the eye. *Fins*—the dorsal two thirds as high as the body, with its osseous ray feeble, smooth, and half as long as the head; the fin arises somewhat in advance of the ventrals. Caudal fin deeply forked. *Lateral line*—complete, 2 rows of scales between it and the base of the ventral fin; 8 rows before the dorsal. *Colour*—upper half of body steel-blue, becoming white tinged with golden on the sides and beneath. Sometimes a dark band along the side, and a black spot on either side of the tail anterior to the caudal fin, this becomes indistinct after specimens have been long macerated, but is very apparent in fresh ones, especially those from the Malabar coast; it is not well-marked, and often absent, in those taken in Bombay. Fins yellowish, upper edge of dorsal usually stained with black. In the monsoon time a crimson band along the sides is sometimes present.

*Hab.* Central India, Deccan, Bombay, and the Western coast of India, Madras and up the coast as high as Orissa; attaining to at least 6 inches in length.

385. (47.) *Barbus arulius*.

*Systemus arulius*, *Jerdon, Mad. Jour. L. S.* xv, 1849, p. 317.

*Barbus arulius*, *Day, Fish. India*, p. 575, pl. cxlii, fig. 5 (see synon.).

B. iii. D. 11 (3/8). P. 15. V. 9. A. 7 (2/5). C. 18.

L. l. 21-23. L. tr.  $4\frac{1}{2}/4\frac{1}{2}$ .

Length of head  $4\frac{1}{2}$  to 5, height of body  $3\frac{3}{4}$  to 4 in the total length. *Eyes*—diameter  $3\frac{1}{2}$  in the length of the head, 1 diameter from end of snout and also apart. *Barbels*—a long maxillary pair. *Teeth*—pharyngeal, 5, 3, 2/2, 3, 5, sharp and curved at their extremities. *Fins*—no osseous dorsal ray; the fin, which is two thirds as high as the body, commences midway between the end of the snout and the base of the caudal, which last is deeply emarginate. *Lateral line*—complete,  $2\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 9 rows before the base of the dorsal fin. *Colour*—olive-green on the back, becoming silvery



white dashed with reddish green over the abdomen. A black blotch, about two scales in width, passes from below the origin of the dorsal fin as low as the lateral line; a second from just below the posterior extremity of the dorsal to the base of the anal; and a third across the free portion of the tail before the caudal fin. Dorsal, caudal, and anal pinkish with a black bar across the summit of the first, whilst the caudal is stained at its edges.

*Hab.* Wynaad and Nilgiri range of hills and the rivers at their bases, and at least as far south as Kotayam in Travancore; also in the Cauvery, from whence this fish has been procured at Seringapatam, where it is termed *Aruli*. It attains 4 inches or more in length.

386. (48.) *Barbus mahecola*. (Fig. 105.)

*Leuciscus mahecola*, *Cuv. & Val. H. N. Poiss.* xvii, p. 305, pl. 502 (barbels omitted).

*Barbus mahecola*, *Day, Fish. India*, p. 575, pl. cxl, fig. 5 (see synonym.).

B. iii. D. 11 (3/8). P. 15. V. 9. A. 7 (2/5). C. 19.

L. l. 21. L. tr. 5/4.

Length of head  $4\frac{1}{4}$  to 5, height of body  $3\frac{1}{4}$  to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $3\frac{1}{4}$  in the length of head, 1 diameter from end of snout,  $1\frac{1}{2}$  diameters apart. In some specimens the snout is covered with large pores. *Barbels*—a thin maxillary pair extending

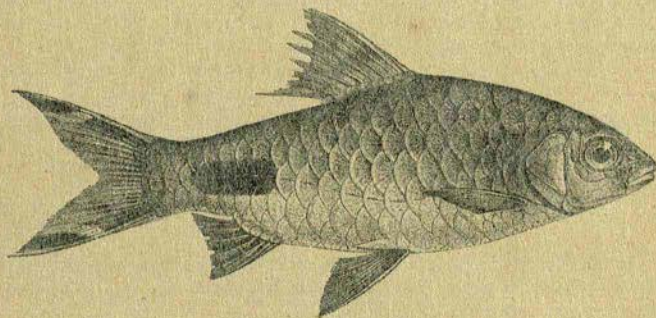


Fig. 105.—*Barbus mahecola*.

to below the centre of the orbit in some specimens, very minute in others (see remarks, p. 294). *Fins*—last undivided dorsal ray articulated, smooth, feeble; the branched rays are elongate in the adult; the fin commences midway between the snout and the base of the caudal fin. Caudal deeply lobed. *Lateral line*—complete,  $2\frac{1}{2}$  rows of scales between it and the base of the ventral. *Colour*—silvery white, with a deep black oval mark on the lateral line from about the fourteenth to the eighteenth scale. A dark band along the dorsal fin. Caudal red, tipped with black.

*Hab.* From Canara down the Western coast and along the base of the Nilgiris, and Travancore hills, also Ceylon; attaining at least 6 inches in length.



C. Without barbels (*Puntius*).387. (49.) *Barbus apogon*.

*Barbus apogon*, (Kuhl) Cuv. & Val. H. N. Poiss. xvi, p. 392; Day, *Fish. India*, p. 575, pl. cxli, fig. 3 (see synonym.).

*Nga-ta-zee* and *Nga-lay-toun*, Burmese.

B. iii. D. 12 (4/8). P. 17. V. 10. A. 8 (3/5). C. 19.  
L. 1. 36–37. L. tr.  $7\frac{1}{2}/7$ .

Length of head  $5\frac{1}{4}$ , height of body  $3\frac{1}{4}$  in the total length. *Eyes*—diameter  $3\frac{1}{2}$  to 4 in the length of the head, 1 to  $1\frac{1}{4}$  diameters from the end of snout and also apart. Body strongly compressed, and rising abruptly from the nape to the base of the dorsal fin. *Fins*—dorsal arises rather behind the insertion of the ventral, its last undivided ray strong, serrated, and the stiff portion rather shorter than the head. First three anal rays rather stiff. Caudal deeply forked. *Lateral line*—complete,  $5\frac{1}{2}$  (4 in some specimens) rows of scales between it and the ventral fin; 15 rows of scales before the base of the dorsal fin. *Colour*—silvery, each scale with a dark spot at its base.

*Hab.* Tenasserim and throughout Burma (certainly as high as Mandalay) to the Malay Archipelago; attaining at least 8 inches in length.

388. (50.) *Barbus ambassis*.

*Barbus ambassis*, Day, P. Z. S. 1868, p. 583, and *Fish. India*, p. 576, pl. cxlv, fig. 1.

*Bunkuai*, Oorlah.

B. iii. D. 11 (3/8). P. 11. V. 9. A. 7 (2/5). C. 19.  
L. 1. 36. L. tr. 6/8.

Length of head 5 to  $5\frac{1}{2}$ , height of body  $3\frac{1}{2}$  in the total length. *Eyes*—diameter nearly two fifths of length of head,  $\frac{1}{2}$  diameter from end of snout, 1 diameter apart. *Teeth*—pharyngeal, sharp, crooked, 5, 3,  $2\frac{1}{2}$ , 3, 5. *Fins*—dorsal spine osseous, strong, and posteriorly serrated, having about 15 teeth; the fin commences slightly before the ventral, and midway between the end of the snout and the base of the caudal, which last is deeply lobed. *Scales*—small and deciduous. *Lateral line*—incomplete, becoming indistinct in the posterior two thirds of the body, 6 rows of scales between it and the base of the ventral fin; 15 rows before the dorsal fin. *Colour*—light greenish, with a silvery band along the side. A small black spot at the base of the anterior dorsal rays, and a black blotch at the side of the tail.

*Hab.* Madras, Orissa, Bengal, and Assam at least as high as Sadiya; attaining about 3 inches in length.



389. (51.) *Barbus conchonius*. ✓

*Cyprinus conchonius*, *Ham. Buch. Fish. Ganges*, pp. 317, 389.

*Barbus conchonius*, *Day, Fish. India*, p. 576, pl. cxliii, fig. 7 (see synon.).

*Kunchon pungti*, Bengali.

B. iii. D. 11 (3/8). P. 11. V. 9. A. 7 (2/5). C. 19.

L. l. 24-26. L. tr.  $5\frac{1}{2}/6\frac{1}{2}$ .

Length of head 5, height of body  $2\frac{3}{4}$  in the total length. *Eyes*—diameter one third of length of head, nearly 1 diameter from end of snout, and  $1\frac{1}{4}$  apart. *Fins*—the dorsal three fifths as high as the body, its last undivided ray osseous, moderately strong and serrated, as long as the head without the snout; the fin commences rather before the insertion of the ventral. *Lateral line*—incomplete, ceasing after 8 or 10 scales; 4 to  $4\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 9 rows before dorsal fin. *Colour*—a large round black spot on the middle of the side above the posterior portion of the anal fin; opercles lake-colour. Fins orange, dorsal with its upper half blackish.

Naini Tal specimens have the dorsal spine much less coarsely serrated than those from the plains, from whence they were introduced not many years since; they have also a darkish band along the side.

*Hab.* Assam, Lower Bengal, Orissa, Behar, N.W. Provinces, Punjab, and the Deccan; attaining at least 5 inches in length.

390. (52.) *Barbus ticto*.

*Cyprinus ticto*, *Ham. Buch. Fish. Ganges*, pp. 314, 389, pl. 8, fig. 87.

*Barbus ticto*, *Day, Fish. India*, p. 576, pl. cxliv, fig. 7 (see synon.).

*Kaoli* and *Kotree*, Hind.; *Kah-nee potiah*, Assam; *Wennatté*, Tamil; *Kudgi-kerundi*, Ooriah.

B. iii. D. 11 (3/8). P. 15. V. 9. A. 7 (2/5). C. 19.

L. l. 23-26. L. tr. 5-6/6.

Length of head 5, height of body 3 to  $3\frac{1}{4}$  in the total length. *Eyes*—diameter 3 in length of head,  $\frac{2}{3}$  of a diameter from end of snout, 1 diameter apart. *Teeth*—pharyngeal, crooked, pointed, 5, 3,  $2\frac{1}{2}$ , 3, 5. *Fins*—osseous dorsal ray strong and serrated, three quarters as long as the head, fin half as high as the body. Caudal forked. *Lateral line*—incomplete, ceasing after 6 or 8 scales; 4 or 5 rows of scales between it and base of the ventral fin, and 11 before the dorsal fin. *Colour*—silvery, sometimes stained with red, a black spot on the side of the tail before the base of the caudal fin and immediately behind the anal; a smaller one (frequently absent) at the commencement of the lateral line. Fins often black, sometimes orange.

*Hab.* Sind, throughout India and Ceylon. This fish rarely exceeds 4 inches in length.



391. (53.) *Barbus stoliczkanus*.

*Barbus* (Puntius) *stoliczkanus*, Day, *J. A. S. B.* xl, 1871, pt. 2, p. 328.  
*Barbus stoliczkanus*, Day, *Fish. India*, p. 577, pl. cxliv, fig. 8 (see  
synon.).

B. iii. D. 10-11 (2-3/8). P. 14. V. 9. A. 7 (2/5). C. 19.  
L. 1. 25. L. tr. 5/6.

Length of head one sixth, height of body one third of the total length. *Eyes*—diameter 3 in length of head,  $\frac{1}{2}$  to  $\frac{2}{3}$  of a diameter from end of snout,  $1\frac{1}{2}$  apart. *Teeth*—pharyngeal, crooked, 5, 3, 2/2, 3, 5. *Fins*—osseous dorsal ray nearly as long as the head excluding the snout, serrated, but less strongly than in *B. ticto*, the serratures are likewise rather irregular; the fin commences midway between the snout and the base of the caudal, which latter is forked. *Lateral line*—complete, there are  $3\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 9 rows before the dorsal fin. *Colour*—silvery, an oblong black mark on the lateral line about the third scale, and a deep black mark, yellow anteriorly, extending upwards almost to the back, above and a little behind the posterior extremity of the anal fin on the 18th and 19th scales. Fins orange.

*Hab.* Eastern Burma, where this species supersedes *B. ticto*. It attains 4 inches in length.

392. (54.) *Barbus punctatus*. ✓

*Puntius punctatus*, Day, *P. Z. S.* 1865, p. 302.

*Barbus punctatus*, Day, *Fish. India*, p. 577, pl. cxliv, fig. 5 (see  
synon.).

*Putter perlee*, Mal.

B. iii. D. 11 (3/8). P. 15. V. 9. A. 7 (2/5). C. 18.  
L. 1. 23-24. L. tr. 5/5.

Length of head  $5\frac{1}{3}$ , height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $2\frac{1}{2}$  in the length of head,  $\frac{1}{2}$  diameter from end of snout, and 1 diameter apart. *Fins*—dorsal fin commences over ventral and midway between end of snout and base of caudal, its upper border is slightly concave, its last undivided ray osseous, strong, serrated, and about as long as the head; the fin two thirds as high as the body. Caudal forked. *Lateral line*—complete, 3 rows of scales between it and the base of the ventral fin, 8 rows before the dorsal fin. *Colour*—olive-green superiorly, becoming white on the abdomen. A diffused black spot on the 20th and 21st scales of the lateral line. The anterior half of the third or fourth scale from the opercle, in the row next below the lateral line, black. Fins yellowish, dorsal and anal tipped with orange. Dorsal with two rows of black spots, and in Malabar examples a short intermediate one anteriorly. In some specimens there is a light edge round the caudal blotch, and a silvery band along the sides.





*Hab.* Malabar and Coromandel coast. This species does not appear to exceed 3 inches in length.

393. (55.) *Barbus gelius*.

*Cyprinus gelius*, *Ham. Buch. Fish. Garg.* pp. 320, 390.

*Barbus gelius*, *Günther, Catal.* vii, p. 154; *Day, Fish. India*, p. 577, pl. cxlv, fig. 3 (see synonym.).

*Cutturpoh, Oorlah; Gili pungti, Beng.*

B. iii. D. 10-11 (2-3/8). P. 15. V. 9. A. 8 (3/5). C. 19.  
L. l. 23-24. L. tr. 4/5.

Length of head  $4\frac{1}{4}$  to  $4\frac{1}{2}$ , height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $2\frac{1}{2}$  in the length of head,  $\frac{1}{2}$  diameter from end of snout, 1 diameter apart. Third suborbital bone broad. *Fins*—dorsal arises slightly in advance of ventrals, its osseous ray is strong, rather coarsely serrated, and as long as the head excluding the snout, the fin two thirds as high as the body; caudal deeply forked. *Lateral line*—incomplete, ceasing after 5 or 6 scales; 3 rows of scales between lateral line and base of ventral fin, 8 rows before the dorsal fin. *Colour*—reddish brown, with a black band over the tail a little before the base of the caudal fin, and another less distinct close to the base of that fin. A silvery band along the side. The peritoneum being black appears like an irregular dark blotch. A black spot passes across the base of the anterior half of the dorsal, extending one third the distance up the rays. A black band over the base of the anal, highest in front. Occiput also black.

*Hab.* Ganjam, Orissa, Bengal, and Assam, attaining at least 2 inches in length.

394. (56.) *Barbus phutunio*.

*Cyprinus phutunio*, *Ham. Buch. Fish. Ganges*, pp. 319, 390.

*Barbus phutunio*, *Day, Fish. India*, p. 578, pl. cxlv, fig. 4 (see synonym.).

*Kudji-kerandi, Oorlah; Phutuni pungti, Beng.*

B. iii. D. 10-11 (2-3/8). P. 15. V. 9. A. 8 (3/5). C. 19.  
L. l. 20-23. L. tr. 8-10.

Length of head 4 to  $4\frac{3}{4}$ , height of body 3 to  $3\frac{1}{4}$  in the total length. *Eyes*—diameter  $2\frac{1}{2}$  in length of head,  $\frac{1}{2}$  to  $\frac{3}{4}$  diameter from end of snout, 1 diameter apart. *Fins*—dorsal osseous ray serrated, the serratures often becoming indistinct in the adult; the fin commences opposite the ventrals. *Lateral line*—incomplete, only extending along three or four scales; from it to the base of the ventral are 3 rows; 9 rows before the dorsal fin. *Colour*—reddish brown, with a black band passing from the back to opposite the middle of the pectoral fin; a second from the back to the posterior end of the base of the anal; two other lighter bands pass downwards, one from the anterior, the other from the posterior extremity of the dorsal. A dark band down the centre of the dorsal, another at the base of the caudal. The adult in its colo





becomes very similar to *B. punctatus*, the pectoral band decreases in size, whilst that on the dorsal fin breaks up into spots.

*Hab.* Ganjam, Orissa and throughout Bengal and Burma; attaining 3 inches in length.

395. (57.) *Barbus cumingii*.

*Barbus cumingii*, *Günther, Catal. vii, p. 155; Day, Fish. India, p. 578* (see synon.).

B. iii. D. 11 (3/8). P. 15. V. 9. A. 8 (3/5). C. 19. L. 1. 21.  
L. tr.  $3\frac{1}{2}/3\frac{1}{2}$ .

Length of head 5, height of body 3 in the total length. *Eyes*—diameter  $2\frac{3}{4}$  in the length of head,  $\frac{2}{3}$  diameter from the end of snout, and 1 apart. Suborbital bones very deep. *Fins*—the dorsal commences opposite the insertion of the ventral, its last undivided ray is rather weak, osseous, and finely serrated. Pectoral reaches the ventral. Anal rather small. Caudal deeply forked. *Lateral line*—incomplete, ceasing after 4 scales; 3 rows of scales between the lateral line and base of the ventral fin, and 9 before the base of the dorsal. *Colour*—two dark vertical bands, one descending to the pectoral fin: the second across the free portion of the tail. Each scale with a silvery vertical streak (? a post-mortem appearance).

*Hab.* Ceylon; attaining to at least 2 inches in length.

396. (58.) *Barbus nigrofasciatus*.

*Barbus nigrofasciatus*, *Günther, Catal. vii, p. 155; Day, Fish. India, p. 578, pl. cxliv, fig. 6*.

B. iii. D. 11 (3/8). P. 15. V. 9. A. 7 (2/5). C. 19. L. 1. 20–21.

Length of head  $4\frac{3}{4}$ , height of body  $2\frac{3}{4}$  in the total length. *Eyes*—diameter 3 to  $3\frac{1}{2}$  in the length of head, 1 diameter from end of snout and also apart. *Fins*—dorsal lower than the body; it commences opposite the ventrals, its osseous ray is strong and finely serrated. Caudal deeply forked. *Lateral line*—complete, 3 rows of scales between it and the base of the ventrals. *Colour*—reddish, with a black band passing from eye to eye: body with three vertical black bands, the first from the back to the middle of the pectoral fin, the second from the base of the dorsal to behind the base of the ventral, and the third across the free portion of the tail. Dorsal, anterior portion of ventral and outer edge of anal black. The bands are not in exactly the same position in all specimens.

*Hab.* Southern Ceylon.

397. (59.) *Barbus guganio*.

*Cyprius guganio*, *Ham. Buch. Fish. Ganjes*, pp. 338, 392.

*Barbus guganio*, *Day, Fish. India, p. 579*

*Gugani*, Beng.





B. iii. D. 10 (2/8). P. 12. V. 9. A. 7.

"Head oval, small, blunt and dotted. Mouth small. The jaws protrude in opening, the upper is the longest. . . . The eyes are far forwards on the sides of the head and large." *Fins*—the dorsal is near the middle, its osseous ray is strong and serrated. *Scales*—large and firmly adherent. *Lateral line*—incomplete. *Colour*—the back dotted.

*Hab.* Gangetic provinces and Assam, scarcely exceeding an inch and a half in length. This species is evidently allied to *Barbus ambassis*, p. 324.

398. (60.) *Barbus stigma*.

*Lenciscus stigma*, *Cuv. & Val. H. N. Poiss.* xvii, p. 93, pl. 489.

*Barbus stigma*, *Day, Fish. India*, p. 579, pl. cxli, fig. 5 (see synon.).

*Chadu-perigi*, Tel.; *Patia-kerundi*, Ooriah; *Katchu-karawa* and *Pottiah*, Hind.; *Katch-karawa*, Can.; *Kudale*, Maráthi; *Nga-khom-ma*, Burm.

B. iii. D. 11-12 (3/8-9). P. 17. V. 9. A. 8 (3/5). C. 19.

L. l. 23-26. L. tr.  $4\frac{1}{2}$ -5/5. Vert. 15/14.

Length of head 5, height of body  $3\frac{1}{2}$  to  $3\frac{3}{4}$  in the total length. *Eyes*—diameter  $3\frac{1}{2}$  to 4 in length of head,  $\frac{1}{2}$  to 1 diameter from end of snout,  $1\frac{1}{2}$  to 2 diameters apart. *Teeth*—pharyngeal, crooked, 5, 3,  $2\frac{1}{2}$ , 3, 5. *Fins*—dorsal half to two thirds as high as the body; its last undivided ray osseous, rather weak or of moderate strength, entire, as long as the head without the snout, or even less; the fin commences rather in advance of the insertion of the ventral, and midway between the end of the snout and the base of the caudal. *Lateral line*—complete, 3 to  $3\frac{1}{2}$  rows of scales between it and the base of the ventral fin, 8 to 9 rows before the dorsal fin. Occasionally in the N.W. Provinces and Bengal specimens occur with l. l. 27. *Colour*—silvery, with a scarlet lateral band at some seasons, and a dark mark across the base of the middle dorsal rays, this last being occasionally absent. A round black blotch, more or less distinct, at the root of the caudal fin.

*Hab.* Sind, throughout India and Burma as high as Mandalay. As food this fish is bitter. In January 1868 I found 1850 developed ova in one female fish at Madras. It attains at least 5 inches in length.

399. (61.) *Barbus chrysopterus*.

*Systomus chrysopterus*, *McClell. As. Res.* ix, pt. 2; *Ind. Cyp.* p. 285.

*Barbus chrysopterus*, *Day, Fish. India*, p. 579, pl. cxliii, fig. 6 (see synon.).

*Pottiah*, Punj.; *Darru*, Sind.

B. iii. D. 11 (3/8). P. 17. V. 9. A. 7 (2/5). C. 19. L. l. 23-25.  
L. tr. 5/5.

Length of head 5, height of body 3 in the total length.





*Eyes*—diameter 3 to  $3\frac{1}{2}$  in length of the head,  $\frac{3}{4}$  to 1 diameter from end of snout. Body compressed. Third suborbital bone very narrow. *Fins*—dorsal arises over the ventral or slightly in advance of it, and midway between the end of the snout and the base of the caudal; its smooth osseous ray is not strong and is as long as the head without the snout; upper margin of the dorsal fin slightly concave; the height is only slightly above one half of that of the body. The pectoral extends to the ventral, and the latter to the anal. Lower caudal lobe slightly the longer. *Lateral line*—complete,  $3\frac{1}{2}$  rows of scales between it and the base of the ventral fin; 9 rows before the dorsal fin. *Colour*—dull silvery, darkest along the back, each scale having a dark base formed by fine black dots. Dorsal, ventral, and anal fins generally stained with black spots at their extremities; but in some specimens only the anal. A dark mark at the base of third to seventh divided dorsal rays, sometimes a dark mark at base of the tail.

*Hab.* Assam, Bengal, N.W. Provinces, and Punjab and Sind.

400. (62.) *Barbus thermalis*.

*Leuciscus thermalis*, *Cuv. & Val. H. N. Poiss.* xvii, p. 94, pl. 400.

*Barbus thermalis*, *Day, Fish. India*, p. 580 (see synon.).

B. iii. D. 11 (3/8). P. 15. V. 9. A. 8 (3/5). C. 19. L. 1. 24.  
L. tr.  $5\frac{1}{2}/5\frac{1}{2}$ .

Length of head  $4\frac{1}{4}$ , height of body  $3\frac{1}{3}$  in the total length. *Eyes*—diameter  $3\frac{1}{2}$  in length of head, 1 diameter from end of snout. Dorsal profile more convex than the abdominal. Body very compressed. *Fins*—dorsal commences nearer to end of snout than to base of caudal fin; it is only two thirds as high as the body, its osseous ray moderately strong, rather longer than the head without the snout. *Lateral line*—incomplete, ceasing after eight scales. *Colour*—silvery, a round black finger-mark on either side of the free portion of the tail anterior to the base of the caudal fin, and a second at the base of the first few dorsal rays.

*Hab.* From a hot spring in Ceylon; attaining at least 3 inches in length.

401. (63.) *Barbus terio*.

*Cyprinus terio*, *Hav. Zool. Fish. Gang.* pp. 312, 380.

*Barbus terio*, *Day, Fish. India*, p. 580, pl. cxliv, fig. 3 (see synon.).

*Kākārcia-kerundi*, Oriah; *Teri-pungti*, Beng.

B. iii. D. 11 (3/8). P. 15. V. 9. A. 7 (2/5). C. 19.  
L. 1. 22–23. L. tr.  $5/5$ .

Length of head 4 to  $4\frac{1}{2}$ , height of body 3 in the total length. *Eyes*—diameter  $2\frac{3}{4}$  to 3 in length of head,  $\frac{3}{4}$  to 1 diameter from end of snout;  $1\frac{1}{4}$  diameters apart. Body compressed. *Fins*—dorsal arises slightly in advance of the ventrals, its last undivided ray is osseous, entire, moderately or very strong, and nearly as long as the head; the fin is almost as high as the body





below it. *Lateral line*—incomplete, ceasing after 3 or 4 scales; 3 rows between the lateral line and base of the ventral fin, 9 rows in front of the dorsal fin. *Colour*—silvery, greenish along the back, each scale having a number of fine black spots, most numerous at the anterior margin. A large black blotch in the middle of the side over the posterior extremity of the anal, sometimes extended in the median line as far as the tail. A very indistinct black blotch (most apparent in the immature) exists under the posterior extremity of the dorsal, passing downwards to the middle of the fish. Fins yellowish, their margins stained with black, the dorsal having a median band. In some specimens there is a dark mark at the bases of the scales.

*Hab.* Orissa, Bengal to the Punjab; attaining 3 or 4 inches in length.

402. (64.) *Barbus punjabensis*.

*Barbus* (Puntius) *punjabensis*, Day, *J. A. S. B.* xl, 1871, pt. 2, p. 334.

*Barbus punjabensis*, Day, *Fish. India*, p. 580, pl. cxlv, fig. 2.

B. iii. D. 11 (3/8). V. 9. A. 7 (2/5). C. 19. L. 1. 43. L. tr. 8/2.

Length of head  $5\frac{1}{2}$ , height of body  $3\frac{1}{2}$  in the total length. *Eyes*—rather large, situated in the anterior half of the head, one third of a diameter from end of snout. *Fins*—dorsal two thirds as high as the body below it, arising midway between the snout and the base of the caudal fin; its last undivided ray weak and articulated. Caudal deeply forked, with pointed lobes. *Lateral line*—incomplete, 14 rows of scales before the base of the dorsal fin. *Colour*—silvery, with a burnished silvery stripe along the side, and a black spot at the base of the caudal fin. Two first dorsal rays and intermediate membrane deep black.

*Hab.* Sind, Ravi river at Lahore; also Jubbulpore. A small species, attaining about 2 inches in length.

403. (65.) *Barbus unimaculatus*.

*Systemus* (?) *unimaculatus*, Blyth, *J. A. S. B.* xxix, 1860, p. 159.

*Barbus unimaculatus*, Day, *Fish. India*, p. 581, pl. cxlv, fig. 5.

B. iii. D. 11 (3/8). P. 11. V. 8. A. 7 (2/5). C. 19.

L. 1. 24-25. L. tr.  $4\frac{1}{2}/4\frac{1}{2}$ .

Length of head  $3\frac{1}{2}$ , height of body 3 in the total length. *Eyes*—diameter 3 in the length of head, 1 diameter from the end of snout and also apart. *Fins*—dorsal with the last undivided ray osseous, entire, weak, and nearly as long as the head; the fin commences midway between the snout and the base of the caudal fin. *Lateral line*—incomplete, becoming lost opposite the posterior extremity of the dorsal fin; 3 rows of scales between it and the base of the ventral fin; 9 rows before the dorsal fin. *Colour*—silvery, a black mark at the base of each dorsal ray.

*Hab.* A number of fry up to  $1\frac{8}{10}$  inches in length from the





Sitang river in Burma are in the Calcutta Museum; what they would be, when adults, it is difficult to determine, but as the lateral line is incomplete, they probably never would grow to large fish. The species is very similar to *Barbus thermalis*, C. V., but its head is a little longer, and the latter species is from Ceylon.

404. (66.) *Barbus waageni*.

*Barbus* (Puntius) *waageni*, Day, *J. A. S. B.* xli, 1872, pt. 2, p. 325.  
*Barbus waageni*, Day, *Fish. India*, p. 581, pl. cxliv, fig. 4.

B. iii. D. 10-11 (2-3/8). P. 15. V. 9. A. 7 (2/5).

C. 20. L. 1. 23. L. tr. 4/7.

Length of head 4, height of body 3 to  $3\frac{1}{2}$  in the total length. Eyes—diameter  $3\frac{1}{2}$  to 4 in the length of the head,  $\frac{2}{3}$  to 1 diameter from end of snout, and  $1\frac{1}{4}$  apart. Fins—dorsal one half as high as the body below it; it commences nearer to the base of the caudal fin than to the front end of the snout, its upper edge is straight; last undivided ray articulated. Pectoral as long as the head excluding the snout. Caudal forked. Lateral line—incomplete, ceasing about the seventh scale;  $4\frac{1}{2}$  rows between it and the base of the ventral fin, 12 rows anterior to the dorsal fin. Caudal peduncle as high at its base as it is long. Colour—silvery, darkest superiorly; a dark blotch on the side of the tail on about the seventeenth and eighteenth rows of scales.

Hab. Choya Saidan Shah in the Punjab salt-range.

405. (67.) *Barbus cosuatis*.

*Cyprinus cosuatis*, Ham. Buch. *Fish. Gang.* pp. 338, 392.

*Barbus cosuatus*, Day, *Fish. India*, p. 581, pl. cxliv, fig. 1 (see synon.).

*Kosuati*, Beng.

B. iii. D. 11 (3/8). P. 13. V. 9. A. 7 (2/5). C. 19.

L. 1. 22. L. tr. 3/3.

Length of head 4 to  $4\frac{1}{2}$ , height of body  $3\frac{1}{2}$  in the total length. Eyes—diameter  $2\frac{1}{2}$  to  $2\frac{3}{4}$  in length of head,  $\frac{1}{2}$  diameter from end of snout, 1 diameter apart. Fins—dorsal without any osseous ray; it commences midway between the end of the snout and the base of the caudal fin, its upper edge is oblique and its height exceeds that of the body below it. Lateral line—incomplete, the row of scales on which it is situated is larger than the others, 2 rows between it and the base of the ventral fin; 8 or 9 rows before the base of the dorsal. Colour—silvery, the scales having dark bases; a black band along the top of the dorsal, another across its middle, another on the anterior anal rays.

Hab. Bengal, through the N.W. Provinces, the Deccan and Bombay, and down the Western coast as low as Kotayam in Travancore. This species attains 2 or 3 inches in length.



406. (68.) *Barbus vittatus*.

*Puntius vittatus*, Day, P. Z. S. 1865, p. 303.

*Barbus vittatus*, Day, Fish. India, p. 582, pl. cxliv, fig. 2 (see synon.).

Kooli, Hind.

B. iii. D. 10 (2/8). P. 12. V. 9. A. 7 (2/5). C. 20. ✓

L. 1. 20-22. L. tr. 3/4.

Length of head 4 to  $4\frac{1}{2}$ , height of body  $3\frac{1}{2}$  in the total length. *Eyes*—diameter from 2 to 3 in the adult in the length of the head,  $\frac{2}{3}$  of a diameter from end of snout,  $1\frac{1}{2}$  diameters apart. *Fins*—last undivided dorsal ray articulated, weak, and entire; the fin commences somewhat in advance of the ventrals. *Lateral line*—incomplete, ceasing after about 5 scales; 3 rows between it and the base of the ventral fin, 8 rows before the dorsal fin. *Colour*—silvery, generally with four black spots in the adult, one just before the dorsal, one below its posterior margin, another at the base of the caudal, and a fourth at the base of the anal. The dorsal has a vertical black streak, and a black tip with orange markings. In the immature the colours vary: when the fish is about eight tenths of an inch long, a vertical stripe begins to show itself in the posterior third of the dorsal fin, the summit of which also becomes edged with black, whilst there are some irregular orange markings; in very young specimens the line of demarcation between the green of the back and the silvery abdomen appears like a white band running from the eye to the middle of the tail. In some specimens one or more of the spots are absent.

*Hab.* Mysore, Madras, Wynaad, Malabar, Ceylon, and Cutch; attaining  $1\frac{1}{2}$  inches in length.

407. (69.) *Barbus filamentosus*.

*Leuciscus filamentosus*, Cuv. & Val. H. N. Poiss. xvii, p. 96, pl. 492.

*Barbus filamentosus*, Day, Fish. India, p. 582 (see synon.).

Chevallé, Tamil.

B. iii. D. 11 (3/8). P. 15. V. 9. A. 7 (2/5). C. 19.

L. 1. 21. L. tr. 4/4.

Length of head 5, height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $3\frac{1}{2}$  in the length of the head,  $\frac{2}{3}$  to 1 diameter from end of snout,  $1\frac{3}{4}$  apart. Generally large pores over the snout. *Fins*—dorsal arises slightly nearer to snout than to base of caudal fin; its last undivided ray is osseous, smooth, and feeble, whilst the divided ones are all more or less elongate in the adult. *Lateral line*—complete, 2 rows of scales between it and the base of the ventral; 7 rows before the dorsal fin. *Colour*—silvery, each scale having a metallic green edging; a more or less distinct black blotch exists on the lateral line, on the fourteenth and fifteenth





scales, and before the base of the caudal fin. A very curious change occurs in this fish immediately after death, the whole of its body becoming scarlet. Caudal red, tipped with black and edged with white; dorsal and ventral nearly black.

*Hab.* Western coast and Southern India; attaining 6 inches in length. This form is similar to *B. mahecola* except in wanting barbels.

#### 408. (70.) *Barbus puntio*.

*Cyprinus puntio*, *Ham. Buch. Fish. Ganges*, pp. 318, 389.

*Barbus puntio*, *Day, Fish. India*, p. 582, pl. cxlv, fig. 6 (see *synon.*).

B. iii. D. 11 (3/8). P. 15. V. 9. A. 7 (2/5). C. 21.

L. 1. 23. L. tr. 5/4.

Length of head 4 to  $4\frac{1}{2}$ , height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter two fifths of length of head,  $\frac{1}{2}$  to  $\frac{3}{4}$  of a diameter from end of snout, 1 diameter apart. *Fins*—last undivided dorsal ray osseous and entire, the fin commences rather in advance of the ventrals. *Lateral line*—only extending distinctly for a few scales, but very indistinctly to the base of the caudal fin;  $2\frac{1}{2}$  rows between it and the base of the ventral fin; 8 rows before the dorsal fin. *Colour*—silvery, a wide black band encircles the free portion of the tail, and includes the tip of the anal fin. Dorsal orange, tipped with black.

*Hab.* Bengal and Burma, attaining about 3 inches in length.

#### 20. Genus **NURIA**, Cuv. & Val.

*Syn. Esomus*, Swainson.

Abdomen rounded. Pseudobranchiæ present. Mouth narrow, directed obliquely upwards; suborbitals broad. Barbels four, the rostral shorter than the maxillary pair; pharyngeal teeth crooked, pointed, 5/5. Dorsal fin without osseous ray, and with but few branched ones; it is inserted behind the ventral, but does not extend to over the anal; the latter has but few branched rays or a moderate number. Scales of moderate size. Lateral line, when present, passing to the lower half of the base of the caudal fin. Gill-rakers short.

#### 409. (1.) *Nuria danrica*. (Fig. 106.)

*Cyprinus danrica*, *Ham. Buch. Fish. Ganges*, pp. 325, 390, pl. xvi, fig. 88.

*Nuria danrica*, *Day, Fish. India*, p. 583, pl. cxlv, fig. 7 (var. *mala-barica*) and fig. 8 (var. *alta*) (see *synon.*).

*Danrica* and *Jongja*, Beng.; *Kurriah dahwee*, Hind.; *Purroovoo*, Tamil; *Soomarah*, Hind. (N.W. Prov.); *Chid-dül-lu*, Punjabi; *Käti*, Mahr.; *Moh* and *Mah-wa*, N.W. Prov.; *Nga-zin-byoon*, Burmese.





B. iii. D. 8 (2/6). P. 15. V. 9. A. 8 (3/5).  
L. l. 30-34. L. tr. 5-6/3.

Length of head  $5\frac{1}{4}$  to  $5\frac{1}{2}$  in the total length. *Eyes*—diameter  $3\frac{1}{4}$  to  $3\frac{1}{2}$  in the length of head, 1 diameter from end of snout and apart. *Barbels*—the rostral not so long as the head, the maxillary extend to the base of the ventral or even to that of the caudal fin. *Fins*—dorsal commences nearer to the base of the caudal than

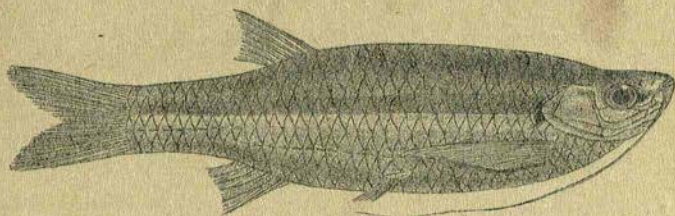


Fig. 106.—*Nuria danrica*, var. *alta*.

to the head; pectoral varies with age, being generally proportionately longer in the immature; sometimes the anal fin is higher than the dorsal, especially in the immature. *Lateral line*—usually present, entire; 2 rows of scales between it and the base of the ventral, 18 before the dorsal fin. *Colour*—a broad black lateral band, sometimes absent.

The variety *Nuria alta*, Blyth, is a Burmese form, which differs in the height of its body, being  $4\frac{1}{2}$  (instead of  $5\frac{1}{2}$ ) in the total length, and its anal fin is a little lower.

*Hab.* India, Ceylon, Burma, and the Nicobars. Dr. Cumberland found this fish in a hot stream of  $112^{\circ}$  Fahr. at Pooree, M. Regnaud in a hot stream at Cannia in Ceylon; it attains 5 inches in length.

## 21. Genus **RASBORA**, Bleeker.

Syn. *Leuciscus*, sp., Cuv. & Val.; *Megarashora*, Günther.

Abdomen rounded. Pseudobranchiae present. Cleft of mouth oblique, lower jaw slightly prominent, having one central and two lateral prominences, one on each side, fitting into corresponding emarginations in the upper jaw. Barbels two (rostral), or none. Eyes with free lids. Pharyngeal teeth 5, 3 or 4, 2/2, 3 or 4, 5. Dorsal fin without any osseous ray and few branched ones, inserted behind the origin of the ventral but not extending to above the anal, which is short. Scales large or of moderate size. Lateral line concave, continued to the middle or lower half of the caudal fin. Gill-rakers short and lanceolate.

*Geographical Distribution.* Africa, India, Ceylon, Burma, to the Malay Archipelago.



*Synopsis of Indian Species.*

- a. Barbels present (*Megarasbora*).  
D. 2/7, A. 2/5, L. 1. 40-44 ..... 1. *R. elanga*, p. 336.  
b. Barbels absent (*Rasbora*).  
D. 2/7, A. 2-3/5, L. 1. 31-34. Generally a  
black lateral stripe ..... 2. *R. daniconius*, p. 336.  
D. 2/7, A. 2/5-6, L. 1. 26-29. Caudal black-  
edged ..... 3. *R. buchanani*, p. 337.

410. (1.) *Rasbora elanga*.

*Cyprinus elanga*, Ham. Buch. Fish. Gang. pp. 281, 386.

*Rasbora elanga*, Day, Fish. India, p. 584, pl. cxlvi, fig. 1 (see synon.).

Dahwiee, Hind.; Elung, Assam.

B. iii. D. 9 (2/7). P. 15. V. 8-9. A. 7 (2/5). C. 19.  
L. 1. 40-44. L. tr. 7-8/6.

Length of head 5 to  $5\frac{1}{2}$ , height of body  $4\frac{1}{2}$  to 5 in the total length. *Eyes*—diameter from 3 to 4 in the length of head, 1 diameter from end of snout,  $1\frac{1}{2}$  diameters apart. Jaws of equal length, prominences and emarginations well-defined. *Barbels*—one short rostral pair. *Teeth*—pharyngeal, 5, 4, 2/2, 4, 5. *Fins*—dorsal commences midway between the posterior margin of the orbit and the base of the caudal fin. The pectoral, which is nearly as long as the head, does not reach the ventral. Caudal forked. *Scales*— $1\frac{1}{2}$  to 2 rows between lateral line and base of ventral fin; 14 rows before base of dorsal fin. *Colour*—silvery, with sometimes a leaden-coloured band along the upper portion of the side.

*Hab.* Bengal, Assam, and Burma; attaining at least 8 inches in length.

411. (2.) *Rasbora daniconius*.

*Cyprinus daniconius*, Ham. Buch. Fish. Gang. pp. 327, 391, pl. xv, fig. 89.

*Rasbora daniconius*, Day, Fish. India, p. 584, pl. cxlvi, fig. 2, and fig. 3 (var. *R. nilgherriensis*) (see synon.).

*Mile-do-ah*, N.W. Prov.; *Chin-do-lah*, Raan-kaal-le and Charl, Punj.; *Neddean jubbu*, Canaresse; *Ovaree candee* and *Purroovoo candee*, Tamil; *Kokanutchee*, Mal.; *Jilo*, Oorlah; *Danikoni* and *Angjani*, Beng.; *Doh-mi-ko-nah*, Assam; *Nga-doung-zee* and *Nga-nauch-youn*, Burm.; *Jonir*, Cutch; *Dándvan*, Maráthi.

B. iii. D. 9 (2/7). P. 15. V. 9. A. 7 (2/5). C. 19.  
L. 1. 31-34. L. tr.  $4\frac{1}{2}$ /5. Vert. 18/14.

Length of head  $4\frac{1}{2}$  to 5, height of body  $4\frac{1}{2}$  to  $5\frac{1}{2}$  or even 6 in the total length. *Eyes*—diameter  $3\frac{2}{3}$  to 4 in the length of head, 1 diameter from end of snout and also apart. Prominences and emarginations on jaws well-defined. Cleft of mouth extends to beneath



anterior margin of orbit. *Teeth*—pharyngeal, curved, sharp, 5, 3, 2/2, 3, 5. *Fins*—dorsal commences rather nearer to origin of the ventral than to that of anal in some examples, at an equal distance from both in others. *Lateral line*—descends very gradually for the depth of 2 rows of scales; 2 rows between it and ventral fin, 14 rows in front of dorsal fin. *Colour*—a black band, more or less distinct, passes from the eye to the base of the caudal. Sometimes this band only exists just at its termination and thus forms a spot at the side of the base of the tail; or in some young specimens a bright silvery band edged above with yellow is seen along the sides. Caudal occasionally with its lobes tipped with grey.

*Hab.* Continent of India, Ceylon, Burma, Malay Archipelago, and Zanzibar; attaining 8 inches in length. Much more common than *R. buechanani*.

412. (3.) *Rasbora buechanani*. (Fig. 107.)

*Cyprinus rasbora*, *Ham. Buch. Fish. Ganges*, pp. 329, 391, pl. 2, fig. 90.  
*Rasbora buechanani*, *Bleeker, Prod. Cyp.* p. 451; *Day, Fish. India*, p. 584, pl. cxlv, fig. 10 (see synonym.).

B. iii. D. 9 (2/7). P. 15. V. 9. A. 7-8 (2/5-6). C. 19.  
L. l. 26-29. L. tr. 4 1/3.

Length of head 5, height of body 4 in the total length. *Eyes*—diameter 3 1/2 in length of head, about 1 diameter from end of snout, and rather more apart. Prominences on jaws well-developed. *Fins*—dorsal commences nearer to the base of the caudal than to the snout. *Lateral line*—concave, 2 rows of scales between

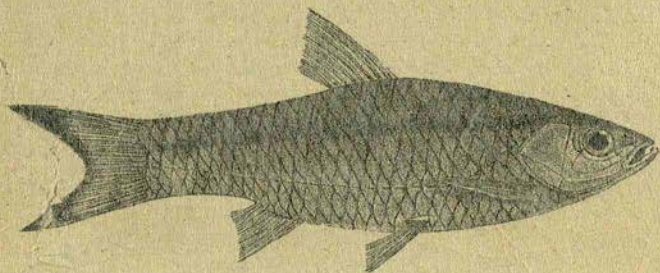


Fig. 107.—*Rasbora buechanani*.

it and the base of the ventral fin; 12 rows anterior to the base of the dorsal fin. *Colour*—silvery, a faint streak along the sides; caudal usually tipped with black, especially in Burmese examples.

*Hab.* Continent of India, Assam, Burma, and Pinang; in India most common in the valley of the Ganges and along the Coromandel coast. This species attains 4 or 5 inches in length.



22. Genus **ASPIDOPARIA** (Heckel), Bleeker.

Syn. *Morara*, Bleeker.

Abdomen rounded. Mouth small, inferior, the lower jaw having a sharp crescentic edge destitute of lip. Barbels absent. Suborbital ring of bones of moderate width or broad. Dorsal fin without osseous and with rather few branched rays, commencing opposite to or behind the origin of the ventrals, but not extending to above the anal, which latter has a moderate number of rays (10 to 12). Scales of moderate size. Lateral line concave, and passing along the lower half of the base of the caudal fin.

*Geographical Distribution.* Throughout Bengal, Assam, Bombay, and Orissa as far as the Kistna river, also Burma.

*Synopsis of Indian Species.*

- |                                      |                              |
|--------------------------------------|------------------------------|
| D. 9-10, A. 10-12, L. 1. 38-42 ..... | 1. <i>A. morar</i> , p. 338. |
| D. 9, A. 9, L. 1. 52-60 .....        | 2. <i>A. jaya</i> , p. 339.  |

413. (1.) *Aspidoparia morar*. (Fig. 108.)

*Cyprinus morar*, *Ham. Buch. Fish. Ganges*, pp. 264, 384, pl. 31, fig. 75.

*Aspidoparia morar*, Day, *Fish. India*, p. 585, pl. cxlvi, fig. 4 (see  
synon.).

*Bayi*, Oorlah; *Morari* and *Morar*, Beng.; *Pa-o-char* and *Chilwa*, Punj.; *Ka-reer-re*, Sind.; *Amlee*, Deccan; *Chippuah*, *Chelwah*, Hind. (N.W. Prov.); *Mou-ah* and *Boreala*, Assam; *Nga-hpyen-boo* and *Yen-boung-za*, Burmese.

- B. iii. D. 9-10 (2-3/7-8). P. 15. V. 8. A: 10-12 (2/8-10).  
C. 19. L. 1. 38-42. L. tr. 5 $\frac{1}{2}$ /5. Vert. 14/21.

Length of head 5 to  $5\frac{3}{4}$ , height of body 4 to  $5\frac{1}{2}$  in the total length. *Eyes*—diameter 3 to  $3\frac{3}{8}$  in length of head,  $\frac{3}{4}$  to 1 diameter from end of snout, and 1 apart. Snout very obtuse. Upper jaw

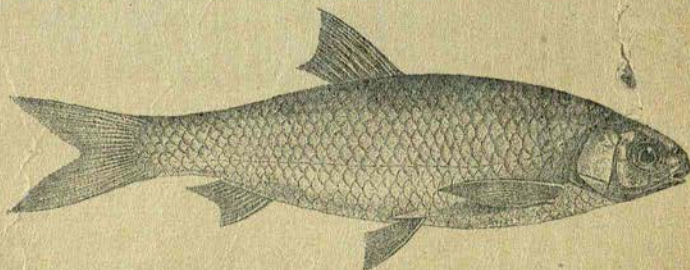


Fig. 108.—*Aspidoparia morar*.

overlapping the lower. A broad suborbital ring of bones. *Teeth*—pharyngeal, 5, 4, 2/2, 4, 5, plough-shaped, the outer row much





larger than the inner ones. *Fins*—dorsal higher than long, with a concave superior margin; it arises midway between the posterior margin of the orbit and the base of the caudal; pectoral as long as the head. *Scales*— $2\frac{1}{2}$  to 3 rows between lateral line and base of ventral fin; 20 rows before base of dorsal fin. *Colour*—back light brown, divided from the silvery side by a burnished streak.

*Hab.* Sind, Punjab, Continent of India (except the Western coast, and localities south of the Kistna river), also Assam and Burma; attaining at least 7 inches in length.

#### 414. (2.) *Aspidoparia jaya*.

*Cyprinus jaya*, *Ham. Buch. Fish. Ganges*, pp. 333, 392.

*Aspidoparia jaya*, *Day, Fish. India*, p. 585, pl. cxlv. fig. 9 (see synon.).

*Chola*, Assam; *Pabruah*, Hind. (N.W. Prov.).

B. iii. D. 9 (2/7). P. 15. V. 8. A. 9 (2/7). C. 21.

L. l. 52–60. L. tr. 7/10.

Length of head  $5\frac{1}{4}$  to  $5\frac{1}{2}$ , height of body 5 in the total length. *Eyes*—diameter  $3\frac{1}{2}$  in length of head,  $\frac{3}{4}$  to 1 diameter from end of snout,  $1\frac{1}{2}$  diameters apart. Mouth considerably overhung by the snout. Both the preorbital and first suborbital bones touch the upper lip; only about half the cheek is covered by the suborbital ring of bones. *Teeth*—pharyngeal, 4, 3/3, 4, the outer row plough-shaped and compressed, the inner consisting of very minute teeth. *Fins*—dorsal commences midway between the snout and the base of the caudal, and opposite the insertion of the ventral. *Scales*—deciduous. *Lateral line*—curving at its termination on to the lower half of the caudal fin;  $4\frac{1}{2}$  rows of scales between it and the base of the ventral fin. *Colour*—silvery, back darkest.

*Hab.* Hardwar on the Ganges and Assam.

#### 23. Genus **ROHTEE**, Sykes.

Syn. *Osteobrama*, Heckel; *Smiliogaster*, Bleeker.

Abdomen rounded. Pseudobranchiæ present. Mouth anterior, lips thin. Barbels present or absent, sometimes quite rudimentary. Pharyngeal teeth, 6 or 5 or 4, 4 or 3, 2 or 3/3 or 2, 3 or 4, 4 or 5 or 6. Dorsal fin short, having an osseous serrated spine, and commencing opposite the interspace between the bases of the ventral and anal fins, the latter of which has many rays. Scales small. Lateral line passing nearly to the centre of the base of the caudal fin. Gill-rakers short.

*Geographical Distribution.* India generally and Burma.

#### *Synopsis of Indian Species.*

##### A. With four barbels.

- |                              |                               |
|------------------------------|-------------------------------|
| D. 11, A. 14, L. l. 44 ..... | 1. <i>R. bakeri</i> , p. 340. |
| D. 12, A. 20, L. l. 59 ..... | 2. <i>R. neilli</i> , p. 340. |





## B. Without any, or with only rudimentary barbels.

- |                                 |                                  |
|---------------------------------|----------------------------------|
| D. 11-12, A. 29-36, L. 1. 55-70 | 3. <i>R. cotio</i> , p. 340.     |
| D. 11, A. 25-28, L. 1. 75-80    | 4. <i>R. vigorii</i> , p. 341.   |
| D. 11-12, A. 20-21, L. 1. 68-73 | 5. <i>R. belangeri</i> , p. 342. |
| D. 11, A. 16, L. 1. 55          | 6. <i>R. ogilbyi</i> , p. 342.   |
| D. 12, A. 30, L. 1. 44          | 7. <i>R. cunma</i> , p. 343.     |

415. (1.) *Rohtee bakeri*.

*Rohtee bakeri*, Day, P. Z. S. 1873, p. 240; *Fish. India*, p. 586, pl. cxlvii, fig. 1.

B. iii. D. 11 (3/8). P. 13. V. 10. A. 14 (3/11).

L. 1. 44. L. tr. 8/7.

Length of head from 5 to 6, height of body from 4 to  $4\frac{1}{2}$  in the total length. *Eyes*—diameter two fifths of length of head, two thirds of a diameter from end of snout, and 1 apart. Profile over nape rather concave, a considerable rise to the base of the dorsal fin. Upper jaw the longer. *Barbels*—four, all very short. *Fins*—dorsal rather higher than the body, its spine weak, as long as the head or rather longer, and serrated posteriorly in almost its whole extent. Caudal deeply forked. *Scales*— $5\frac{1}{2}$  rows between the lateral line and the base of the ventral fin; 15 rows before the base of the dorsal fin. *Colour*—silvery, caudal and dorsal edged with black.

*Hab.* Kotayam in Travancore, whence I received specimens up to  $4\frac{1}{2}$  inches in length.

416. (2.) *Rohtee neilli*.

*Rohtee neilli*, Day, P. Z. S. 1873, p. 239; *Fish. India*, p. 586, pl. cxlvi, fig. 5.

B. iii. D. 12 (4/8). P. 13. V. 10. A. 20 (3/17). C. 19.

L. 1. 59. L. tr. 12/18.

Length of head  $4\frac{1}{3}$ , height of body  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $2\frac{2}{3}$  in the length of the head,  $\frac{2}{3}$  of a diameter from end of snout and also apart. Profile over nape concave, from thence a considerable rise to the base of the dorsal fin. Upper jaw somewhat the longer. *Barbels*—two pairs, all about as long as the eye. *Fins*—dorsal three fourths as high as the body, its last undivided ray osseous, very strong, serrated, and as long as the head excluding the snout. Pectoral nearly as long as the head. Caudal deeply forked. *Lateral line*—strongly marked in its first few scales, the rows of scales nearly regular; 8 rows between the lateral line and base of ventral fin. Free portion of the tail as long as high. *Colour*—silvery, opercles golden.

*Hab.* Bhavani river at base of the Nilgiri hills.

417. (3.) *Rohtee cotio*. (Fig. 109.)

*Cyprinus cotio*, Ham. Buch. *Fish. Ganges*, pp. 339, 393, pl. 39, fig. 93.  
*Rohtee cotio*, Day, *Fish. India*, p. 587, pl. cli, fig. 1, pl. cxlvii, fig. 2 (var. *R. alfrediana*) (see synonym.).





*Koti* and *Goonia*, Beng. ; *Goordah*, *Chen-da-lah* and *Muck-nee*, Hind. (N.W. Prov.) ; *Puttoo* and *Duk-ree*, Sind ; *Nga-hpan-ma*, Burm. ; *Gud-dani*, Maráthi ; *Gunda*, Ooriah.

B. iii. D. 11-12 (3-4/8). P. 13. V. 10. A. 29-36 (2-3/27-33).  
C. 19. L. 1. 55-70. L. tr. 9-15/14-21.

Length of head  $5\frac{1}{2}$  to 6, height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $2\frac{1}{2}$  to 3 in the length of head, one half a diameter from the end of the snout, and 1 to  $1\frac{1}{4}$  apart. Profile over nape concave, from thence a great rise to the base of the dorsal fin. Upper jaw slightly the longer. *Barbels*—absent or very

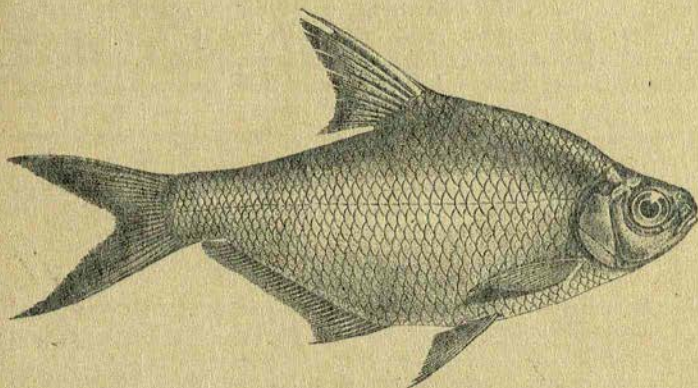


Fig. 109.—*Rohtee cotio*, var. *alfrediana*.

rudimentary. *Fins*—dorsal with its osseous ray weak and serrated. Pectoral reaches to over ventral and the latter to the anal. Caudal lobed. *Scales*—vary in number along the lateral line, whilst in some specimens (var. *cotio*) the rows are very irregular in the last three fourths of the body below the lateral line. The number of rows between the lateral line and base of the ventral fin also varies, being most in the variety *R. cotio* (12-13), whereas in the variety *R. alfrediana* there are rarely more than 7 or 8 ; 24 rows of scales before the base of the dorsal fin. *Colour*—silvery, darkest along the back and sometimes with a silvery lateral band. Some have a black blotch before the base of the dorsal fin, and another on the nape.

*Hab.* From Sind throughout India (except the Malabar coast and south of the Kistna) and Burma ; attaining at least 6 inches in length.

#### 418. (4.) *Rohtee vigorsii*.

*Rohtee vigorsii*, Sykes, Tr. Z. S. ii, 1841, p. 364, pl. 63, fig. 3 ; Day, Fish. India, p. 587, pl. cxlvii, fig. 3 (see synonym.).

*Gollund*, Ooriah ; *Khira*, Tel. ; *Phek*, Maráthi.





- B. iii. D. 11 (3/8). P. 19. V. 10. A. 25-28 (2-3/23-26).  
C. 19. L. 1. 75-80. L. tr. 16-18/21.

Length of head 5, height of body 3 to 4 in the total length. *Eyes*—diameter 3 to  $3\frac{1}{2}$  in the length of head, 1 diameter from end of snout and also apart. Dorsal profile elevated, a concavity from the snout to over the nape. The lower jaw somewhat longer than the upper, whilst posteriorly the cleft of the mouth extends to below the anterior margin of the orbit. Preorbital nearly as high as broad, suborbitals very narrow. *Barbels*—absent; or a very rudimentary maxillary pair. *Teeth*—pharyngeal, crooked, 5, 4, 2/2, 4, 5. *Fins*—dorsal spine strong and deeply denticulated, its osseous portion not so long as the head. Pectoral as long as the head excluding the snout. Caudal deeply forked. *Lateral line*—most strongly developed in the first few scales; 11 rows between it and base of ventral fin; 34 rows before base of dorsal fin. *Colour*—greenish superiorly, silvery beneath; snout black; the caudal fin slightly stained with grey. The young have a silvery band along the side.

*Hab.* Deccan, Kistna and Godáviri rivers to their terminations. It attains at least 9 inches in length.

419. (5.) *Rohtee belangeri*.

*Leuciscus belangeri*, *Cuv. & Val. H. N. Poiss.* xvii, p. 99.

*Rohtee belangeri*, *Day, Fish. India*, p. 537, pl. cxlvii, fig. 4 (see synon.)

*Nga-hpoh-oung*, *Nga-net-hya*, and *Nga-phama*, Burm.

- B. iii. D. 11-12 (3-4/8). P. 17. V. 9. A. 20-21 (3/17-18).  
C. 17. L. 1. 68-73. L. tr. 18/22.

Length of head  $5\frac{1}{2}$  to 6, height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter 3 to  $3\frac{1}{4}$  in length of head,  $\frac{3}{4}$  of a diameter from end of snout,  $1\frac{1}{2}$  diameters apart. Lower jaw slightly the shorter. *Teeth*—pharyngeal, 4, 3, 2/2, 3, 4, with the outer one in each row serrated on its edges. *Fins*—dorsal osseous ray strong and serrated posteriorly, the bony portion being as long as the head. Caudal deeply lobed. *Scales*—14 rows between lateral line and base of ventral fin; 25 rows before base of dorsal fin. *Colour*—silvery, back greyish, and the Indian variety is partially banded in the young. Sometimes a dark streak from the shoulder to the base of the pectoral fin. The very young have a black band over the free portion of the tail.

*Hab.* The Godáviri river, and throughout Burma, but the specimens from the latter locality are darker in colour and want the vertical bands. This species attains 15 inches and more in length.

420. (6.) *Rohtee ogilbii*.

*Rohtee ogilbii*, *Sykes, Tr. Z. S. ii*, 1841, p. 364, pl. lxiii, fig. 2; *Day, Fish. India*, p. 588, pl. cxlvii, fig. 5 (see synon.).





- B. iii. D. 11 (3/8). P. 15. V. 10. A. 16 (3/13). C. 20.  
L. 1. 55. L. tr. 13/11.

Length of head 5 to 6, height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter  $2\frac{2}{3}$  to  $3\frac{1}{2}$  in length of head,  $\frac{2}{3}$  to 1 diameter from end of snout,  $1\frac{1}{4}$  diameters apart. Dorsal profile rather more convex than that of the abdomen. Lower jaw the shorter. *Barbels*—absent. *Teeth*—pharyngeal, curved, pointed, 5, 4, 2/2, 4, 5. *Fins*—dorsal osseous ray strong and coarsely serrated. Caudal lobed in its last two thirds. *Scales*—nine or ten rows between lateral line and base of ventral fin. *Colour*—purplish silvery along the back, becoming silvery white from about four rows of scales above the lateral line. The young sometimes have a dark spot at the base of the caudal fin, and four or five narrow black bands descending from the back to the middle of the side.

*Hab.* Deccan, the Kistna and Godavari rivers; attaining 6 inches or more in length.

421. (7.) Rohtee cunma.

*Abramis cunma*, Tickell, MSS.

Rohtee cunma, Day, *Fish. India*, Suppl. p. 807.

*Nga-koon-ma*, Burmese.

- B. iii. D. 12 (3/9). P. 13. V. 10. A. 30. C. 18. L. 1. 44.

Length of head  $5\frac{1}{2}$ , height of body 3 in the total length. *Eyes*—diameter 3 in the length of the head, 1 diameter from the end of the snout and also apart. Profile over nape slightly concave, a considerable rise from snout to base of dorsal fin; snout somewhat obtuse, upper jaw the longer. *Fins*—dorsal anteriorly two thirds as high as the body below it, commencing somewhat nearer to the snout than to the base of the caudal fin, its spine weak and longer than the head, not serrated. Caudal deeply forked, lower lobe somewhat the longer. *Lateral line*—strongly marked in its first four scales. *Colour*—olive above, becoming silvery on the sides and below; a brassy tinge along the lateral line and over the cheeks and gill-covers. Fins amber; dorsal and caudal with a narrow black edge.

*Hab.* Colonel Tickell procured this species at Moulmein, where he found it to be common. His figure is  $5\frac{1}{2}$  inches long.

24. Genus **BARILIUS**, Hamilton Buchanan.

Syn. *Opsarius*, sp., McClelland; *Pachystomus*, Heckel; *Chebrus*, Swains.; *Shucra*, Bleeker; *Opsaridium*, Peters; *Pteropsarion* and *Bola* (not H. B.), Günther.

Abdomen rounded. Pseudobranchiæ present. Mouth anterior, sometimes oblique, having a moderate or deep cleft. Jaws compressed, the lower usually with a knob above the symphysis, and an emargination to receive it in the upper jaw. Suborbital ring of bones generally broad, more especially the third, which may even





be entirely behind the vertical from the posterior margin of the orbit. Barbels four (*Pachystomus*, "Heckel," Bleeker), or two (*Bendilisis*, Bleeker), or none (*Barilius*, Ham. Buch.); occasionally very rudimentary ones are present. Pharyngeal teeth in two or three rows, hooked, 5, 3 or 4, 2 or 1/1 or 2, 4 or 3, 5; or else 5, 2 or 3, 4/4, 3 or 2, 5. Dorsal fin without osseous ray, of moderate length, inserted posteriorly to the ventrals, sometimes extending to above the anal, which latter is somewhat elongated. Scales of moderate or small size. Lateral line concave, continued on to the middle or lower half of the caudal, or incomplete, or absent. Gill-rakers very short or absent.

The genera *Barilius* and *Danio* are somewhat difficult to diagnose apart; the former, however, has the snout compressed, the mouth anterior, and usually spots or vertical bars on the body. In *Danio* the upper jaw is rather broad, the mouth directed obliquely upwards, the apex of the lower jaw being nearly or quite on a level with the dorsal profile; the body with longitudinal bands. Adult specimens of *Barilius* have usually open pores or glands on the snout and jaws.

*Geographical Distribution.* Fresh waters of India, Ceylon, and Burma, extending to the Malay Archipelago; also found in the Nile and East Africa.

### *Synopsis of Indian Species.*

#### A. With four barbels. (*Pachystomus*.)

- |   |                                   |
|---|-----------------------------------|
| D. 9, A. 13-15, L. 1. 42-44. 10 vertical bars .....   | 1. <i>B. vagra</i> , p. 345.      |
| D. 9, A. 12-13, L. 1. 43. Back dark, sides silvery .....                                      | 2. <i>B. modestus</i> , p. 345.   |
| D. 9, A. 12, L. 1. 56-62. Silvery .....   | 3. <i>B. radiolatus</i> , p. 346. |
| D. 9, A. 10, L. 1. 60-70. Twelve vertical bars .....  | 4. <i>B. chaera</i> , p. 346.     |
| D. 9, A. 9-10, L. 1. 40-43. Short vertical bars; each scale with a black spot in adults ..... | 5. <i>B. bendelisis</i> , p. 347. |

#### B. With two barbels. (*Bendilisis*.)

- |  |                               |
|--|-------------------------------|
| D. 9, A. 13-14, L. 1. 43-46. With 14 or 15 vertical bars ..... | 6. <i>B. barila</i> , p. 348. |
|--|-------------------------------|

#### C. Without or with only rudimentary barbels. (*Barilius*.)

- |  |                                   |
|--|-----------------------------------|
| D. 13, A. 16-17, L. 1. 38. A row of large spots .....  | 7. <i>B. bakeri</i> , p. 348.     |
| D. 10-12, A. 15-17, L. 1. 40. 15 vertical bars .....   | 8. <i>B. gatensis</i> , p. 349.   |
| D. 2-13, A. 14-16, L. 1. 38. Two rows of spots .....   | 9. <i>B. canarensis</i> , p. 350. |
| D. 9, A. 13-14, L. 1. 39-42. Nine vertical bands ..... | 10. <i>B. barna</i> , p. 350.     |
| D. 9, A. 14, L. 1. 44-48. Two rows of spots .....      | 11. <i>B. guttatus</i> , p. 351.  |





- D. 9, A. 13, L. 1. 70-75. Two rows of spots ..... 12. *B. tilco*, p. 351.  
D. 9, A. 14-15, L. 1. 40. Silvery ..... 13. *B. evezardi*, p. 352.  
D. 10-11, A. 13, L. 1. 88-94. Two rows of blotches ..... 14. *B. bola*, p. 352.

422. (1.) *Barilius vagra*.

*Cyprinus vagra*, *Ham. Buch. Fish. Ganges*, pp. 239, 385.

*Barilius vagra*, *Day, Fish. India*, p. 589, pl. cxlviii, fig. 3 (see synon.).

*Lo-har-ree* and *Charl*, *Punj.*; *Mon-e-o-ree*, *Assam*.

- B. iii. D. 9 (2/7). P. 16. V. 9. A. 13-15 (2-3/11-12). C. 19.  
L. 1. 42-44. L. tr. 7-8/4. Vert. 16-23.

Length of head 5 to  $5\frac{1}{2}$ , height of body 5 to 6 in the total length. *Eyes*—diameter  $3\frac{1}{2}$  to 4 in length of head, 1 diameter from end of snout and  $1\frac{1}{4}$  apart. The posterior extremity of the maxilla extends to beneath the middle of the orbit; lower jaw slightly the longer. Third suborbital bone twice as deep as the uncovered portion of the cheek below it. Jaws of equal length anteriorly, the upper sometimes a little notched, the lower covered with large pores in the adult. Axillary process very short. *Barbels*—rostral nearly half as long as the head, maxillary pair very short. *Teeth*—pharyngeal, crooked, 5, 3,  $2\frac{1}{2}$ , 3, 5. *Fins*—dorsal commencing midway between the posterior edge of the orbit and the root of the caudal, its last two rays being over the anal; pectoral not quite so long as the head; caudal deeply forked. *Scales*—2 to  $2\frac{1}{4}$  rows between lateral line and base of ventral fin; 20 rows before base of dorsal. *Colour*—silvery, 10 to 14 dark bands (sometimes indistinct) descend from the back to the lateral line; fins yellowish, the edge of the caudal stained greyish.

*Hab.* Sind hills, rivers in the Himalayas and Sub-Himalayan range, Jumna and Ganges, also the Punjab, Assam, and Ceylon. This species attains above 5 inches in length.

423. (2.) *Barilius modestus*.

*Barilius (Pachystomus) modestus*, *Day, J. A. S. B.* xli, 1872, p. 4.

*Barilius modestus*, *Day, Fish. India*, p. 589, pl. cli, fig. 3 (see synon.).

*Lacoya*, *Arabi*.

- B. iii. D. 9 (2/7). P. 15. V. 9. A. 12-13 (2/10-11). C. 19.  
L. 1. 43. L. tr.  $6\frac{1}{4}$ .

Length of head  $5\frac{1}{2}$ , height of body  $5\frac{1}{4}$  in the total length. *Eyes*—diameter 4 in the length of head and situated in its anterior half, 1 diameter from end of snout and also apart. Suborbital ring of bones wide, the third nearly touching the preopercular ridge. Upper jaw slightly the longer, and notched at its end in large examples. The posterior extremity of the maxilla reaches to below the middle of the orbit. *Barbels*—rostral extend to beneath





the front margin of the eyes, maxillary pair minute. Axillary process short. *Fins*—dorsal commencing midway between the middle of the caudal lobes and the snout; it is entirely, or all but the last ray, in advance of the anal. Pectoral nearly as long as the head, but not reaching the ventrals, which last extend halfway to the base of the anal. *Lateral line*—very slightly concave, two and a half rows of scales between it and the base of the ventral fin; 19 rows before the base of the dorsal fin. *Colour*—back brownish, strongly defined from the silvery sides; caudal edged with dark; the other fins yellow; a dark band along the dorsal.

*Hab.* The Indus in Sind, and the Ravi river at Lahore; attaining 4 or 5 inches in length.

424. (3.) *Barilius radiolatus*.

*Barilius radiolatus*, *Günther, Cat. vii, p. 287; Day, Fish. India, p. 590.*

B. iii. D. 10 (2/8). P. 17. V. 9. A. 12 (2/10). C. 19.

L. l. 56-62. L. tr. 9-10/6.

<sup>mm</sup> Length of head  $4\frac{1}{4}$  to  $4\frac{1}{2}$ , height of body  $4\frac{1}{2}$  in the total length, excluding the caudal fin. *Eyes*—diameter 3 in length of head,  $\frac{3}{4}$  to 1 diameter from end of snout, and rather more apart. The posterior extremity of the maxilla extends to a little behind the front edge of the orbit; the lower jaw projects slightly when the mouth is closed. The third suborbital bone nearly reaches the preopercular ridge. Axillary process short. *Barbels*—two short pairs. *Fins*—the dorsal higher than long, commencing midway between the eye and the root of the caudal fin, its last ray not extending so far as to above the anal. The pectoral does not reach the ventral nor the latter the anal. Caudal apparently deeply forked. *Scales*—two rows between lateral line and base of ventral fin; 24 rows before base of dorsal. The specimens in the British Museum are in a very bad state.

*Hab.* Central India.

425. (4.) *Barilius shacra*.

*Cyprinus shacra*, *Ham. Buch. Fish. Gang.* pp. 271, 385.

*Barilius shacra*, *Day, Fish. India, p. 590, pl. cxlviii, fig. 5* (see *synon.*).

*Gurha, Punj.*

B. iii. D. 9 (2/7). P. 15. V. 8. A. 10 (2/8). C. 19.

L. l. 60-70. L. tr. 10-11/9.

Length of head 5 to  $5\frac{1}{4}$ , height of body 5 in the total length. *Eyes*—diameter  $3\frac{1}{2}$  to 4 in length of head, 1 diameter from end of snout and also apart. Jaws of about equal length in front. Third suborbital bone two thirds as wide as the uncovered portion of the cheek below it. *Barbels*—the maxillary pair as long as the eye, the rostral slightly longer. Axillary process extends to rather behind origin of pectoral fin. *Teeth*—pharyngeal, 5, 3/3, 5, crooked.





*Fins*—last dorsal ray over the first anal. The six outer pectoral rays strong, more especially in the adult. Caudal deeply forked. *Lateral line*—goes to the centre of the base of the caudal fin, about 7 rows of scales between it and the base of the ventral fin; 25 before the dorsal fin. *Colour*—back olive, rest of the body pinkish silvery; about twelve incomplete bars from the back downwards towards the lateral line, a dark bar along the upper third of the dorsal fin. The lower two thirds of the vertical fins stained in some examples.

*Hab.* From Hardwar down the valley of the Ganges, the N.W. Provinces, and Assam. The species is said to attain 5 inches in length.

426. (5.) *Barilius bendelisis*.

*Cyprinus bendelisis*, *Ham. Buch. Journ. Mysore*, iii, p. 345, pl. 32.

*Barilius bendelisis*, *Day, Fish. India*, p. 590, pl. cxlviii, figs. 7, 8, and 9 (see synonym.).

*Khoksa*, Beng.; *Pak-tah*, *Kun-mul*, *Dah-rah*, *Burreuh*, and *Puck-wah-ree*, Punj.; *Johra*, Mahr.; *Aguskitti* and *Marritan candee*, Tam.; *Bahgra bahri*, Oorlah; *Nga gya*, Burm.

B. iii. D. 9 (2/7). P. 15. V. 9. A. 9-10 (2-3/7-8). C. 18.  
L. l. 40-43. L. tr. 7-8/5.

Length of head  $4\frac{2}{3}$  to  $5\frac{1}{4}$ , of caudal 5 to  $5\frac{1}{2}$ , height of body  $4\frac{1}{4}$  (to  $5\frac{1}{4}$  in the young) in the total length. *Eyes*—diameter  $4\frac{1}{4}$  to  $4\frac{2}{3}$  in length of head,  $1\frac{1}{2}$  diameters from end of snout, and  $1\frac{1}{4}$  apart. The maxilla reaches to below the first third of the orbit. The third suborbital bone varies in depth from being equal to twice as high as the uncovered portion of the cheek below it. Open pores on the snout and lower jaw in the adult or even in the young in examples from hilly districts, sometimes pores on preorbital. Axillary process broad, lancet-shaped, and longer in some examples than in others. *Barbels*—four, generally short, the rostral pair occasionally absent. *Teeth*—pharyngeal, 5, 4, 2/2, 4, 5. *Fins*—dorsal higher than its base is long, it commences nearer to the base of the caudal fin than to the snout, and does not extend to over the anal. Pectoral may or may not reach the ventral; its outer six rays are thickened and very stiff in some examples, especially males from the hills. The ventral in some does, in others does not reach the vent. Caudal forked, lower lobe usually slightly the longer. *Scales*— $2\frac{1}{2}$  to  $3\frac{1}{2}$  rows between lateral line and base of ventral fin; 20 rows before base of dorsal. *Colour*—silvery, shot with purple; back of a slaty grey, descending in bars towards the lateral line, most distinct in immature specimens. In adults these bars become indistinct and sometimes lost. Each scale in adults with a black spot at its base, and two on each scale forming the lateral line, but no spots in the young. Fins whitish, tinged with orange. A grey margin to the dorsal and caudal, the lower lobe of which is sometimes stained black. Shoulder-process black-edged.





This fish shows considerable alterations in colour and form as it gets older, there are likewise individual variations that have been considered species.

Variety *cocsa* (*Cyprinus cocsa*, Ham. Buch.) shows rather a deep third suborbital bone, the eyes a little larger; the dorsal, pectoral, and ventral not so developed as in the next variety. The size of the axillary process and the presence or absence of bars on the back are subject to individual variation.

Variety *chedra* (*C. chedra*, Ham. Buch.) has the third suborbital less deep than in the preceding form, the dorsal, pectoral, and ventral more developed, and the axillary process larger. The outer pectoral rays are very stiff.

The ova of this species are large; I found the fish breeding at Cuttack, in the month of November.

*Hab.* Assam and Himalayas, through the continent of India as far as the Western Ghats, not recorded from the coast of Malabar or Canara nor from Sind. Found also in Ceylon, whence Dr. Kelaart brought some specimens to the museum of the East-India Company. The species attains at least 6 inches in length.

#### 427. (6.) *Barilius barila*.

*Cyprinus barila*, Ham. Buch. *Fish. Gang.* pp. 267, 384.

*Barilius barila*, Day, *Fish. India*, p. 591, pl. cxlviii, fig. 4 (see synon.).

*Gilland* and *Caedra*, Beng.; *Persee*, Hind.

B. iii. D. 9 (2/7). P. 13. V. 9. A. 13-14 (3/10-11). C. 19.  
L. l. 43-46. L. tr. 7/5.

Length of head 5 to  $5\frac{1}{2}$ , height of body  $5\frac{1}{4}$  to  $5\frac{1}{2}$  in the total length. *Eyes*—diameter  $3\frac{1}{2}$  to 4 in length of head,  $\frac{3}{4}$  to 1 diameter from end of snout and also apart. The posterior extremity of the maxilla reaches to below the anterior third of the orbit. Third suborbital bone wide and nearly touching the preopercular ridge. *Barbels*—a small rostral pair. *Teeth*—pharyngeal, crooked, pointed, 5, 4, 3/3, 4, 5. *Fins*—dorsal almost entirely in advance of anal. The pectoral is nearly as long as the head, but does not quite reach the ventral. *Scales*— $1\frac{1}{2}$  to 2 rows between lateral line and base of ventral; 18 rows before the dorsal. *Colour*—silvery, with 14 or 15 vertical blue bands in the middle third of the side of the fish.

*Hab.* Delhi, N.W. and Central Provinces, Bengal, Orissa, and Lower Assam. Grows to 4 inches in length.

#### 428. (7.) *Barilius bakeri*.

*Barilius bakeri*, Day, *P. Z. S.* 1865, p. 305; *Fish. India*, p. 591, pl. cli, fig. 2 (see synon.).

B. iii. D. 13 (3/10). P. 15. V. 9. A. 16-17 (2-3/14). C. 17.  
L. l. 38. L. tr. 9/4.





Length of head  $4\frac{1}{2}$  to  $4\frac{3}{4}$ , height of body  $3\frac{1}{2}$  to  $3\frac{3}{4}$  in the total length. *Eyes*—diameter 4 in length of head, 1 diameter from end of snout,  $1\frac{1}{2}$  diameter apart. Lower jaw the longer, with a knob above the symphysis. The posterior extremity of the maxilla extends to nearly below the centre of the orbit. Suborbital ring of bones wide, the third almost entirely covering the cheek. Some pores exist along the margin of the lower lip, on the snout, and on the anterior edge of the preorbital. *Barbels*—absent. *Teeth*—pharyngeal, curved and pointed, 5, 4,  $2\frac{1}{2}$ , 4, 5. *Fins*—dorsal extending to above the fourth anal ray; caudal forked. *Scales*—2 rows between lateral line and base of ventral fin. *Colour*—greyish, becoming white on the abdomen. A row of large bluish spots along the side. Dorsal, anal, and pectoral fins margined with white, and having dark grey bases. Caudal grey in the centre.

*Hab.* Hill-ranges of Travancore. Attaining 6 inches in length.

429. (8.) *Barilius gatensis*.

*Leuciscus gatensis*, Cuv. & Val. *H. N. Poiss.* xvii, p. 309, pl. 503.

*Barilius gatensis*, Day, *Fish. India*, p. 592, pl. cxlix, fig. 2 (see synon.).

*Choaree* (at Coonoor) and *Aart-candee* (Bhavāni), Tam. "River carp."

B. iii. D. 10–12 (2–3/8–9). P. 15. V. 9. A. 15–17 (3/12–14).  
C. 18. L. 1. 39–40. L. tr. 8/5.

Length of head  $4\frac{1}{2}$  to  $4\frac{1}{2}$ , height of body 4 to  $4\frac{1}{2}$  in the total length. *Eyes*—diameter 3 to  $4\frac{1}{2}$  in the length of head, 1 to  $1\frac{1}{2}$  diameters from end of snout,  $1\frac{1}{2}$  diameters apart. Cleft of mouth extending to below the centre of the orbit. The third suborbital is about three times as broad as the uncovered portion of the cheek below it. The anterior portion of the snout and the sides of the jaws covered with large glands; there are likewise some on the lower jaw. *Barbels*—two very minute pairs, which appear to be sometimes wanting. *Teeth*—pharyngeal, crooked, pointed, 5, 3 or 4,  $2\frac{1}{2}$ , 4 or 3, 5. *Fins*—dorsal commences midway between end of snout and middle of caudal fin, extending to above the third anal ray. Pectoral as long as the head excluding the snout, its outer ray stiff. Caudal moderately lobed. *Scales*— $2\frac{1}{2}$  rows between lateral line and base of ventral. *Colour*—silvery grey, with about 15 vertical bars descending from the back, and becoming more or less broken up in the adult. Dorsal and anal with dark bases and light margins. The females and young generally have smooth scales, whereas most of the adult males have one or more rough spots on each.

*Hab.* Western Ghats of Malabar and Nilgiri hills, up to about 5000 feet above the level of the sea; attaining at least 6 inches in length.



430. (9.) *Barilius canarensis*.

*Opsarius canarensis*, Jerdon, *Mad. Jour. L. S.* xv, 1849, p. 329.

*Barilius canarensis*, Day, *Fish. India*, p. 592, pl. cxlix, fig. 1 (see synon.).

B. iii. D. 12-13 (2/10-11). P. 15. V. 9. A. 14-16 (2/12-14).  
C. 21. L. 1. 38. L. tr. 9/4.

Length of head  $4\frac{1}{2}$  to  $4\frac{3}{4}$ , height of body  $3\frac{1}{2}$  to  $3\frac{3}{4}$  in the total length. *Eyes*—diameter  $3\frac{1}{2}$  in length of head, 1 diameter from end of snout and also apart. Suborbitals nearly cover the cheek. The posterior extremity of the maxilla reaches to below the anterior third of the orbit. *Barbels*—absent. *Fins*—dorsal commences midway between snout and base of caudal. *Scales*— $2\frac{1}{2}$  rows between lateral line and base of ventral; 15 rows before dorsal. Gill-rakers distinct. *Colour*—greenish above, golden on the sides, a single or double row of large vertical green spots along the body. Fins grey, with broad white margins.

*Hab.* Canara and Malabar on the western coast; attaining 6 inches in length.

431. (10.) *Barilius barna*.

*Cyprinus barna*, Ham. *Buch. Fish. Ganges*, pp. 268, 384.

*Barilius barna*, Day, *Fish. India*, p. 592, pl. cxlviii, fig. 1 young, and fig. 2 adult (see synon.).

*Bahri*, Ooriah; *Balisundree* and *Oz-o-la*, Assam.

B. iii. D. 9 (2/7). P. 15. V. 9. A. 13-14 (3/10-11). C. 19.  
L. 1. 39-42. L. tr. 8-9/6.

Length of head  $4\frac{3}{4}$  to  $5\frac{1}{4}$ , height of body  $3\frac{1}{2}$  to 4 in the total length. *Eyes*—diameter  $2\frac{1}{2}$  to  $3\frac{1}{2}$  in the length of the head, two thirds to one diameter from the end of snout, and  $1\frac{1}{3}$  apart. Third suborbital bone thrice as deep as the uncovered portion of the cheek below it. The maxilla reaches to beneath the first third of the orbit; the adult has open pores on both jaws and snout. Axillary process reaches to above base of pectoral fin. *Barbels*—absent. *Fins*—dorsal varies considerably, commencing midway between the eye and the base of the caudal fin, it is elevated in some specimens but not in others, while the last ray may extend (especially in the young) almost to the base of the caudal fin. The pectoral reaches to above the ventral, and in the young has its outer rays thickened. The ventral does not extend to the anal in the young, its inner rays are very thick. Anal commences under the middle or end of the dorsal fin. *Scales*— $2\frac{1}{2}$  rows between lateral line and base of ventral fin; 16 rows before base of dorsal. *Colour*—dull green in the adult, with from 9 to 11 vertical dark bands on the body; dorsal and caudal fins edged with black. The young have the back grey, the sides silvery shot with gold, and





from 7 to 9 narrow deep blue vertical bands. Fins yellow, the dorsal and caudal stained externally with black.

*Hab.* Assam, the Ganges and its branches, Bengal and Orissa; attaining 5 inches or more in length.

432. (11.) *Barilius guttatus*.

*Opsarius guttatus*, Day, P. Z. S. 1869, p. 620.

*Barilius guttatus*, Day, *Fish. India*, p. 593, pl. cxlix, fig. 3 (see synon.).

*Nga-la-wah*, Burm.

B. iii. D. 9 (2/7). P. 15. V. 9. A. 14 (3/11). C. 17.

L. 1. 44-48. L. tr. 9/5.

Length of head  $4\frac{1}{2}$  to  $4\frac{2}{3}$ , height of body  $5\frac{1}{2}$  to 6 in the total length. *Eyes*—diameter 4 to 5 in the length of the head, 1 to  $1\frac{1}{4}$  diameters from the end of the snout and apart. Cleft of mouth deep, extending nearly 1 diameter behind the orbit. Upper jaw the longer; a well-developed knob above symphysis of lower jaw. Suborbitals very broad, especially the hindmost, which is nearly behind the vertical from the posterior margin of the orbit, and almost covers the cheek. *Barbels*—a rudimentary rostral or maxillary pair may be present. *Fins*—dorsal commences midway between posterior extremity of orbit and base of caudal, being opposite the interspace between the ventral and anal fins. Caudal forked, lower lobe slightly the longer. *Lateral line*—complete, 2 rows of scales between it and the ventral fin; 23 rows before the base of the dorsal fin. *Colour*—silvery shot with purple, one or two rows of blue spots along the side. Lower caudal lobe orange, upper lobe with a dark edging, and a dark band along the upper half of the lower lobe.

*Hab.* Irrawaddy from Prome to Mandalay; attaining at least 7 inches in length.

433. (12.) *Barilius tileo*.

*Cyprinus tileo*, Ham. Buch. *Fish. Ganges*, p. 276.

*Barilius tileo*, Day, *Fish. India*, p. 593, pl. cxlix, fig. 5 (see synon.).

*Tilei*, *Sel-len*, *Boolla*, and *Sund-u-a-rie*, Assam.

B. iii. D. 9 (2/7). P. 14. V. 9. A. 13 (3/10). C. 20.

L. 1. 70-75. L. tr. 14/7.

Length of head  $4\frac{1}{2}$  to  $5\frac{1}{4}$ , height of body  $4\frac{2}{3}$  in the total length. *Eyes*—diameter 4 to  $4\frac{1}{2}$  in length of head, 1 to  $1\frac{1}{4}$  diameters from end of snout, and  $1\frac{1}{2}$  apart. Abdominal profile more convex than the dorsal. Head compressed, snout pointed. Upper jaw slightly the longer when the mouth is closed; symphyseal knob not developed. The posterior extremity of the maxilla reaches to beneath the middle of the eye. Suborbital ring of bones broad, the third being about equal to twice the extent of the uncovered portion of the cheek below it. Axillary process well-developed.





having a soft scaled prolongation. *Barbels*—rudimentary or entirely absent. *Fins*—dorsal commences midway between the hind edge of the eye and the base of the caudal fin, the anal being behind the vertical from the last dorsal ray. Pectoral as long as the head excluding the snout. Caudal deeply forked. *Scales*— $3\frac{1}{2}$  to  $4\frac{1}{2}$  rows between lateral line and base of ventral; 30 rows before base of dorsal. *Colour*—bluish along the back, becoming silvery on the sides and beneath; two or more rows of blue spots and blotches, having a vertical character, along the sides. Dorsal and caudal fins dark grey, with a light pinkish edge; the other fins yellowish.

*Hab.* Bengal and Assam; attaining at least 5 inches in length.

434. (13.) *Barilius evezardi*.

*Barilius evezardi*, Day, J. A. S. B. xli, 1872, pt. ii, p. 326; *Fish. India*, p. 593, pl. cxlviii, fig. 6 (see synonym.).

B. iii. D. 9 (2/7). P. 13. V. 9. A. 14–15 (2/12–13). C. 19.  
L. l. 40. L. tr. 6–7/4.

Length of head  $5\frac{1}{2}$ , height of body 5 to  $5\frac{1}{2}$  in the total length. *Eyes*—diameter 3 in the length of the head,  $\frac{3}{4}$  of a diameter from end of snout, and 1 apart. Snout compressed; lower jaw slightly the longer and with a well-developed knob at the symphysis; the maxilla reaches to below the front edge of the eye. Suborbital ring of bones rather wide, the third being more than twice as deep as the uncovered portion of the cheek below it. *Barbels*—absent. *Teeth*—pharyngeal, curved, pointed, 5, 3/3, 5. *Fins*—the dorsal commences about midway between the hind edge of the orbit and the posterior end of the caudal fin, the last half being above the anal. Pectoral as long as the head. Caudal forked. *Scales*—2 rows between lateral line and base of ventral. *Colour*—silvery, of a brown tint along the back, and a lateral burnished silvery band. Dorsal, caudal, and anal fins orange, the first two edged with black.

*Hab.* Poona; up to  $4\frac{1}{2}$  inches in length.

435. (14.) *Barilius bola*. (Fig. 110.)

*Cyprinus bola*, Ham. Buch. *Fish. Ganges*, pp. 274, 285.

*Barilius bola*, Day, *Fish. India*, p. 594, pl. cxlix, fig. 4 (see synonym.).

*Bugguah*, Oeriah; *Korany*, Assam; *Bola*, Beng.; *Buggarah*, Hind.

B. iii. D. 10–11 (3/7–8). P. 13. V. 9. A. 13 (3/10). C. 19.  
L. l. 88–94. L. tr. 12–15/9–11.

Length of head  $4\frac{1}{2}$  to  $4\frac{2}{3}$ , height of body 5 to 6 in the total length. *Eyes*—before the middle of the length of the head, diameter  $4\frac{1}{2}$  to 7 in the length of head,  $1\frac{1}{2}$  to 2 diameters from end of snout and apart. Snout pointed, a well-developed knob above symphysis of the lower jaw. Suborbital ring of bones wide, especially the third, which is wider than the opercle, the width of which equals one third of the distance between the middle of the





eye and the hind edge of the opercle. Mouth deeply cleft, the posterior extremity of the maxilla extending nearly one diameter of the orbit behind the posterior margin of the eye. *Barbels*—

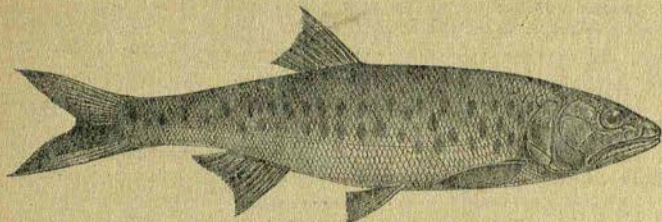


Fig. 110.—*Barilius bola*.

absent. *Fins*—dorsal fin one third higher than long; it commences midway between the angle of the preopercle and the base of the caudal, its last ray being scarcely over the first of the anal. Caudal lobed. *Scales*— $4\frac{1}{2}$  to 5 rows between lateral line and base of ventral; 40 rows before base of dorsal. *Colour*—silvery, with two or more rows of vertical bluish blotches along the sides, the upper row with twelve to twenty blotches, and the lower intermediate; some spots also on the head. Lower half of the dorsal fin slightly grey. Caudal orange, stained with grey and black. Pectoral, ventral, and anal orange, the colours being somewhat similar to those of a trout; it often goes by that name amongst Europeans.

*Hab.* Orissa, Bengal, N.W. Provinces, Assam, and Burma; attaining at least a foot in length; one killed in Assam by Mr. Hannay is stated to have weighed 5 lb. A very game fish, takes the fly well, and is one of those termed *Rajah mas*, or "chief of the fishes," in the Assam rivers\*.

## 25. Genus **DANIO**, Hamilton Buchanan.

Syn. *Perilampus*, sp., McClell.; *Paradanio* and *Devario*, Bleeker.

Body compressed, abdomen rounded. Pseudobranchiæ present. Cleft of mouth shallow, directed obliquely upwards, the end of the lower jaw usually forming a portion of the dorsal profile. Sub-orbitals broad. Barbels four, or two, or none. Pharyngeal teeth hooked, generally 5, 3, 2/2, 3, 5. Dorsal fin moderately elongated, its posterior rays being opposite the anal, which is long. Scales of moderate size. Lateral line concave, passing to the lower half of the tail. Gill-rakers short.

*Geographical Distribution.* These prettily marked little fish are found throughout India, Burma, and Ceylon.

\* *Tinca vulgaris*, Cuvier, the Tench, has been introduced into the waters of the Nilgiri hills and is thriving around Ootacamund.



*Synopsis of Indian Species.*

- D. 18-19, A. 18-19, L. 1. 41-48. No barbels ..... 1. *D. devario*, p. 354. ✓  
D. 15-16, A. 19-20, L. 1. 55-65. No barbels, or a short rostral pair. One or two spines on the margin of the orbit ..... 2. *D. spinosus*, p. 355.  
D. 12-15, A. 15-19, L. 1. 35-37. Rostral and sometimes rudimentary maxillary barbels ..... 3. *D. malabaricus*, p. 355.  
D. 12-14, A. 14-16, L. 1. 32-34. Rostral and maxillary barbels ..... 4. *D. aequipinnatus*, p. 356.  
D. 11-13, A. 17-18. Two pairs of long barbels ..... 5. *D. dangila*, p. 356.  
D. 13, A. 18. No barbels ..... 6. *D. chrysops*, p. 357.  
D. 12-14, A. 13-14, L. 1. 35-37. Rostral and sometimes maxillary barbels ..... 7. *D. neilgherriensis*, p. 357.  
D. 9, A. 15-16, L. 1. 26-28. Long rostral and usually maxillary barbels. Blue bands ..... 8. *D. rerio*, p. 358.  
D. 9, A. 13-15, L. 1. 31-33. Two pairs of long barbels. A scarlet horizontal band ..... 9. *D. albolineatus*, p. 358.  
D. 9, A. 13, L. 1. 30-32. Maxillary barbels only. Blue bands ..... 10. *D. nigrofasciatus*, p. 359.

436. (1.) *Danio devario*. ✓

*Cyprinus devario*, Ham. Buch. Fish. Ganges, pp. 341, 393, pl. 6, fig. 94.  
*Danio devario*, Day, Fish. India, p. 595, pl. cl, fig. 4 (see synon.).

*Bonkuaso*, Oorah; *Deberi*, Beng.; *Da-bah* and *Duth-ri-e*, N.W. Provinces; *Khan-ge*, *Maal-le* and *Pur-ran-dah*, Punj.; *Chay-la-ree*, Sind.

B. iii. D. 18-19. A. 18-19. C. 19. L. 1. 41-48. L. tr. 11/5.

Length of head 5 to  $5\frac{1}{4}$ , height of body  $3\frac{1}{4}$  to  $3\frac{1}{2}$  (or even 4) in the total length. *Eyes*—diameter 3 in length of head,  $\frac{3}{4}$  of a diameter from end of snout,  $1\frac{1}{2}$  diameters apart. Posterior extremity of maxilla extends beneath anterior margin of the orbit; lower jaw the longer. Third suborbital bone broad. *Barbels*—absent. *Fins*—dorsal commences midway between the anterior margin of the orbit and the base of caudal. Caudal lunate. *Scales*— $2\frac{1}{2}$  rows between lateral line and base of ventral fin; 16 rows before base of dorsal. *Colors*—greenish above, silvery white below. The anterior part of the body is reticulated in its centre by steel-blue lines, divided from one another by narrow vertical yellow bands. Three bluish lines, divided by yellow ones, are continued backwards to the caudal fin, where the two lower amalgamate, and, passing upwards, become lost in the superior half of the fin.

*Hab.* Sind, Orissa, Bengal, N.W. Provinces, Deccan, Punjab, and Assam; attaining 4 inches in length.



437. (2.) *Danio spinosus*.

*Danio spinosus*, Day, P. Z. S. 1869, p. 621; *id. Fish. India*, p. 595, pl. cl, fig. 6.

B. iii. D. 15-16. A. 10-20. C. 19. L. 1. 55-65. L. tr. 12-14/4.

Length of head 5 to  $5\frac{1}{2}$ , height of body 3 to  $3\frac{1}{2}$  in the total length. *Eyes*—diameter 3 to  $3\frac{1}{2}$  in length of head, 1 diameter from end of snout and also apart. Body strongly compressed. Lower jaw prominent. Third suborbital bone wide and touching the preopercular ridge. In the adult there is a sharp spine directed forwards above the anterior upper margin of the orbit, and a second, broader and blunter before the centre of the eye, on the preorbital. In immature examples these spines are equally sharp. *Barbels*—a small rostral pair. *Fins*—the first five or six dorsal rays are in advance of the anal. Pectoral as long as the head. Caudal lunate. *Scales*— $3\frac{1}{2}$  rows between lateral line and base of ventral. *Colour*—silvery, with an ill-defined lateral band, and some vertical yellow lines in the anterior half of the body. Dorsal and anal greyish, with reddish margins anteriorly. In the immature there is a dark humeral spot, and a steel-blue lateral band goes to the centre of the caudal fin, which has a scarlet stripe along the last half of its centre. Some examples have a wide blue central band and two narrow parallel ones superiorly, and the same number inferiorly; they are divided by yellow ground-colour.

*Hab.* Burma; attaining at least 4 inches in length.

438. (3.) *Danio malabaricus*. ✓

*Perilampus malabaricus*, Jerdon, *Mad. Jour. L. S.* xv, 1849, p. 325.

*Danio malabaricus*, Day, *Fish. India*, p. 595, pl. cl, fig. 7 (see synon.).

*Nooltoo* and *Chela purroovoo*, Tamil.

B. iii. D. 12-15. A. 15-19. C. 19. L. 1. 35-37. L. tr.  $7\frac{1}{2}$ -8/3.

Length of head 5 to  $5\frac{1}{2}$ , height of body  $3\frac{1}{2}$  to 4 in the total length. *Eyes*—diameter 3 to  $3\frac{1}{2}$  in length of head, 1 diameter from end of snout, and  $1\frac{1}{3}$  apart. The third suborbital bone nearly touches the preopercular ridge. *Barbels*—rostral half as long as the orbit, maxillary very short; in some specimens the latter are entirely absent. *Fins*—the dorsal arises midway between the base of the caudal fin and the posterior edge of the eye; its anterior half is in advance of the anal. *Colour*—back steel-blue, some irregular vertical yellow lines on the fore part of the body, and three or four blue bands along the sides, the central ones coalescing so as to form a broad bluish band along the middle of the caudal fin.

*Hab.* Western coast of India and Ceylon; attaining 6 inches in length.



439. (4.) *Danio æquipinnatus*. (Fig. 111.) ✓

*Perilampus æquipinnatus*, McClelland, *As. Res.* xix, pt. 2; *Ind. Cyp.* p. 393, pl. 60, fig. 1.

*Danio æquipinnatus*, Day, *Fish. India*, p. 596, pl. cl, fig. 5 (see synon.).

B. iii. D. 12-14. A. 14-16. C. 19. L. 1. 32-34. L. tr. 6-7/3½.

Length of head 5, height of body 4 to 4½ in the total length. *Eyes*—diameter 3½ to 4 in length of head, 1 diameter from end of snout, and 1½ apart. The third suborbital bone nearly touches the preopercular ridge. Cleft of mouth oblique and extending to

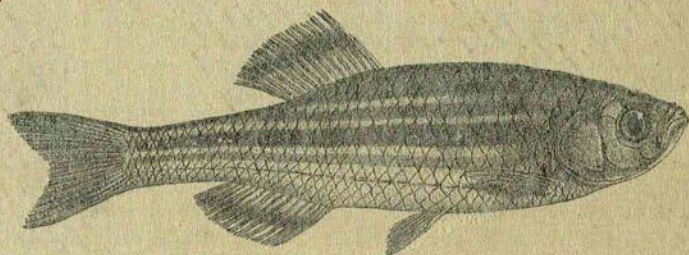


Fig. 111.—*Danio æquipinnatus*.

under the anterior margin of the orbit; a bluntish knob at the symphysis. *Barbels*—rostral half as long as the orbit; maxillary minute. *Fins*—the dorsal arises midway between the centre of the orbit and the base of the caudal fin, extending to over the anterior anal rays; it is two thirds as high as the body. Pectoral as long as the head without the snout, nearly reaching the ventral, which last does not extend as far as the anal. Caudal forked, but not deeply so. *Scales*—1½ rows between lateral line and base of ventral fin; 13 rows before the dorsal fin. *Colour*—yellowish white: a wide bluish band extends along the body from the eye to the centre of the base of the caudal fin; in its course are sometimes several round silvery spots: below it is another narrow band (which occasionally joins the central one anteriorly); there are two other lighter bands above the central one. The intermediate ground-colour is yellow. Fins yellowish. Dorsal and anal fins each with a broad bluish band along their outer half. In the specimens there is a dark mark behind the gill-opening.

*Habitat*—Himalayas at Darjeeling and the whole of the Assam as far as high as Sadiya, the Naga and Garo hills, Tenasserim and the Deccan.

440. (5.) *Danio dangila*. ✓

*Cyprinus dangila*, Ham. *Buch. Fish. Ganges*, pp. 321, 390.

*Danio dangila*, Day, *Fish. India*, p. 596, pl. cl, fig. 3 (see synon.).





B. iii. D. 11-13. A. 17-18. C. 20. L. 1. 38. L. tr. 7/4½.

Length of head 5, height of body 3½ to 4 in the total length. *Eyes*—diameter 3 in length of head, ¾ of a diameter from end of snout. Lower jaw the longer, with a knob at the symphysis. *Barbels*—rostral a little shorter than the head; maxillary pair slightly longer. *Fins*—the posterior dorsal rays are above the anterior anal. Caudal slightly emarginate. *Scales*—2½ rows between lateral line and base of ventral: 18 rows before dorsal fin. *Colour*—back olive, abdomen silvery, sides with several narrow blue lines, which in the anterior half or two thirds of the body form a beautiful network: a dark spot behind gill-covers. Anal fin with two or three blue stripes.

*Hab.* Bengal, Behar, Himalayas at Darjeeling, also the hills above Akyab; grows to 5 or 6 inches in length.

441. (6.) *Danio chrysops*.

*Leuciscus chrysops*, Cuv. & Val. *H. N. Poiss.* xvii, p. 308.

*Danio chrysops*, Day, *Fish. India*, p. 596 (see synonym.).

B. iii. D. 13 (3/10). A. 18 (3/15). C. 19. L. 1. 45. L. tr. 8½/4.

Length of head 4½, height of body 4 in the total length. *Eyes*—diameter 2⅔ in length of head, ½ a diameter from end of snout, and 1 apart. Snout obtuse; upper jaw slightly the longer. Third suborbital bone nearly as wide as the uncovered portion of the cheek below it. Dorsal profile rather more convex than that of the abdomen. *Fins*—the dorsal commences midway between the middle of the eye and base of the caudal fin; it is entirely in advance of the anal, and two thirds as high as the body below it. *Lateral line*—curves downwards in the pectoral region, whence it proceeds direct to the centre of the base of the caudal. *Colour*—silvery, the upper two thirds of the body darker than the lower.

*Hab.* Bengal.

442. (7.) *Danio neilgherriensis*. ✓

*Paradanio neilgherriensis*, Day, *P. Z. S.* 1867, p. 296.

*Danio neilgherriensis*, Day, *Fish. India*, p. 597, pl. cl, fig. 2 (see synonym.).

*Coolie*, Tamil.

B. iii. D. 12-14 (3/9-11). P. 15. V. 7. A. 13-15 (12).  
C. 19. L. 1. 35-37. L. tr. 6-7/4. Vert. 12/20.

Length of head 4½ to 5, height of body 4 to 4½ in the total length. *Eyes*—diameter 3 to 3½ in the length of head, ⅔ of a diameter from end of snout, 1¼ diameters apart. Abdominal profile more convex than the dorsal. The maxilla reaches to below the front edge of the eye. Lower jaw anterior, with a