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MONOGRAPH OF INDIAN CYPRINIDÆ, (*Part I*,)—
by SURGEON FRANCIS DAY.

[With Plate IX.]

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Whilst employed investigating the present state of the fresh-water fisheries of India, one of the first subjects which engaged my attention, was the completion, as far as practicable, of detailed descriptions of the fishes inhabiting those localities, appending their native names whenever procurable.

The following papers are transcripts from those notes which, however, still contain many a gap that will have to be filled in, whilst several of the enumerated species, when rediscovered, will also have to be redescribed. Still it appears desirable to publish them in this incomplete form, in the hope that additional information may be obtained from others who are interested in the enquiry, so as to render it possible at some future date to complete an illustrated Manual of the fishes of India. The reason why the *Carp*s have been chosen as the first family is merely, because they are the most important in an economic point of view; and the CYPRI-NINÆ for the same cause are placed before the HOMALOPTERINÆ and COBITIDINÆ.

At the present time the Fish-fauna of large portions of India is almost unknown; this is more especially evident in the Bombay Presidency, where only Colonel Sykes has written on the fresh-water fishes, and his published notes embrace less than fifty species from the Deccan, twenty of which are very insufficiently described. The ichthyology of most of the Hill-ranges remains still to be discovered, whilst specimens for the local Museums from every locality are greatly needed.

The literature of the *Carps* of India is extremely scanty, being as follows: Russell, in 1803, in his "Fishes of Vizagapatam" only records three, all of which probably belong to a single species. Hamilton Buchanan in 1822, in the "Fishes of the Ganges" records ninety-five carps, but amongst them are several varieties. McClelland in 1839, in the "Transactions of the Asiatic Society of Bengal" published a Memoir on the "INDIAN CYPRINIDÆ," recording one hundred and thirty-two species, many of which are considered in these pages as synonyms. Colonel Sykes in 1831, wrote his "Fishes of the Dukhun" published in 1841, in the "Transactions of the Zoological Society of London;" in it he records twenty-seven carps, the majority of which are insufficiently described. Valenciennes in 1834, in Belanger's "Voyage aux Indes Orientales" describes a few carps. Cuvier and Valenciennes in 1842-1844, in their "Histoire naturelle des poissons" give many Indian CYPRINIDÆ, but species sometimes occur more than once, and occasionally in different genera.

Dr. Jerdon, in 1849, in the "Madras Journal of Lit. and Science" wrote two papers on the "Fresh-water Fishes of Southern India" describing sixty-two species of carps, personally collected, ten of which apparently were previously unknown. Dr. Bleeker in 1853, published in Batavia, "Nalezingen op de ichthologische fauna van Bengalen en Hindostan." Mr. Blyth in 1858 and 1860, communicated a few papers on fish, including carps, collected in Bengal, Burma, and Ceylon, in the "Proceedings of the Asiatic Society of Bengal."

Irrespective of the "Fishes of Malabar," 1865, I have between 1865 and 1871, recorded observations on Indian carps in the "Proceedings of the Zoological Society of London." The last and

most elaborate work on this subject is contained in the "Fishes of the British Museum" by Dr. Günther, who in 1868, in the seventh volume, gives about 202 Indian Cyprinoid fishes. Besides the foregoing, the works of Linnæus and Bloch, as well as more casual authors contain remarks on some of the Indian carps, and these will be referred to under the head of the respective species.

My collections of *carps* have been personally made in the following localities: Calicut, also Vithri in the Wynaad, as well as Cochin and the neighbouring districts in Malabar; the Neilgherries and the rivers around their bases; the Kistna at Kurnool; the Cauvery and Coleroon for some miles above and below Trichinopoly, and likewise along the coast route between Tanjore and Combaconum up to Madras; from Musulipatam through the Kistna and Godavery districts to Coconada; from Gopaulpore through Berhampore, Ganjam, Cuttack and Orissa to Calcutta; from Rangoon through the Bassein district, and along the Irrawaddi to Mandalay; up the Pegu river through the Sittoung district to Moulmein, Tavoy and Mergui.

I have also received collections, containing carps, made by H. E. Thomas, Esq., Madras Civil Service, from South Canara; Mr. Assistant Apothecary Everard, from Trichoor in the Cochin district; the Rev. H. Baker, from the Cottyam Hills in Travancore; Mr. Vernède, from the slopes of the Neilgherries; J. Burnett, Esq., from the Wynaad; Mr. Apothecary Huffton from Arcot; Dr. Nash from Mercara; Colonel Puckle from Mysore; Dr. Shortt, Wallajabad and Mysore; by Mr. Davies, from the Hill ranges above Akyab, through Colonel Stevenson; by Major Sladen at Mandalay; and likewise some species from Tibet and Darjeeling collected by Dr. Stoliczka.

As regards Museums, I have received every facility from Dr. J. Anderson in making a thorough examination of the specimens in the Indian Museum at Calcutta. At Madras, I was unable to obtain leave from the Curator to inspect the fishes in that Institution, neither had an appeal to the local Government a more fortunate result. Returning to Europe for a short period on sick leave, Dr. Günther, F. R. S., at once accorded me leave to examine the magnificent collection of fishes in the British Museum.

Having completed my descriptions, the next question for consideration was the most appropriate mode of arrangement, and though I have not separated, as families, the CYPRININÆ from the COBITIDINÆ, and these again from the HOMALOPTERINÆ, much less distinctive characters, than existing between these divisions, appear to have lately found favour for this purpose in ichthyology. The species with an air-bladder free in the abdominal cavity, those with one partially or entirely enclosed in bone, and lastly those destitute of this organ, are in the present communication merely classed respectively in three sub-families of the CYPRINIDÆ.

Commencing with the sub-family CYPRININÆ, as existing in Asia, considerable difficulty arises in selecting from amongst the various groups into which it has been divided. Too much space, however, would be occupied were I to enter upon a minute investigation of the systems of others, and the reasons why I have found myself unable to adopt them.

In forming *groups*, one of the first characters may be found by observing whether the scaled edge or margin of the abdomen is rounded or cutting, for in the majority of the Indian CYPRININÆ the abdominal edge is rounded or smooth, even when somewhat compressed, whilst in a few genera the abdominal edge posterior to the ventral fin is compressed, cutting, and may be even serrated, as in the CLUPEIDÆ; this trenchant edge in some is continued from in front of the ventral fin to the thorax.

Irrespective of the above, there are many other characters which might be employed for forming sub-groups and genera. In some, however, which might at first appear suitable for such purposes, one fails to attach that significance to their existence when large numbers of species come under review, showing the existence of connecting links. Some of these characters may be external, others are internal.

The mouth is variously formed; it may be transverse and inferior, with or without a sucker, the latter being present either on the lower lip only or existing on both; or it may be narrow, of medium size; or wide: anterior, and either antero-lateral or oblique. The lower jaw again may be prominent, sharp or rounded, shorter than the upper, or sometimes having a knob at the symphysis; a

moveable articulation may exist there, or there may be lateral prominences on the mandibles.

The lips may be exceedingly, moderately, or but slightly developed, sometimes absent from one of the jaws, closely investing both, or reflected from off one, or either. There may be an uninterrupted labial fold across the mandible, or portions of the lip may be much developed, fringed, or crenulated. Occasionally, in some genera, a horny covering to one or both lips is invariably or generally present.

The existence, number or absence of barbels has been thought by some authors to be a reason for constituting genera, but such is not generally held to be valid. These appendages in some genera,—more especially when the fish are not kept in a state of domestication, or confinement, but left in their natural situations,—appear to be pretty constant, and though not in themselves cause enough for defining a genus are frequently sufficiently well marked for the purpose of forming sub-genera, good examples of which may be seen in the genus *Barbus*, or *Barilius*. On the other hand in some species, these appendages may be abnormally absent as in the *Danio*, consequently sub-divisions of the genus founded solely on this character would lead to erroneous results.

The position of the fins indicates sub-divisions which might be used in the primary groups, and have for convenience sake been adopted as follows :—

a. *Dorsal fin commencing nearly opposite the ventrals, the anal being short.*

b. *Dorsal fin commencing very distinctly posterior to the ventrals, but not extending to above the anal, which last is short, or of moderate length.*

c. *Dorsal fin commencing in the interspace between the ventral and anal, or over the latter, and generally extending to above it, whilst the anal is of moderate length or elongated.*

The shape of the dorsal fin is likewise important, but its length alone, or rather number of its rays, appears insufficient for the purpose of defining a genus, much less a sub-division of a group. When an uninterrupted series extends from a few rays to a large number, and no other sufficient difference exists, such divi-

sions could not be considered natural ones, whilst, if artificial, they can never permanently stand.

The last undivided dorsal ray is variously formed, from being articulated to an osseous one which latter may be smooth or denticulated, but all these forms are sometimes found in a single genus, as *Barbus*. The anal fin sometimes shows peculiarities as in the *Barbus apogon*, C. and V., where the undivided rays are spinate.

Scales, simply as regards their size, unless conjoined to other characteristics, cannot by themselves be taken as a reason for making genera, because large, moderate, and small-sized scales are all occasionally found represented in a single genus. But certain modifications may exist, as in the mountain barbels, *Oreinus* and *Schizothorax*, where a row of tiled scales enclose the vent and base of the anal fin; or portions of the body may be naturally left scaleless.

The lateral line has been employed as one of the signs for the formation of groups, according to its position, as along the middle of the side, or near the abdominal edge; it is not here employed for such a purpose, because its complete existence in some species seems of but little importance: thus in the genera *Barbus*, or *Bariilus*, it may be present, or partially absent, sometimes ceasing after proceeding along but very few rows of scales.

As to the internal characters, the skeleton forms one of the most important features, respecting which much still remains to be investigated in the Indian carps, and the same remarks apply to the internal organs.

The pharyngeal teeth are in from one to three series, but these numbers alone do not always suffice for the definition of even genera: thus in the *Chela's* some have them in two and others in three rows. Even the form of those teeth is not invariably similar in all the species of the same genus: thus in the *Rohtee microlepis*, Blyth, these teeth have serrations on their edges and the two largest of the anterior row are molarform, whereas crooked and pointed ones are the rule in the genus. Likewise as the teeth are deciduous, being constantly shed and replaced, they may become blunted with age, although they had at first been sharp and pointed.

Lastly unrecognised species which have been collected into one genus termed *Gymnostomus** appear to consist of specimens of *Labeo*, *Cirrhin*a and *Rasbora*; the genus is consequently suppressed.

Family, CYPRINIDÆ.

Branchiostegals three: pseudo-branchiæ generally present. Body oblong or elongated: abdomen usually rounded, but, if compressed and cutting, destitute of ossicles. Margin of the upper jaw formed by the intermaxillaries. Opercles in four pieces. Mouth toothless, but from one to three rows of teeth in the inferior pharyngeal bones, which latter are strong, free, and parallel to the branchial arches. A single rayed dorsal fin. Head scaleless, body scaled or scaleless, never covered by osseous plates. No "cul de sac" to the stomach, no pyloric appendages. Air bladder if present large; it may be divided by a constriction into an anterior and posterior portion, neither of which are enclosed by bone (CYPRININÆ): or into two lateral portions, partially or entirely enclosed in a bony capsule, (COBITIDINÆ): or absent (HOMALOPTERINÆ).

Geographical distribution.—Carps are found in the fresh-waters of the Old World and North America. In India and Burma they are exceedingly numerous and of very diversified forms. During the hot months a few of the species appear to æstivate, remaining in the mud of ponds and perhaps of rivers, until the return of the monsoon or rainy season. Some of the COBITIDINÆ seem to possess aërial respiration.

* *Leuciscus rubripes*, Jerdon, M. J. L. and Sc., 1849, p. 323, from the Bowany river, requires rediscovering and redescribing, the description and original figure would make it as follows:—

D $\frac{1}{2}$, A $\frac{1}{8}$, L. l. 45, L. tr. 12.

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

Eyes:—Diameter $\frac{2}{7}$ of length of head.

Profile of back slightly arched. Two barbels. Mouth very slightly oblique.

Fins.—Dorsal arises above the interspace between the ventral and anal fins.

Caudal lunate.

Lateral line—descending at first, then nearly parallel to the abdomen, which is nearly straight.

Colours.—Green above, golden on the sides, silvery beneath; dorsal fin yellow, edged with black: pectorals yellow; ventral and anal white, tipped with vermilion; caudal pink in the centre, yellow externally.

A single specimen procured, 6 inches long.

SYNOPSIS OF GENERA.

A. Abdomen rounded, not trenchant.

a. Dorsal fin commencing nearly opposite the ventral. Anal short (5 to 7 branched rays).

1. *Psilorhynchus*, 0 barbels. Mouth inferior, transverse. Lips thick, entire, reflected from off both jaws, leaving them exposed as sharp transverse ridges, but without any horny covering. Dorsal fin short (7 branched rays), without osseous ray. Anal short, outer pectoral rays unbranched. Scales of moderate size, none on the chest. Lateral line complete. *Bengal.*

2. *Mayoa*, 4 barbels. Mouth inferior, transverse, and surrounded by a large sucker formed by both lips. Dorsal fin short, (7 branched rays) without osseous ray. Anal short. Pharyngeal teeth in 3 rows. Scales of moderate size, none on the chest. Lateral line complete. ? *Northern India.*

3. *Discognathus*, 4 or 2 barbels. Mouth inferior, transverse and having a sucker on the lower lip only. Dorsal fin short (8 branched rays), without osseous ray. Anal short. Pharyngeal teeth in 3 rows. Scales of moderate size. Lateral line complete. *Asia and part of Africa.*

4. *Labeo*, 4 or 2 or 0 barbels. Mouth anterior or even inferior, some with a lateral lobe to the snout: lips thick, one or both with an inner transverse fold, and mostly fringed, usually a horny covering to inside of lower lip. Dorsal fin of varying length (from 8 to 24 branched rays), without osseous ray. Anal short. Pharyngeal teeth in 3 rows. Scales large, moderate, or of small size. Lateral line complete. *Throughout Asia.*

5. *Osteochilus*, 4 or 2 barbels. Mouth nearly inferior; lips thick, fringed, or crenulated, but the lower reflected from off the mandible, leaving it exposed as a sharp, transverse ridge. Dorsal fin of moderate length (from 10 to 20 branched rays), without osseous ray. Anal short, (5 to 6 branched rays). Pharyngeal teeth in 3 rows. Scales of moderate size. Lateral line complete. *Burma and E. I. Archipelago.*

6. *Cirrhhina*, 4, 2, or 0 barbels. Mouth broad, transverse, a knob inside symphysis of lower jaw, lips thin, upper one fringed or entire, edge of lower jaw sharp, with a thin lip and no horny

covering. Dorsal fin of varying length, (from 8 to 25 branched rays), without osseous ray. Anal short. Pharyngeal teeth in 3 rows. Scales large, moderate, or of small size. Lateral line complete. *India, Burma and E. I. Archipelago.*

7. *Carassius*, 0 barbels. Mouth anterior, arched and rather narrow, lips thin. Dorsal fin moderately long (from 16 to 18 branched rays), its last undivided ray osseous and serrated. Anal fin short. Pharyngeal teeth in one row. Scales of moderate size. Lateral line complete. *Europe and Asia.*

8. *Semiplotus*, 0 barbels. Mouth wide, transverse, a knob inside symphysis of lower jaw, very slight motile powers in the upper jaw. Dorsal fin long (from 20 to 25 branched rays), its last undivided ray osseous and serrated. Anal short, (6 to 7 branched rays). Pharyngeal teeth in 3 rows. Scales large. Lateral line complete. *Assam and Akyab.*

9. *Catla*, 0 barbels. Mouth anterior, no upper lip; a moveable articulation at symphysis of lower jaw, no tubercle. Dorsal fin moderately long (14 branched rays), without osseous ray. Anal short. Pharyngeal teeth in 3 rows. Scales of moderate size. Lateral line complete. *From the Kistna throughout Bengal and Burma to Pegu.*

10. *Mola*, 0 barbels. Mouth rather wide, antero-lateral, with the lower jaw somewhat prominent. Dorsal fin short (5 to 9 branched rays), without osseous ray. Anal short. Pharyngeal teeth in 3 rows. Scales small. Lateral line complete or incomplete. *India and Burma.*

11. *Barbus*, 4, 2, or 0 barbels. Mouth arched, closely invested by the lips, which may have leathery lobes, but no inner fold, or horny covering. Dorsal fin short (7 to 9 branched rays), its last undivided ray being either osseous and serrated, or entire, or else articulated. Anal short (5 to 6 branched rays), its second undivided ray may be osseous. Pharyngeal teeth in 3 rows. Scales of varying size. Lateral line complete or incomplete. *Asia, &c.*

12. *Schizothorax*, 4 barbels. Mouth arched, antero-inferior, mandibles neither broad nor flattened, usually a horny covering inside lower jaw. Dorsal fin rather short (7 to 9 branched rays), with its last undivided ray osseous and serrated. Anal short.

Pharyngeal teeth in 3 rows. Scales very small, the vent and base of anal fin in a sheath of tiled scales. Lateral line complete. *Mountain streams of Himalayas, Cashmere, Nepaul and Afghanistan.*

13. *Oreinus*, 4 barbels. Mouth transverse, inferior; mandibles, short, broad, flat and loosely joined together at the symphysis, usually a horny covering inside lower jaw. Dorsal fin short (7 to 8 branched rays), with its last undivided ray osseous and serrated. Anal short. Pharyngeal teeth in 3 rows. Scales very small, the vent and base of anal fin in a sheath of tiled scales. Lateral line complete. *Mountain streams of Himalayas, Cashmere, Nepaul and Afghanistan.*

14. *Schizopygopsis*, 0 barbels. Mouth inferior, transverse, narrow, a horny covering inside lower jaw, upper lip continuous with a short lateral one. Dorsal fin short (7 branched rays), with its last undivided ray serrated. Anal short. Pharyngeal teeth in 2 rows. Scales small, only a few present in the scapular region, the vent and base of anal fin in a sheath of tiled scales. Lateral line complete. *Tibet.*

15. *Diptychus*, 2 barbels. Mouth inferior, with a thick horny covering inside and on the front of the lower jaw, an uninterrupted labial fold across the mandible. Dorsal fin short (8 branched rays) without osseous ray. Anal short. Pharyngeal teeth in 2 rows. Scales small, only on sides of body and tail, the vent and base of anal fin in a sheath of tiled scales. Lateral line complete. *Tibet.*

16. *Ptychobarbus*, 2 barbels. Mouth arched, inferior. Dorsal fin short (8 branched rays), without osseous ray. Anal short. Pharyngeal teeth in 2 rows. Scales small all over body, the vent and base of anal fin in a sheath of tiled scales. *Tibet.*

b. Dorsal fin commencing very distinctly posterior to the ventrals, but not extending to above the anal, which last is short, or of moderate length (5 to 10 branched rays).

17. *Nuria*, 4 barbels. Mouth narrow, directed obliquely upwards. Dorsal fin short (6 to 7 branched rays), without osseous ray. Anal short. Pharyngeal teeth in one row. Scales of moderate size. Lateral line complete or absent. *India, Ceylon, Burma.*

18. *Rasbora*, 2 or 0 barbels. Mouth oblique, lower jaws with

one central and two lateral prominences, fitting into emarginations in the upper jaw. Dorsal fin short (7 branched rays), without osseous ray. Anal short. Pharyngeal teeth in 3 rows. Scales large or of moderate size. Lateral line complete, rather concave. *India, Ceylon and Burma.*

19. *Aspidoparia*, 0 barbels. Mouth small, inferior, lower jaw without lip, having a sharp crescentic edge. Dorsal fin rather short, (7 to 8 branched rays) without osseous ray. Anal of moderate length (9 to 10 branched rays). Pharyngeal teeth in three rows. Scales of moderate size. Lateral line complete, rather concave. *From the Kistna throughout Bombay, Bengal and Burma.*

c. *Dorsal fin commencing in the interspace between the ventral and anal, generally extending to over the latter which is of moderate length or elongated (7 to 33 branched rays).*

20. *Rohtee*, 0 barbels. Mouth anterior. Dorsal fin rather short, (8 branched rays), with an osseous serrated ray. Anal elongated (13 to 33 branched rays). Pharyngeal teeth in 3 rows. Scales small. Lateral line complete. *From Kistna river throughout Bombay, Bengal and Burma.*

21. *Barilius*, 4, 2, or 0 barbels. Mouth anterior or oblique, cleft sometimes deep. Dorsal fin of moderate length (7 to 10 branched rays), without osseous ray. Anal rather elongated (7 to 14 branched rays). Pharyngeal teeth in three rows. Scales of moderate or small size. Lateral line, complete, incomplete or absent. When present concave. *India and Burma.*

22. *Danio*, 4, 2, or 0 barbels. Mouth narrow, directed obliquely upwards. Dorsal fin moderately elongated (9 to 14 branched rays), without osseous ray. Anal rather elongated (9 to 17 branched rays). Pharyngeal teeth in 3 rows. Scales of moderate size. Lateral line complete, concave. *India, Burma and Ceylon.*

B. *A portion or the whole of the abdominal edge trenchant.*

d. *Dorsal fin opposite the anal, which latter is elongated (9 to 21 branched rays).*

23. *Perilampus*, 0 barbels. Mouth directed obliquely upwards. Dorsal fin short or of moderate length (7 to 10 branched rays),

without osseous ray. Anal rather elongated, (15 to 21 branched rays). Pharyngeal teeth in 3 rows. Scales of moderate size. Lateral line complete, concave. *India, Burma and Ceylon.*

24. *Chela*, 0 barbels. Mouth directed obliquely upwards, with a strong knob at the symphysis. Dorsal fin moderately short (7 to 8 branched rays) without an osseous ray. Anal moderately short or elongated (9 to 19 branched rays). Pharyngeal teeth in 2 or 3 rows. Scales of moderate or small size. Lateral line complete or incomplete, concave. *India and Burma.*

I. GENUS *PSILORHYNCHUS*, *McClelland*, Pl. IX, fig. 1.

Back somewhat elevated, head moderately depressed: snout more or less spatulate. Mouth transverse, small, inferior. Lips entire, not continuous, reflected from off both jaws, and studded with glands. Barbels absent. Dorsal fin with few rays, commencing opposite the ventrals. Pectorals horizontal, with their outer rays unbranched. Anal short. Scales of moderate size, none on the chest. Lateral line complete, continued direct to the base of the caudal fin.

In removing this genus from the group HOMALOPTERINÆ, I must observe that I have only had the opportunity of examining one of the two known species, the *P. balitora*, H. Buch. apud *McClelland*, and it does not appear at all impossible that the other, *P. sucatio*, H. Buch., may be destitute of an air-bladder and would thus form a distinct genus appertaining to the sub-family HOMALOPTERINÆ.

Geographical distribution.—Hill streams and rivers in Bengal and Assam.

SYNOPSIS OF SPECIES.

1. *P. balitora*, D. $\frac{2}{7-8}$, A. $\frac{2}{5}$, L. l. 33. Reddish brown irregularly marked with black. *N. E. Bengal and Assam.*

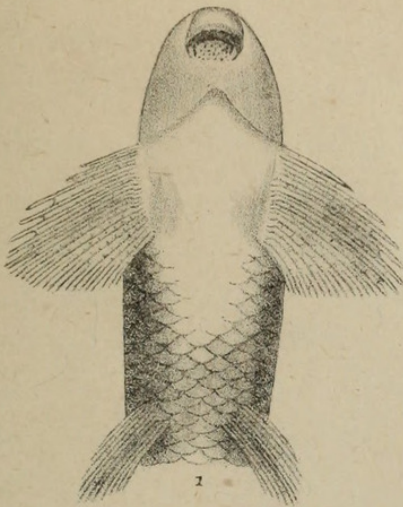
*2. *P. sucatio*, D. 9, A. 7, snout much produced. *N. E. Bengal.*

1. *PSILORHYNCHUS BALITORA*, Pl. IX, f. 1.

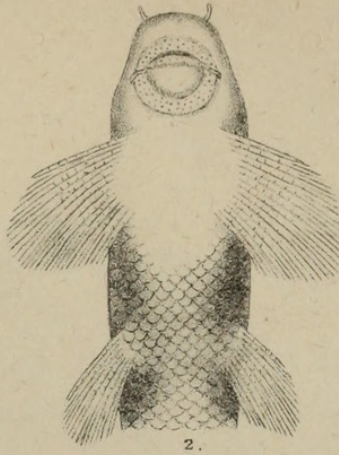
Cyprinus balitora, Ham. Buch., *Fishes of Ganges*, pp. 348, 394: *Cuv. and Val. *Hist. Nat. des poissons*, xvi, p. 451.

Psilorhynchus variegatus, *McClelland*, *Ind. Cyp.* pp. 300, 430, pl. 50, f. 2 (from H. B.'s MSS.).

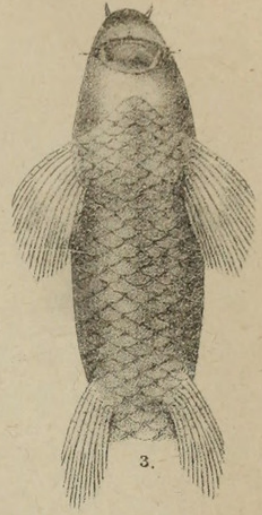
Psilorhynchus balitora, *Günther*, *Catal.* vii, p. 343.



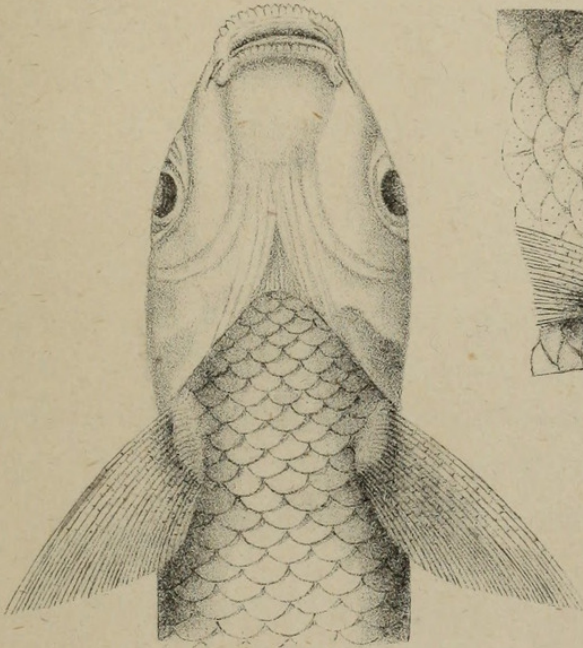
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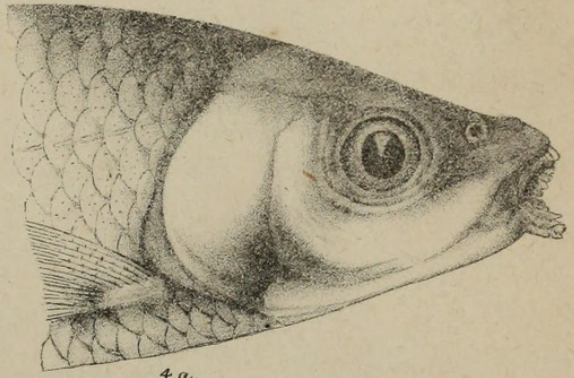
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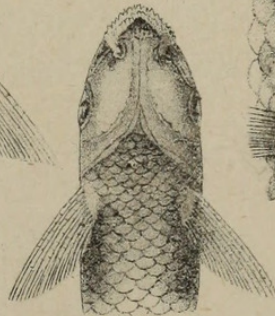
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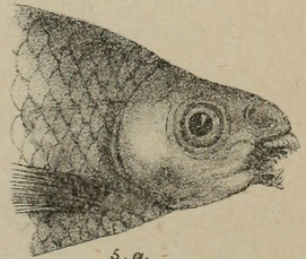
4.b.



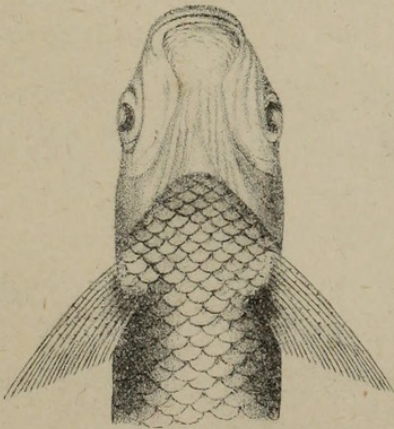
4 a.



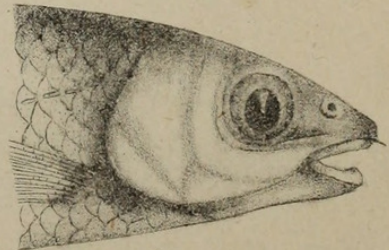
5.b.



5. a.



6. b.



6. a.

1. *Psilorhynchus balitora*, p. 106.
2. *Mayoa modesta*, p. 108.
3. *Discognathus lanta*, p. 109.

4. *Labeo rohita*, p. 111 & 120.
5. *Osteochilus Neilli*, p. 129 & 130.
6. *Cirrhina mrigala*, p. 132 & 135.

B. III, D $\frac{2}{7-8}$, P. 17, V. 9, A. $\frac{2}{5}$, C. 18, L. l. 33, L. tr. $4\frac{1}{2}$ - $4\frac{1}{2}$.

Length of head nearly $\frac{1}{4}$, of caudal $\frac{1}{5}$, height of body $\frac{1}{6}$, of dorsal fin $\frac{1}{6}$ of the total length.

Eyes.—Diameter rather above $\frac{1}{4}$ ($\frac{4}{17}$) of length of head : $1\frac{1}{4}$ diameters from end of snout and apart.

Head rounded, somewhat depressed. A deep cleft extending from the snout to the angle of the mouth. Lips rather thick and reflected from off either jaw which have sharp edges, but are destitute of any horny covering. Edges of lips not fringed, their surface covered with round hard pores. Some fine pores also on the cheeks, and snout.

Fins.—Dorsal commences in advance of the ventrals. Pectorals and ventrals nearly horizontal, the outer seven rays of the former, and two of the latter unbranched. Caudal forked.

Scales— $2\frac{1}{2}$ rows between the lateral line and base of the ventral fin.

Air bladder—rather large, divided by a constriction into an anterior and posterior portion, and not enclosed by bone.

Colours.—Reddish brown with irregular black blotches forming badly defined bands, in places passing over the back. Three bars on the caudal and some black on the anterior half of the dorsal.

Habitat.—Hill streams and rapids in N. E. Bengal and Assam.

2. **PSILORHYNCHUS SUCATIO*.

Cyprinus sucatio, Ham. Buch., Fish. Ganges, pp. 347, 393 ; *Cuv. and Val. XVI, p. 448.

Psilorhynchus sucatio, McClelland, Ind. Cyp., pp. 300, 429, pl. l. f. 1, (from H. B.'s MS.) ; Günther, Catal., vii, p. 343.

B. III, D. 9, P. 13, V. 9, A. 7, C. 16.

Snout much longer than the remainder of the head. The eyes are represented as large, but only stated to be far back and globular.

Fins.—Dorsal high, anteriorly with a very oblique upper margin.

Colours.—Superiorly greenish, with scattered dots ; sides clouded, abdomen whitish. Fins dotted.

Habitat.—Rivers of Northern Bengal, attaining about 3 inches in length.

II. Genus, *MAYOA*, Day. Pl. IX, f. 2.

Body anteriorly depressed, posteriorly compressed, snout rounded and smooth. Barbels four, two on the snout and one at each angle of the mouth. Eyes lateral. Mouth small, transverse, on the inferior surface of the head, and surrounded by a large sucker, formed of both lips, which are thick and have a free posterior edge. Pectorals and ventrals horizontal. Dorsal without an osseous ray, and commencing somewhat in advance of the ventrals. Pharyngeal teeth hooked, in three rows, 5, 3, 1-1, 3, 5. Scales of moderate size, none on the thorax. Lateral line continued direct to the centre of the base of the caudal fin.

SYNOPSIS OF SPECIES.

1. *Mayoa modesta*, D. $\frac{1}{7}$, A. $\frac{1}{5}$, L. l. 35. Habitat: probably Northern India.

1. *MAYOA MODESTA*.

Day, Pro. Zool. Soc. 1869, p. 553.

B. III. D. $\frac{1}{7}$, P. 15, V. 9, A. $\frac{1}{5}$, C. 19, L. l. 35, L. tr. $4\frac{1}{2}$ - $4\frac{1}{2}$.

Length of head nearly $\frac{1}{5}$, of caudal $\frac{1}{5}$, height of body $\frac{2}{11}$ of the total length.

Eyes—directed laterally upwards and outwards, placed near the upper surface of the head. Diameter $\frac{1}{4}$ of length of head, $1\frac{3}{4}$ diameters from end of snout, 2 diameters apart.

Head broad depressed, somewhat spatulate and rounded, as is also the snout. No pores on the head. Lower surface of head and chest flat. The snout overhangs the mouth, which is rather small, transverse, and nearly semilunar in shape. Mouth with an adhesive sucker, formed by both lips, and having a free margin, it is extended some distance posterior to the lower jaw as in the genus *Discognathus*, from which it essentially differs in that the sucker is completed by the upper lip, so as entirely surrounding the opening of the mouth. The lips are reflected from off both jaws and with a tuberculated surface: margin of upper lip fimbriated. Four barbels, one rostral and one maxillary pair, all being rather thick and short. Gill opening narrow.

Teeth—pharyngeal, uncinatè, 5, 3, 1-1, 3, 5.

Fins.—Pectorals and ventrals horizontal, the former extending to the latter, which reaches the anal. First outer pectoral ray simple,

the 4 next only slightly branched. Dorsal arises in advance of the ventral. Caudal slightly forked.

Scales—none on the chest.

Lateral line—proceeds direct to the base of the caudal fin.

Colours.—Greenish brown, no marks existing except a dark blotch under the dorsal fin and a mark at the base of the caudal.

Habitat.—Probably Northern India, 2 specimens in the Calcutta Museum, the longest $3\frac{1}{2}$ inches.

III. Genus, DISCOGNATHUS, *Heckel*. Pl. IX. f. 3.

Garra, Ham. Buch.—*Platyceara*, McClelland.—*Discognathichthys*, et *Lissorhynchus*, Bleeker.

Body elongated, subcylindrical. Mouth transverse, semicircular, and inferior; upper and lower lips continuous: no lateral lobes to snout, which projects beyond the mouth. A suctorial disk on the chin, formed of the lower lip: upper lip fringed. Barbels four (Garra, Ham. Buch.) or one pair only at each angle of the mouth, (Discognathus, Heckel). Pharyngeal teeth uncinatæ and in three closely approximating rows 2, 4, 5-5, 4, 2. Dorsal fin with few rays, commencing slightly in advance of the ventrals, its base scaleless: Pectoral horizontal: Anal short. Scales of moderate size, no enlarged anal scales. Lateral line continued to the centre of the base of the caudal fin.

Geographical distribution.—Rivers, more especially mountain streams, of Asia and Abyssinia: extending throughout India, Ceylon and the Tennasserim Provinces.

SYNOPSIS OF SPECIES.

1. *Discognathus lamta*, D. 11, A. 7, L. 1. 33—36, 4 barbels. A black spot behind gill opening and generally a band along the side. Throughout India, Ceylon and Tennasserim Provinces.

1. DISCOGNATHUS (GARRA) LAMTA.

Cyprinus lamta, Ham. Buch., Fish. Ganges, pp. 343, 393; *Cuv. and Val., xvi, p. 386.

Cyprinus gotyla, Gray and Hardwicke, Ind. Zool. c. fig., *Cuv. and Val., xvi, p. 387.

Gonorrhynchus rupeculus, McClelland, pp. 281, 373, pl. 43, f. 4, 5; *Cuv. and Val. xvi, p. 467.

Gonorhynchus bimaculatus, brachypterus, et caudatus, McClell., loc. cit. pp. 281, 283, 373, 374, pl. 43, f. 2. (from H. B.'s MS.) ; *Cuv. and Val., xvi, pp. 414, 467.

Platyicara nasuta, McClell., Journ. A. S. of B., vii, p. 947, t. 55, f. 2a. and b ; and Ind. Cypr. pp. 300, 428, pl. 57, f. 2.

? *Platyicara lissorhynchus*, McClell., Cal. J. N. H., ii, p. 587, pl. xvi, f. 2.

Discognathus rufus, obtusus, crenulatus et fusiformis, Heckel, Russegger's Reisen, i, pp. 1071, 1072, t. 8, f. 2 and 3 and ii, p. 262 and iv, p. 387 c. fig.

Platyicara notata, Blyth, Journ. A. S. of B., 1860, p. 161.

Gonorhynchus gotyla, McClellandi et stenorhynchus, Jerdon, M. J. L. S., 1849, pp. 309, 310.

Garra Ceylonensis, Bleeker, Cobit. et Cyprin. Ceylon, p. 8, t. 1, f. 4.

Garra gotyla et lamta, Steind., Sitz. Ak. Wiss., Wien., lvi. t. 2.

„ *malabarica*, Day, Proc. Zool. Soc. 1865, p. 297 and Fishes of Malabar, p. 205, pl. 15 f. 1.

Garra gotyla, Day, Proc. Zool. Soc. 1867, p. 288 (snout covered with pores and having a deep depression across it).

Garra Jerdoni, Day, loc. cit. (snout smooth, neither pores nor depression).

Garra alta, Day, loc. cit. (Back elevated).

Discognathus lamta, Günther, Catal., vii, p. 69 ; Day, Proc. Zool. Soc. 1869, p. 554.

Discognathus macrochir, Günther, ibidem vii, p. 70.

Kul korava, Tam. "The stone Ophiocephalus, *Pandi-pakke*, Can." *Korafi-kaali*, Hind.

B. III, D. $\frac{3}{8}$, P. 15, V. 10, A. $\frac{2}{5}$, C. 17, L. 1. 32-36, L. tr. $4\frac{1}{2}$ -5.

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

Eyes :—directed slightly upwards and outwards. Diameter $\frac{1}{5}$ of length of head ; $3\frac{1}{2}$ diameters from end of snout : $2\frac{1}{2}$ diameters apart.

Snout very diversified, either smooth, or covered with pores, and having or not having a deep transverse depression.

Fins.—The dorsal arises midway between the snout and the base of the caudal, and anterior to the origin of the ventral. The pectoral extends to beneath the first third of the dorsal. Caudal lobed.

Colours.—Greenish, with a bluish green band along the centre of the body and extending along the middle of the caudal fin. Abdomen yellowish green. Fins yellowish, stained darker at their margins. In specimens from the Tennasserim Provinces a black spot exists at the base of each dorsal ray.

Habitat. From Syria throughout India and Ceylon to the Tennasserim Provinces, and likewise found in Abyssinia. It attains 6 inches in length.

IV. Genus—LABEO, Cuv. Pl. IX, f. 4 a. b.

Rohita, pt. Cuv. and Val.—*Tylognathus*, Heckel.—*Hypselobarbus*, *Diplocheilus*, *Diplocheilichthys*, *Lobocheilus*, *Rohitichthys*, *Morulus*, *Schismatorhynchus*, et *Gobionichthys*, Bleeker.

Body elliptical or moderately elongated, abdomen rounded, mouth sometimes anterior but mostly inferior, transverse and demi-oval. Lips thick, covering the jaws, one or both having an inner transverse fold. A soft and moveable horny covering with a sharp margin on the inner edge of one or both lips. Snout rounded, generally projecting beyond the mouth and covered with tubercles, and sometimes having a lateral lobe or projection. Barbels small, four or two: if only one pair, they are on the maxilla, the second being on the snout, or they may be absent. Pharyngeal teeth hooked and in three rows, 5, 4, 2 - 2, 4, 5. Dorsal fin elongated, or of moderate length, destitute of any osseous ray, and arising anterior to the commencement of the ventral. Anal short. Scales large, moderate, or of small size. Lateral line running along the median line of the tail. Gill rakers short.

Dr. Günther sub-divides this genus into *Labeo* in which the dorsal fin has "more than nine branched rays," whilst *Tylognathus* has "not more than nine branched rays"; his reason for this artificial division being because "by uniting these two genera, I should have been obliged to abandon the character of a long or short dorsal fin for the definition of other very natural genera of Cyprinoids."

Geographical distribution. Throughout the fresh waters of the plains of India, Ceylon and Burma.

SYNOPSIS OF SPECIES.

1. *Labeo nandina*, D. $\frac{2}{22-24}$, L. l. 41—44, L. tr. $7\frac{1}{2}/8$, 4 Barbels. *Assam and Bengal.*
2. „ *fimbriatus*, D. $\frac{4}{16-17}$, L. l. 44—47, L. tr. $\frac{9-10}{8-9}$, 4 barbels. *Southern India to Orissa, and in Kistna to the Deccan.*
- *3. „ *nancar*, D. $\frac{3}{17}$, 4 barbels. *N. E. part of Bengal.*
4. „ *calbasu*, D. $\frac{3}{14-15}$, L. l. 40—44, L. tr. $7\frac{1}{2}/9$, 4 barbels. *Throughout India and Burma.*
5. „ *curchius*, D. $\frac{2-3}{14}$, L. l. 64—80, L. tr. $\frac{14-15}{15}$, 4 barbels. *Orissa, Bengal and Burma.*
6. „ *kontius*, D. $\frac{4}{12}$, L. l. 38—40, L. tr. $9/8$, 4 barbels. *S. India.*
7. „ *nigrescens*, D. $\frac{2}{14}$, L. l. 36, L. tr. $6/7$, 4 barbels. *Canara.*
8. „ *Dussumieri*, D. $\frac{3}{12-13}$, L. l. 53—55, L. tr. $\frac{8-9}{9}$, 4 barbels. *Western coast of India and Ceylon.*
9. „ *roita*, D. $\frac{3}{12-13}$, L. l. 41, L. tr. $\frac{6\frac{1}{2}}{9}$, 4 barbels. *Orissa, Bengal and Burma.*
- *10. „ *moralæ*, D. $\frac{3}{10-11}$, L. l. 31 (?) 4 barbels. *Bengal.*
11. „ *Nashii*, D. $\frac{3}{11}$, L. l. 41, L. tr. $7\frac{1}{2}/6$. No barbels. A black lateral band. *Coorg.*
12. „ *ricnorhynchus*, D. $\frac{3}{10}$, L. l. 42—44, L. tr. $8/9$. One pair of maxillary barbels. *Bengal, Orissa, Himalayan, Nepaul and Afghan ranges.*
13. „ *falcatus*, D. $2/11$, L. l. 43, L. tr. $8\frac{1}{2}/7\frac{1}{2}$. One pair of maxillary barbels. *Bengal, Assam, Sikkim.*
- *14. „ *diplostomus*, D. 13, L. l. 45, L. tr. $8/7$. One pair of maxillary barbels. *Cashmere.*
15. „ *pangusia*, D. $3/10$, L. l. 40, L. tr. $7\frac{1}{2}/7$. One pair of maxillary barbels. *Bengal and Cachar.*
16. „ *striolatus*, D. $3/9$, L. l. 60, L. tr. $12/14$. One pair of maxillary barbels. *Central India.*

17. *Labeo bicolor*, D. 2/10, A. 2/5, L. l. 43, L. tr. $8\frac{1}{2}/7\frac{1}{2}$. One pair of barbels, colours uniform. N. W. Provinces.
- *18. „ *kawrus*, D. 12. Barbels absent. *Deccan*.
19. „ *ariza*, D. 3/9, L. l. 38—40, L. tr. $7\frac{1}{2}/7$. One pair of maxillary barbels, orange colour. *Continent of India*.
20. „ *boga*, D. 3/9, L. l. 40—42, L. tr. $\frac{7-8}{5}$. One pair of maxillary barbels. Silvery. *India and Burma*.
- *21. „ *mullya*, D. 11. *Deccan*.

1. LABEO NANDINA.

Cyprinus nandina, Ham. Buch., Fish. Ganges, pp. 300, 388, pl. 8, f. 84.

Cirrhinus nandina et macronotus, McClell., Ind. Cyp. pp. 265, 269, 318, 319, pl. 41, f. 1.

Rohita nandina, Cuv. and Val., XVI, p. 244, pl. 473.

Labeo nandina, Günther, Catal. VII, p. 51.

„ *macronotus*, Günther, loc. cit. VII, p. 52.

Nandin, Beng.

B. III. D. $\frac{2}{22-23}$, P. 15, V. 9, A. 2/5, C. 19, L. l. 41-44, L. tr. $7\frac{1}{2}/8$.

Length of head 2/9, of caudal 1/6, height of body 1/4 of the total length.

Eyes.—Diameter 1/5 of length of head, $1\frac{1}{2}$ diameters from end of snout.

Snout obtuse, slightly projecting beyond the jaws, no lateral lobe: a few fine pores on snout. Lips thick and fringed, with a distinct inner fold above and below. Four short barbels.

Fins.—This species forms with D. 26 *Labeo nandina*, and with D. 24 *Labeo macronotus*, which, however, I believe, Hamilton Buchanan was quite correct in considering as mere varieties. Dorsal fin low, caudal forked.

Lateral line.—From $4\frac{1}{2}$ to 5 rows of scales between it and the base of the ventral fin.

Colours.—Dark greenish above having a coppery gloss, and whitish below.

Habitat.—Bengal and Assam; it attains three feet in length.

McClelland observes of the variety with D. 26 (which he considered "a species") 'I think I have met with it in the Brahmaputra as high as Gowhati, but it disappears where the currents become rapid, and the water more cool and clear. Buchanan found it very abundantly in the marshes adjacent to the ruins of the ancient Gour, on the northern side of Bengal, where it usually attains two or three feet in length, and is a well flavoured and wholesome fish.' Of the second variety with D. 24 he remarks 'the individuals I met with in Assam in March were found in sandy streams which they had entered probably for the purpose of spawning. They are seldom seen so high in the Brahmaputra as the rapids, and never, I believe, so low as to come within the influence of the tides, which effect a change by the deposit of mud instead of sand, no less remarkable in the bottoms and banks of rivers, than in the character of the fresh water-fishes, which are found within their influence,' (p. 319.)

2. LABEO FIMBRIATUS.

Cyprinus fimbriatus, Bloch, XII, p. 50, pl. 409.

Rohita fimbriata, Cuv. and Val., XVI, p. 271.

Rohita Leschenaultii, Cuv. and Val., XVI, 261.

Varicorhinus bobree, Sykes, Trans. Z. S. II, p. 355, pl. 61, f. 3.

Cirrhinus fimbriatus,* Jerdon, M. J. L. and S., 1849, p. 304.

Cirrhinus Leschenaultii,* Jerdon, loc. cit. p. 305.

Labeo fimbriatus, Günther, Catal., VII, p. 53.

Labeo Leschenaultii, Günther, Catal., VII, p. 53.

Ven-candee, Tam.; *Ruchu* and *Gandumenu*, Tel.; *Bahrum*, Ooriah;

B. III. D. $\frac{4}{16-17}$, P. 15, V. 9, A. $\frac{2}{5}$, C. 19, L. 1. 44-47, L. tr. 9-10/8-9.

Length of head $\frac{2}{13}$, of caudal $\frac{1}{4}$, height of body $\frac{2}{7}$, of dorsal fin $\frac{2}{11}$ of the total length.

Eyes.—Diameter $\frac{1}{5}$ of length of head; $1\frac{1}{2}$ diameters from end of snout; 2 diameters apart.

Snout obtuse, rather swollen and studded with minute pores, but destitute of a lateral lobe. Mouth transverse, and of moderate width, lips thick, continuous and having an inner fold above and below, both fringed. A groove across the chin. Rostral and maxillary barbels short.

Teeth—pharyngeal, 5, 3, 2 - 2, 3, 5.

Fins.—Dorsal fin commences opposite about the 15th scale of the lateral line, its upper margin is concave. Caudal forked.

Lateral line;—6 to 7 rows of scales between it and the base of the ventral fin.

Colours.—Uniform, nearly black.

Habitat.—Throughout the coasts of Southern India up to Orissa. Also in the Kistna as high as Kurnool. It attains a foot and a half in length, and is good eating, but bony.

3. **LABEO NANCAR.*

Cyprinus nancar, Ham. Buch., Fishes of Ganges, pp. 299, 387.

*Cuv. and Val. XVI, p. 70.

Cirrhinus nancar, *McClelland, Ind. Cyp. pp. 266, 325.

B. III. D. 3/17, P. 18, V. 9, A. 8, C. 20.

“The head is small, blunt, and oval * * the nose projects a little beyond the mouth, and is fleshy and bluntish * * with no tubercles nor large pores. * * The mouth is low, extends straight back, and is small. The jaws protrude in opening and are nearly equal in length * * the lips are fleshy, the under one is erect * * the edges of the lips smooth * * with four minute tendrils.”

Eyes.—“high, circular, and of moderate size.”

Fins.—“The dorsal is behind the middle. . . The tail fin consists of two sharp lobes.”

Lateral line—“descends with a curve.”

Scales—“large, equal.”

Colours—“above of a dark green, with a golden gloss and below white. The fins are dark coloured, and the eyes reddish.”

Habitat.—“The small rivers of the Gorakhpur district, such as the Gunggi. It does not attain a greater weight than three pounds.”

Whether this fish belongs to the genus *Labeo* is questionable. McClelland did not obtain it, whilst Hamilton Buchanan left no figure of it; but as he places it between the *Labeo calbasu* and *Labeo nandina*, I have, though with considerable doubt, referred it to this genus.

4. LABEO CALBASU.

- Cyprinus calbasu*, Ham. Buch., Fish. G., pp. 297, 387, pl. 2, f. 83.
Cirrhinus calbasu, McClelland, Ind. Cyp., pp. 265, 320.
Cirrhina micropogon, Val. in Bél. Voy. Ind. Orient. p. 372, t. 3, f. 3.
Rohita calbosu, *Cuv. and Val. XVI, p. 253 ; Bleeker, Verh. Bat. Gen. XXV, Beng. and Hind. p. 131.
Rohita Belangeri, Cuv. and Val., XVI. p. 255 ; Bleeker, l. c. p. 132.
Rohita Reynauldi, Cuv. and Val., XVI, p. 247, pl. 474.
Labeo velatus, Val. in Cuv. Reg. An. III. Poiss. pl. 93, f. 3.
Cirrhinus affinis, Jerdon, M. J. L. and S., 1849, p. 303.
? *Tylognathus porcellus*, Heckel in Hügels Kaschmir, IV, p. 385.
Labeo calbasu et porcellus, Günther, Catal. VII, p. 54 ; Day, Proc. Zool. Soc. 1869, p. 372.

Nulla-gandu-menu, Telugu ; *kalbasu* and *kunda*, Beng. ; *Kala-beinse*, Oorlah ; *Nga-nek-pya*, *Nga-noo-than*, and *Nga-ong-tong*, Burmese.

B. III. D. $\frac{3}{14-15}$, P. 19, V. 9, A. $2\frac{2}{5}$, C. 19, L. 1. 40-44, L. tr. $7\frac{1}{2}/9$.

Length of head $1/6$, of caudal $1/5$, height of the body $1/4$, of dorsal fin $1/6$ of the total length.

Eyes.—Diameter $1/5$ of length of head, $1\frac{1}{2}$ to 2 diameters from end of snout, $2\frac{1}{2}$ apart.

Mouth of moderate width, snout obtuse and depressed, with pores on it, but without any lateral lobe. Lips thick, fringed, with a distinct inner fold to each. Barbels four, the rostral slightly the longest, and about equal in length to the diameter of the orbit.

Teeth, pharyngeal, crooked, 5, 4, 2 - 2, 4, 5.

Fins.—Dorsal commences in advance of the ventrals, its upper margin somewhat concave. Caudal deeply forked.

Lateral line :— $5\frac{1}{2}$ to 6 rows of scales between it and the base of the ventral fin.

Colours.—Blackish, sometimes many of the scales have a scarlet centre. Fins black, occasionally the end of the upper lobe of the caudal white.

Habitat.—Southern India, from the Kistna through Orissa, Bengal, and Burma. It grows to 3 feet in length ; were it not for its numerous bones, it would be excellent eating.

5. LABEO CURCHIUS.

Cyprinus curchius, *cursa*, *cursis*, et *gonius*, Ham. Buch., Fishes of Ganges, pp. 289, 290, 292, 387.

Cirrhinus gonius, McClelland, Ind. Cyp., pp. 266, 325.

Cyprinus (Labeo) eurchius et cursis, McClelland, Ind. Cyp., pp. 268, 327, 329, pl. 40, f. 3, pl. 38, f. 2 and 3.

Rohita gonius et cursis, *Cuv. and Val., XVI, p. 259 and p. 265.

Labeo microlepidotus, Cuv. and Val., XVI, p. 352; Günther, Catal. VII, p. 60.

Rohita chalybeata, Cuv. and Val. XVI, p. 271; Bleeker, Ver. Bat. Gen. XXV, Beng. and Hind. p. 133.

Rohita microlepidota, Günther, Proc. Zool. Soc. 1861, p. 225.

Labeo Dussumieri, Cuv. and Val., XVI, p. 59 *? Günther, Catal. VII, p. 59.

Labeo cursa, *Cuv. and Val., XVI, p. 361; Günther, l. c. p. 60.

Labeo eurchius, *Cuv. and Val., XVI, p. 363.

Labeo gonius, Day, Proc. Zool. Soc. 1869, p. 372.

Mosoo, Tel.; *Cursua*, Ooriah; *Kurchi* and *Goni*, Beng.; *Courie*. Assam: *Nga-pay*, Tennass.; *Nga-dane* and *Nga-hoo*, Burmese.

B. III. D. $\frac{2-3}{14}$, P. 17, V. 9, A. $\frac{2}{5}$, C. 19, L. 1. 64—80, L. tr. $\frac{14-15}{16}$.

Length of head $\frac{2}{11}$, of caudal $\frac{2}{11}$, height of body $\frac{1}{4}$, of dorsal fin $\frac{2}{11}$ of the total length.

Eyes.—Diameter $\frac{2}{9}$ of length of head, $1\frac{1}{2}$ diameters from end of snout, $2\frac{1}{2}$ diameters apart.

Mouth anterior and rather narrow; snout slightly swollen, without lateral lobe, but with fine pores. Lips rather thick with a distinct inner fold above and below, whilst both are finely fringed. Rostral and maxillary barbels all short, but the latter the longest.

Teeth, pharyngeal, with rather flat crowns 5, 4, 2 - 2, 4, 5.

Fins.—Dorsal commences much nearer to the end of the snout than to the base of the caudal fin, and rather anterior to the ventral. Caudal deeply forked.

Scales—small, the number in the lateral line subject to great variation.

Lateral line:—10 to 12 rows between it and the base of the ventral fin.

Colours.—Greyish, scales darkest at their margins.

Habitat.—From the Kistna river through Orissa, Bengal and Burma. It attains nearly 5 feet in length, but is rather indifferent eating.

6. LABEO KONTIUS.

Cyprinus kontius, Jerdon, M. J. L. and S., 1849, p. 302.

Cirrhinus rubro-punctatus, Jerdon, loc. cit. p. 303.

Labeo kontius, Day, Proc. Zool. Soc. 1867, p. 289, *Günther, Catal., VII, p. 55.

Currumunnee candee, Tam.

B. III. D. $4/12$, P. 15, V. 10, A. $3/5$ C. 19, L. 1. 38—40, L. tr. $9/8$.

Length of head $1/6$ to $1/7$, of caudal nearly $2/9$, height of body $1/4$, of dorsal fin above $1/5$ of the total length.

Eyes.—Diameter nearly $1/5$ of length of head; $2\frac{1}{3}$ to 3 diameters from end of snout; $2\frac{1}{4}$ diameters apart.

Dorsal profile more convex than the abdominal. Muzzle blunt, truncated, covered with pores, and having a fleshy lateral prolongation. Lips thick, with a distinct inner fold below, whilst the lower one is fringed. Snout overhanging the mouth. Opercles narrow. Four short barbels.

Teeth, pharyngeal, plough shaped, 5, 4, 2 - 2, 4, 5.

Fins.—Dorsal commences above the ventral and nearer the snout than the base of the caudal; its upper margin is slightly concave. Caudal deeply lunated.

Lateral line:—5 rows of scales between it and the base of the ventral.

Colours.—A general reddish or fleshy tinge, darkest along the back. In most of the specimens obtained from the Coleroon river, each scale had a red centre.

Habitat.—Rivers along the base of the Neilgherries, and the Cauvery and Coleroon in all their branches down to the coast. It grows to 2 feet in length.

7. LABEO NIGRESCENS.

Day, Proc. Zool. Soc. 1870.

B. III. D. $2/14$, P. 15, V. 9, A. $2/5$, C. 21, L. 1. 36, L. tr. $6/7$.

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

Eyes.—Diameter $\frac{1}{5}$ of length of head, 2 diameters from the end of snout.

Snout rather swollen and rounded, and somewhat projecting over the lower jaw ; a small lateral lobe ; glands over the whole of the snout. A very distinct labial fold both above and below : a deep transverse groove across the chin ; lower lip deeply fringed. The rostral barbels reach to beneath the anterior margin of the orbit ; the maxillary to below its posterior third.

Fins.—Upper margin of dorsal fin straight ; the pectoral extends to the ventral, which latter fin reaches the anal. Anal rather elongated anteriorly, and if laid backwards it reaches the base of the caudal, which latter fin is deeply forked.

Scales.—Four and a half rows between the lateral line and base of the ventral fin.

Colours.—Deep brown, each scale with a black spot at its base. Fins black.

Habitat.—Mangalore.

8. LABEO DUSSUMIERI.

Rohita Dussumieri, Cuv. and Val., XVI, p. 258, pl. 475 ; Day, *Fishes of Malabar*, p. 207.

? *Rohita Rouxii*, Cuv. and Val. XVI, p. 270.

Cirrhinus Dussumieri, *Jerdon, M. J. L. and S. 1849, p. 304.

Labeo Dussumieri, Günther, Catal. VII, p. 59.

„ *Rouxii*, *Günther, l. c. p. 55.

Toolee, Mal.

B. III. D. $\frac{3}{12-13}$, P. 17, V. 9, A. $\frac{2-3}{5}$, C. 19, L. l. 53-55, L. tr. 8-9/9.

Length of head nearly $\frac{1}{7}$, of caudal $\frac{1}{6}$, height of body above $\frac{1}{5}$, of dorsal fin $\frac{1}{9}$ of the total length.

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

Body elongated and compressed, the abdominal profile rather more convex than the dorsal.

Mouth of moderate width and somewhat inferior, surrounded by fleshy, fringed lips, having a distinct inner fold above and below, but no lateral lobe. Numerous pores on the lips and snout, extending posteriorly as far as the orbits, and below the nostrils. Barbels four, minute.

Fins.—Dorsal commences somewhat in advance of the ventrals, its upper edge being concave. Caudal deeply forked.

Lateral line :—5 rows of scales between it and the base of the ventral fin.

Colours.—Greyish, lightest beneath, scales edged with a darker shade. A dull diffused dark spot on either side of the tail. Fins dusky.

Habitat.—Rivers of south Malabar, Ceylon and perhaps Bombay.

It grows to about 13 inches in length.

The *Labeo Rouxii* comes from Bombay; it is said to have 46 scales only along the lateral line and to resemble *L. gonius* (= *L. curchius*), but the dorsal profile to be more elevated, the mouth more pointed and the caudal more forked.

9. LABEO ROHITA, Pl. IX, f. 4 a. b.

Cyprinus rohita, Ham. Buch., Fish. Ganges, pp. 301, 388, pl. 36, f. 85; McClelland, Ind. Cyp. pp. 266, 321, pl. 41, f. 2.

Rohita Buchanani, Cuv. and Val., XVI, p. 251; Bleeker, Verh. Bat. Gen. XXV, 1853, Hind. and Beng. p. 133.

Labeo fimbriatus, Cuv. and Val. XVI, p. 353.

Rohita Bengaliensis, and *Valenciennesi*, Bleeker.

Labeo Reynauldi, C. and V. XVI, p. 351.

Labeo Dussumieri, C. V. XVI, p. 350.

Labeo rohita, Günther, Catal. VII, p. 55.

Ruhu, Ooriah; *Ruee*, Beng.; *Nga-myit-chin*, and *Nga-myit-taan-nee* Burmese.

B. III. D. $\frac{3}{12-13}$, P. 17, V. 9, A. $2\frac{5}{9}$, C. 19, L. l. 41, L. tr. $\frac{6\frac{1}{2}}{9}$.

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

Eyes :—diameter $\frac{2}{9}$ of length of head; $1\frac{3}{4}$ diameters from end of snout; 3 diameters apart.

Profile of back more convex than that of the abdomen. Body moderately compressed. Mouth of moderate width, anterior. Snout obtuse, depressed, not swollen, but slightly projecting beyond the lower jaw : no lateral lobe : lips rather thick, fringed, and with a distinct inner fold above and below. Maxillary barbels thin and short : the rostral arc said to be sometimes present.

Teeth, pharyngeal, plough shaped, 5, 4, 3 - 3, 4, 5.

Fins.—Dorsal arises some distance in advance of the ventrals, its upper edge is slightly concave. Caudal lunate.

Lateral line :— $6\frac{1}{2}$ rows between it and the base of the ventral fin.

Colours—uniform.

Habitat.—Fresh-waters from Orissa through India to Burma, attaining three feet in length.

Hamilton Buchanan observes that it is perhaps the most excellent and valuable of all the fresh water fishes of Bengal, where it is propagated with considerable care, but he considered those which are taken in the small and rapid rivers, by far the best for eating. McClelland also remarks that there are several varieties, no doubt the result of domestication.

10. **LABEO MORALA.*

Cyprinus morala, Ham. Buch. Fish. Ganges, pp. 331, 391, pl. 18, f. 91 ; *McClell. Ind. Cyp. pp. 267, 326 ; Gray and Hardwicke, Ill. Ind. Zool.

Cyprinus pausius, Ham. Buch., l. c. pp. 332, 392.

„ *musiha*, Ham. Buch., l. c. pp. 332, 392, *Cuv. and Val. XVI, p. 439.

Rohita morala, *Cuv. and Val. XVI, p. 263.

Labeo morala, Günther, Catal. VII. p. 56.

Morala, Beng.

B. III. D. $\frac{3}{10-11}$, P. 16, V. 9, A. $\frac{3}{5}$, C. 19, L. 1. 31 (in figure).

Length of head $\frac{1}{4}$, height of body $\frac{1}{4}$ of the entire length, according to the figure.

Eyes :—“ High flat and of moderate size ;” in the figure they are situated rather posterior to the centre of the length of the head.

The lips are thick, the lower one being fringed. The *C. morala* and *C. pausius* are stated to have “ minute” barbels. Dr. Günther says they are “ about as long as the eye,” but as he does not appear ever to have seen the species, his description is probably inaccurate, being taken from the figure in which they disagree with the text. Hamilton Buchanan also observes of the *C. musiha* that “ it differs from the description of the *morala* in nothing but the want of tendrils, and those of the *morala* are so minute, that I have some doubts of their being a sufficient mark of distinction.” (p. 333).

Fins.—“ The dorsal is before the middle and its edge forms a

concave curve, * * the pectoral fins are shorter than the head." Caudal lobed.

Colours.—Superiorly brownish green with many dark dots, whilst inferiorly it is silvery. Head dotted on the nose.

Habitat.—Bengal, in the Kosi river termed *Paungsi*, in the Ganges at Patna, *musiha*. It is said to attain the size of a small herring.

Cyprinus angra H. B. pp. 331, 391 ; C. (*Bangana*) *Hamiltonii*, Gray and Hard. ; *Gobio angra* McClelland, pp. 277, 354 ; *Cuv. and Val. XVI, p. 319 ; the Lasseem of the Assamese, is said to differ from the above in having two barbels and a broad longitudinal dark dotted stripe. It is found in the Brahmaputra river, but McClelland observes it has D. 10, L. l. 35, L. tr. 14 to base of ventral fin ; the specimen, from which his description was drawn up, was apparently very similar to his *Gobio isurus*.

11. LABEO NASHII.

Barbus Nashii, Day, Pro. Zool. Soc. 1868, p. 584.

B. III. D. 3/11, P. 15, A. 3/5, C. 19, L. l. 41, L. tr. $7\frac{1}{2}/6$.

Length of head $1/5$, of caudal $2/9$, height of body $1/5$, of dorsal fin $1/6$ of the total length.

Eyes :—Diameter $1/3$ of length of head ; 1 diameter from end of snout ; $1\frac{1}{4}$ diameters apart.

Mouth antero-inferior, the snout slightly projecting, but having no pores, tubercles, nor lateral lobe. Lips not fringed, but there is a slight thickening on the jaws, not horny, but of a dark colour. No barbels.

Teeth, pharyngeal, crooked, sharp, 5, 4, 3/3, 4, 5.

Fins.—Dorsal destitute of any osseous ray, commences anterior to the ventrals, its upper margin is concave ; caudal forked.

Lateral line—proceeds to the centre of the base of the caudal ; $4\frac{1}{2}$ rows of scales between it and the base of the ventral.

Colours.—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, and a dark edging to the caudal.

Habitat.—Fraserpett at the foot of the Coorg Hills. It was sent

to me by Dr. Nash after whom I have named it. It attains 4 inches in length.

12. LABEO RICNORHYNCHUS.

? *Cyprinus musiha*, Ham. Buch., pp. 333, 392.

Gobio ricnorhynchus, McClelland, Ind. Cyp., pp. 279, 363, pl. 55, f. 1; *Cuv. and Val. XVI, p. 464.

Labeo ricnorhynchus, Günther, Catal. VII, p. 57; Day Proc. Zool. Soc. 1869, p. 373.

Nepura, Assamese; *Kul-ka-batta* Bengali.

B. III. D. $\frac{3}{10}$, P. 17, V. 9, A. $\frac{2}{5}$, C. 19, L. 1. 42—44, L. tr. $\frac{8}{9}$.

Length of head $\frac{1}{6}$, of caudal $\frac{2}{9}$, height of body $\frac{2}{7}$, of dorsal fin $\frac{2}{7}$ of the total length.

Eyes:—diameter $\frac{1}{5}$ of length of head; 2 diameters from end of snout and apart.

Body moderately compressed, dorsal and abdominal profiles about equally convex.

Mouth broad, directed downwards, when the upper jaw is protruded; snout overhanging the jaws and having a well developed lateral lobe. Lips rather thick and continuous, with an inner fold in their entire circumference, but most developed in the lower lip which also is fringed. Snout with a deep transverse depression posterior to it, dividing the mucous pores on it from those on the forehead. Two very small maxillary barbels.

Teeth, pharyngeal, plough shaped 5, 4, $\frac{2}{2}$, 4, 5.

Fins.—Dorsal with its upper margin concave, its anterior rays being produced; it arises midway between the end of the snout and base of the caudal. Caudal deeply forked, lower lobe the longest.

Lateral line:—6 to $6\frac{1}{2}$ rows of scales between it and the base of the ventral fin.

Colours.—Greyish, darkest along the back, each scale tinged with red. Fins with a reddish tinge. The outer edge of the dorsal rather stained.

Habitat:—Cossye river and the Himalayan and Nepaul regions, as well as Assam and Afghanistan.

The *Cyprinus potail*, Sykes, p. 354, may possibly belong to this species.

13. LABEO FALCATUS.

Cyprinus (Bangana) falcata, Gray and Hard. Ind. Zool.

Gobio malacostomus, McClelland, Ind. Cyp., p. 280.

Labeo malacostomus, Cuv. and Val., XVI, p. 365.

Labeo falcatus, Günther, Catal. VII, p. 58.

B. III. D. 2/11, P. 17, V. 9, A. 2/5, C. 19, L. l. 43, L. tr. $8\frac{1}{2}/7\frac{1}{2}$.

Length of head 2/11, of caudal 2/11, height of body 2/9 of the total length.

Eyes:—diameter 1/6 of length of head, 3 diameters from end of snout; 2 diameters apart.

Snout obtuse, projecting, with a distinct lateral lobe, mouth broad, directed downwards when the upper jaw is protruded. A distinct inner fold in the entire circumference of both lips, the lower of which is the thickest. One pair of short maxillary barbels.

Fins.—Dorsal commences midway between the end of the snout and the posterior end of the base of the anal fin, its upper margin concave. Caudal deeply forked, its lower lobe the longest

Lateral line:— $4\frac{1}{2}$ rows of scales between it and the base of the ventral fin.

Habitat.—Bengal, Assam and Sikkim. It attains three feet in length.

14. *LABEO DIPLOSTOMUS.

Varicorhinus diplostomus, Heck., Fish. Caschmir, p. 67, t. 11.

Labeo diplostomus, *Cuv. and Val., XVI, p. 360; *Günther, Catal. VII, p. 57.

Tylognathus Valenciennesii, Heckel, in Hügel's Reise &c., IV, p. 378 and in Russegers Reisen, II, 3, p. 283 (no description).

B. III. D. 13, P. 8 (?) V. 10, A. 8, C. 17, L. l. 45, L. tr. 8/7.

Length of head 1/6, height of body 1/5 of the total length.

Eyes—small, situated before middle, of the length of the head.

Snout obtuse, projecting over the mouth and having a small lateral lobe. Some pores on the snout, mouth broad: lips thick, continuous, with an inner fold in their entire extent, but most developed on the lower lip which also is fringed. Two small maxillary barbels.

Fins.—In the single individual of 9 inches in length the upper

margin of the dorsal appears a little convex (?) ; caudal slightly forked.

Lateral line :—7 (?) rows between it and the base of the ventral fin.

Colours :—Uniform.

Habitat :—Cashmere.

My opinion is that the above is the *Labeo ricnorhynchus*, McClelland, but unable to obtain a Cashmerein example, I have left it as a doubtful species ; the following appear to be the chief points of reputed differences between the two :

Labeo diplostomus— eyes situated before the middle of the length of the head, caudal fin slightly forked, the length of the middle rays being one half of that of the longest outer ones.

Labeo ricnorhynchus— eyes situated in or a little behind the middle of the length of the head, caudal fin deeply forked, the length of middle rays being two-sevenths of that of the longest outer ones.

15. LABEO PANGUSIA.

Cyprinus pangusia, Ham. Buch., Fishes of Ganges, pp. 285, 386 ; *Cuv. and Val. XVI, p. 429.

Gobio pangusia, McClell., Ind. Cyp., pp. 279, 362, pl. 42, f. 1, (from H. B.'s MS.)

Labeo pangusia, Günther, Catal. VII, p. 58.

B. III. D. $\frac{3}{10}$, P. 15, V. 9, A. $\frac{2}{5}$, C. 19, L. 1. 40, L. tr. $7\frac{1}{2}/7$.

Length of head $\frac{2}{11}$, height of body $\frac{2}{9}$, length of caudal $\frac{1}{5}$ of the total length.

Eyes :—diameter $\frac{2}{7}$ of length of head, $1\frac{1}{2}$ diameters from end of snout.

Body rather compressed. Mouth narrow, snout with some large pores on its anterior surface ; it is obtuse anteriorly, projecting over the jaws, and has a distinct lobe on either side. Lips rather thick, with a distinct inner fold in their entire circumference, but no fringe. One pair of small maxillary barbels.

Fins.—Upper margin of dorsal fin concave. Caudal deeply forked.

Lateral line :— $4\frac{1}{2}$ rows of scales between it and the base of the ventral fin.

Colours :—Uniform.

Habitat.—Bengal and Cachar. Attains 8 inches in length.

16. LABEO STRIOLATUS.

Tylognathus striolatus, Günther, Catal. VII, p. 62.

B. III. D. 3/9, P. 17, V. 9, A 2/5, C. 19, L. l. 60, L. tr. 12/14.

Length of head 2/11, height of body 2/5 of the total length.

Eyes :—diameter $\frac{1}{5}$ of length of head, $1\frac{3}{4}$ diameters from end of snout, 2 diameters apart.

Snout thick and somewhat projecting beyond the lower jaw, but without any lateral lobe. Interorbital space convex. A moderately sized maxillary, but no rostral barbels.

Fins.—The dorsal commences somewhat in advance of the ventral and nearer to the end of the snout than to the root of the caudal.

Lateral line :—9 rows of scales between it and the base of the ventral fin.

Colours :—Silvery, darkest above.

Habitat.—Poona, Nagpore.

The *Cyprinus joalius* and *pausio* H. B. pp. 316, 317, 389; McClelland, Ind. Cyp., pp. 267, 327, pl. 42, f. 6, (from H. B.'s MS.); *Cuv. and Val. XVI, pp. 264, 401; appear probably to belong to this species, only Buchanan states that it has a black crescent shaped mark on either side of the tail. It comes from N. E. Bengal.

17. LABEO BICOLOR.

Gobio bicolor, McClelland, Ind. Cyp., pp. 278, 360, t. 40, f. 1.

Gymnostomus bicolor,* Günther, Catal. VII, p. 374.

B. III. D. 2/10, P. 18, V. 9, A. 2/5, C. 19, L. l. 43, L. tr. $8\frac{1}{2}/7\frac{1}{2}$.

Length of head 1/6, of caudal 1/5, height of body 1/5 of the total length.

Eyes :—diameter 2/7 of length of head, $1\frac{3}{4}$ diameters from end of snout, 2 diameters apart.

Snout overhanging the mouth, but not swollen, a small lateral lobe. A few indistinct pores between eye and snout. Lips continuous, with an indistinct inner fold to the upper, but distinct to the lower lip which is thick, reflected away from the lower jaw and covered internally with papillæ; mouth transverse, inferior. A horny covering to inside of lower jaw. A pair of short barbels to the maxilla.

Fins.—The height of the dorsal fin equals the length of the head, its upper margin is very concave, it commences before the ventrals and midway between the snout and the posterior extremity of the base of the anal fin. Caudal deeply forked, lower lobe the shortest.

Teeth, pharyngeal, plough-shaped 5, 4, 2/2, 4, 5.

Scales:— $7\frac{1}{2}$ rows between the lateral line and the base of the ventral fin.

Colours:—silvery, darkest in the upper half of the body; sometimes the scales are spotted with red.

Habitat.—N. W. Provinces, and Assam in clear streams. It is termed *Mohaylee* and *Gaywah* in Hindoostanee at Hurdwar and Saharunpore.

It appears to strongly resemble *Gobio anisurus*, McClelland, which, however, is said to have 39 scales in the lateral line, a rough porous snout, and the lower lobe of the caudal to be the longest; see *Cirrhhina anisura*, p. 136.

18. *LABEO KAWRUS.

Chondrostoma kawrus, Sykes, Trans. Zool. Soc., II, p. 358, pl. 62, f. 2.

B. III. D. 12, P. 16, V. 9, A. 8, C. 19.

Height of body above $\frac{1}{4}$ ($\frac{3}{13}$) of the total length.

Judging from the figure, the eye is in the posterior half of the head. The snout overhangs the mouth. It is said to have no tubercles or barbels.

Fins.—Dorsal arises in advance of the ventral. Caudal forked.

Lateral line—badly marked.

Colours.—Back reddish-green grey, silvery below. Fins with the extremity of the rays tinted reddish.

Habitat.—Beema river at Seedataik, attaining a foot in length.

19. LABEO ARIZA.

Cyprinus ariza, Buchanan's journey through Mysore, III, p. 344; pl. 31, and Fish. Ganges, pp. 286, 386. *McClell., Ind. Cyp., pp. 279, 357. *Cuv. and Val., XVI, p. 430.

Gobio Hamiltonii et bovanus, Jerdon, M. J. L. and S., 1849, p. 307.

? *Chondrostoma semivelatus*, Cuv. and Val., XVII, p. 402; *Günther, Catal., VII, p. 76.

Tylognathus ariza, Günther, Catal., VII, p. 63.

Kinda-meen, and *Coal-arinza-candee*, Tam.; *Ariza*, Tel.; *Bangumbatta*, Beng.

B. III. D. 3/9, P. 18, V. 9, A. 2/5, C. 19, L. 1. 38—40, L. tr. $7\frac{1}{2}/7$, Vert. 17/15.

Length of head $1/5$, of caudal $1/4$, height of body $2/9$ of the total length.

Eyes :—diameter $1/4$ to $1/5$ of length of head, $1\frac{1}{4}$ diameters from end of snout, $1\frac{1}{2}$ diameters apart.

Snout moderately projecting beyond the jaws, lateral lobe not developed ; lips rather thick, the lower being slightly fringed. Snout occasionally covered with large mucous pores. Two minute maxillary barbels.

Teeth, pharyngeal, 5, 4, $3/3$, 4, 5, plough-shaped.

Fins.—Origin of dorsal considerably in advance of the ventrals, nearer the snout than the base of the caudal, upper margin concave ; caudal deeply lobed.

Lateral line :—5 rows of scales between it and the base of the ventral fin.

Colours.—Orange, with the fins of a reddish tinge.

Habitat.—Rivers of India. Said to attain a foot in length, also found near Calcutta.

20. LABEO BOGA.

Cyprinus boga, Ham. Buch., Fish. Ganges, pp. 286, 386, pl. 28, f. 80, *Cuv. and Val., XVI, p. 432.

Gobio boga, McClell., Ind. Cyp., pp. 278, 361 ; Bleeker, Verh. Bat. Gen. XXVI, Beng. and Hind. p. 134.

Gobio augraoides, Jerdon, M. J. L. and S., 1849, p. 307.

Tylognathus boga, Günther, Catal., VII, p. 64.

B. III. D. 3/9, P. 19, V. 9, A. 2/5, C. 21, L. 1. 40—42, L. tr. 7-8/5.

This fish is similar to *L. ariza* of which it might be considered a variety ; but both are found in Southern India in the same localities ; and the colour alone at once demonstrates the species when in a fresh state.

The lateral lobe to the snout may be slightly more apparent in this species and the eye is slightly behind the middle of the length of the head.

Colours:—silvery. At Mandalay the specimens had a distinct black mark at the posterior end of the lateral line.

Habitat.—Fresh waters of India and Burma.

The *Chondrostoma Duvaucellii*, Cuv. and Val., may be identical with the present species.

21. *LABEO MULLYA.

Chondrostoma mullya, Sykes, Trans. Zool. Soc., II, p. 359, pl. 62, f. 3.

Gymnostomus mullya, *Günther, Catal., VII, p. 76.

B. III. D. 11, P. 16, V. 9, A. 8, C. 19.

Body subcylindrical, head short, obtuse, snout projecting.

Fins.—Dorsal situated a little before the centre of the fish, and slightly before the ventral. Caudal lunate.

Colours.—Some carmine spots about the head, general colour dark olive with a play of faint red and copperas-green sometimes on the scales; the fins have a faint orange tint at their extremities.

Habitat.—Beema river at Downde, it attains 6 inches in length.

5. GENUS—OSTEOCHILUS, Günther, Pl. IX, f. 5. a. b.

Rohita sp. Cuv. and Val.

Abdomen rounded. Mouth of moderate width, directed more or less downwards; lips thickened, continuous, fringed or crenulated, but the lower is reflected from off the mandible, leaving it uncovered in the form of a sharp and hard, transverse, prominence. No tubercle at symphysis. Snout obtusely rounded. Barbels generally four. Pharyngeal teeth generally 5, 4, 2/2, 4, 5. Dorsal fin without osseous ray, with a moderate number of branched ones (10 to about 20), commencing in advance of the ventrals. Anal with few rays. Scales of moderate or small size. Lateral line passing to the centre of the base of the caudal fin. Gill rakers short.

Geographical distribution. Burma and E. I. Archipelego.

SYNOPSIS OF SPECIES.

1. *Osteochilus rostellatus*, D. $\frac{2}{18}$, A. $\frac{3}{5}$, L. l. 55, 4 barbels, colours uniform. Burma.

2. *Osteochilus Neilli*, D. $\frac{2-3}{15-16}$, A. $\frac{2}{5}$, L. l. 34; 4 barbels. A

darkish band near commencement of lateral line, and a dark mark before base of caudal fin. *Burma.*

*3. *Osteochilus cephalus*, D. $3/13$, A. $3/6$, L. 1. 36; 2 barbels. Colours uniform. *Pegu.*

1. *OSTEOCHILUS ROSTELLATUS.*

Rohita rostellatus, Cuv. and Val., XVI, p. 256.

Rohita lineata, Cuv. and Val., XVI, p. 260.

Rohita chalybeata, Cuv. and Val., XVI, p. 271.

Labeo chalybeatus, *Günther, Catal., VII, p. 60.

B. III. D. $2/18$, P. 21, V. 9, A. $3/5$, C. 29, L. 1. 55, L. tr. $9/10$.

Length of head nearly $1/5$, of caudal $2/9$, height of body $2/7$, of dorsal fin $2/11$ of the total length.

Eyes:—diameter $2/7$ of length of head, $1\frac{1}{4}$ diameters from end of snout, 2 diameters apart.

Snout overhanging the mouth which is transverse and not very wide, lips reflected from off lower jaw leaving its sharp edge exposed; both lips fringed and glandular. No lateral lobe to the snout. A distinct inner fold to the upper lip. Four short barbels.

Fins.—Dorsal arises considerably nearer to the snout, than to the base of the caudal, and much in advance of the ventrals; its upper edge is straight. Caudal deeply forked.

Lateral line:— $6\frac{1}{2}$ rows of scales between it and the base of the ventral fin.

Colours:—silvery, the edges of the scales darkest.

Habitat.—Irrawadi and Salween rivers in Burma. The species attains 2 feet in length.

2. *OSTEOCHILUS NEILLI.* Pl. IX, f. 5. a. b.

Day, Proc. Zool. Soc. 1870, p. 99.

B. III. D. $\frac{2-3}{15-16}$, P. 15, V. 9, A. $2/5$, C. 19, L. 1. 34, L. tr. $5\frac{1}{2}/6\frac{1}{2}$.

Length of head nearly $1/5$, of caudal $1/4$, height of body $2/7$, of dorsal fin $1/6$ of the total length.

Eyes:—diameter $2/7$ of length of head, $1\frac{1}{2}$ diameters from end of snout, 2 diameters apart.

Body compressed. Snout rounded and smooth, it scarcely overlaps the mouth which is of moderate width. No lateral lobe.

Lips thin, and but slightly reflected; they are both fringed, with two, three, or more rows of well developed papillæ, internal to their outer fringe. The rostral barbels do not reach the orbit, the maxillary extend to beneath its centre.

Teeth, pharyngeal, plough-shaped, 5, 4, $3/3$, 4, 5.

Fins.—The dorsal commences before the ventral, and much nearer to the snout, than to the base of the caudal, its upper border is somewhat convex; caudal deeply forked.

Scales:— $4\frac{1}{2}$ rows between the lateral line and the base of the ventral fin.

Colours.—Greyish yellow, deepest superiorly, every scale being darkest at its base. A darkish spot near the root of the caudal fin, and another ill defined one near the commencement of the lateral line. Fins, yellowish orange, dorsal darkest at its basal half.

Habitat.—Sittoung and Billing in Burma. The largest specimen, out of seven, measures six inches in length.

3. *OSTEOCHILUS CEPHALUS.

Labeo cephalus, Cuv. and Val., XVI, p. 347, pl. 487.

B. III. D. $3/13$, P. 20, V. 9, A. $3/6$, C. 19, L. 1. 36.

Length of head $1/5$, caudal about $2/9$, height of body $1/4$ of the total length.

Eyes:—two diameters from end of snout.

The dorsal profile is much more convex than the abdominal. Interorbital space convex. The snout scarcely projects beyond the jaws, it is rather swollen and has many pores opening on its surface; the mandible has a transverse free edge, with thick lip, both upper and lower being fringed. One pair of short maxillary barbels.

Fins.—The dorsal (from the figure) commences in advance of the ventrals, its upper border is concave. The anal laid flat reaches the caudal.

Colours.—Greenish with the base of each scale darkest.

Habitat.—Pegu attaining one foot in length.

6. GENUS—CIRRHINA, Cuv. and Val., pt. Pl. IX. f. 6 ab.,

Dangila sp. Cuv. and Val.—*Cyrene* sp. Heckel.—*Mrigala* sp. Bleeker.—*Crossochilus*, pt. Günther.

Abdomen rounded. Snout depressed or obtusely rounded, with the soft coverings extremely thin. Mouth broad, transverse. Upper lip fringed or entire. Lower jaw rather sharp without any or with a thin lip, destitute of any horny covering, but having a small tubercle above the mandibular symphysis. Barbels small, four, two, or none. Dorsal fin rather short, moderate or long, without any osseous ray, and commencing in advance of the ventrals. Anal fin short, without a row of tiled scales. Pharyngeal teeth 5, 4, 2/2, 4, 5 or 5, 3, 2/2, 3, 5. Scales of large, small, or moderate size. Lateral line continuous, passing to the centre of the base of the caudal fin. Gill rakers short.

Geographical distribution. Fresh waters throughout India, and Burma, and extending onwards through the East Indian Archipelago.

SYNOPSIS OF SPECIES.

1. *Cirrhina Kuhlîi*, D. 3/25, A. 2/5, L. 1. 39-40. Four barbels. Upper lip fringed. *Tavoy*.
2. *Cirrhina Berdmorei*, D. 3/23, A. 2/5, L. 1. 31. Four barbels. Upper lip fringed. *Tennasserim Provinces*.
3. *Cirrhina Leschenaultii*, D. $\frac{3-4}{14-13}$, A. 3/5, L. 1. 42. Four barbels. Upper lip entire. *Southern India*.
4. *Cirrhina mrigala*, D. 3/12, A. 3/5, L. 1. 43. Two barbels. Upper lip entire. *Bengal and Burma*.
5. **Cirrhina anisura*, D. 3/10, A. 2/5, L. 1. 43. No barbels. Upper lip entire. *Bengal*.
6. *Cirrhina dyoheila*, D. 3/10, A. 2/5, L. 1. 42. No barbels. Upper lip entire. *Assam*.
7. **Cirrhina dero*, D. 13. A. 7. One pair of short maxillary barbels. Lips entire. *Assam*.
8. **Cirrhina sada*, D. 13. A. 7. Four barbels, longer than the eye. Upper lip fringed. *Assam*.
9. *Cirrhina gohama*, D. 3/8, A. 2/5, L. 1. 38—40. One pair of short rostral barbels. Upper lip fringed. Some black spots on body. *Orissa and Bengal*.
10. *Cirrhina latius*, D. 3/8, A. 2/5, L. 1. 39. Four barbels. Upper lip fringed. *Northern Bengal, Nepaul and Assam*.

11. *Cirrhina diplochilus*, D. $\frac{3}{8}$, A. $\frac{2}{5}$, L. 1. 36—39. Four barbels. Upper lip fringed. *Cashmere*.

12. *Cirrhina bata*, D. $\frac{2-3}{9}$, A. $\frac{2}{5}$, L. 1. 36—38. One pair of short maxillary barbels. Upper lip fringed. *Bengal and Orissa*.

13. *Cirrhina mosario*, D. 10, A. 7, L. 1. 37. No barbels. Upper lip fringed. *Assam*.

14. *Cirrhina reba*, D. $\frac{3}{8-9}$, A. $\frac{3}{5}$, L. 1. 35—38. One pair of short rostral barbels. Upper lip indistinctly fringed or entire. *Throughout India*.

15. *Cirrhina isurus*, D. $\frac{2}{8}$, A. $\frac{2}{7}$, L. 1. 36. One pair of moderately long rostral barbels. Upper lip very distinctly fringed. *Bengal and Assam*.

1. CIRRHINA KUHLLII.

Dangila Kuhlii, Cuv. and Val., XVI, p. 231; Bleeker, Prod. Cyp. p. 197 and Atl. Ich. Cyp., p. 44, t. 16, f. 1; *Günther, Catal., VII, p. 39.

B. III. D. $\frac{3}{25}$, P. 15, V. 9, A. $\frac{2}{5}$, C. 19, L. 1. 39—40, L. tr. 7/7—9.

Length of head $\frac{1}{7}$, of caudal nearly $\frac{1}{5}$, height of body $\frac{1}{5}$, of dorsal fin $\frac{1}{6}$ of the total length.

Eyes:—diameter $\frac{1}{3}$ of length of head; 1 diameter from end of snout.

Mouth transverse, sub-inferior, with snout slightly depressed, rounded. Upper lip fringed, a small tubercle above the symphysis of the lower jaw inside the mouth. Maxillary barbels as long as the orbit, and longer than the rostral pair.

Teeth, pharyngeal, plough-shaped, 5, 4, $\frac{3}{3}$, 4, 5.

Fins.—Dorsal without osseous ray, commencing opposite the ninth scale of the lateral line, and at the beginning of the second third of the total length. Upper lobe of the caudal the longest.

Lateral line:—five rows of scales between it and the base of the ventral fin.

Colours.—Silvery, some of the scales with dark spots at their bases forming rows, or horizontal bands. Fins orange, the edges of the caudal stained.

Habitat.—Tavoy where it does not appear to be uncommon.

Several specimens, personally obtained there, measured up to ten inches in length.

2. CIRRHINA BERDMOREI.

Dangila Berdmorei, Blyth, J. A. S. of Bengal, 1860, p. 162 ; Day Proc. Zool. Soc. 1869, p. 554.

B. III. D. $\frac{3}{23}$, V. 9, A. $\frac{2}{5}$, L. l. 31, L. tr. $\frac{6}{?}$

Length of head $\frac{1}{5}$, of caudal $\frac{1}{4}$, height of body $\frac{1}{4}$, of dorsal fin $\frac{2}{13}$ of the total length.

Eyes :—diameter $\frac{2}{5}$ of head ; $\frac{3}{4}$ of a diameter from end of snout.

Pores on front of snout and of a large size. A distinct tubercle above symphysis. Rostral barbels equal the length of the orbit, the maxillary ones are shorter. Lower lip rather thick, distinct from the upper, which last is not fringed.

Fins.—Dorsal arises in the commencement of the second third of the total length. The pectoral does not quite reach the ventral. Caudal deeply forked.

Scales :—three and a half rows exist between the lateral line and the base of the ventral fin.

Colours :—uniform in spirit.

Habitat.—Tennasserim Provinces of British Burma.

3. CIRRHINA LESCHENAULTII.

?*Cyprinus cirrhosus*, Bloch, XII, p. 52, t. 411.

Dangila Leschenaultii, Cuv. and Val., XVI, p. 235, pl. 471.

Cirrhina Blochii, Cuv. and Val., XVI, p. 290.

Cirrhinus Cuvierii, Jerdon, M. J. L. and S., 1849, p. 303.

Cirrhina Leschenaultii, Günther, VII, p. 36.

Venkendi, Tam., *Aruzu*, Tel.

B. III. D. $\frac{3 \cdot 4}{14-15}$, P. 19, V. 9, A. $\frac{3}{5}$, C. 19, L. l. 42—44, L. tr. $\frac{9}{9}$, Vert. $\frac{21}{17}$.

Length of head $\frac{1}{6}$, of caudal $\frac{1}{5}$, height of body $\frac{2}{15}$ of the total length.

Eyes :—diameter $\frac{2}{7}$ of length of head ; $1\frac{1}{6}$ diameters from end of snout ; 2 diameters apart.

Maxillary extends nearly to below anterior margin of the orbit. Some fine pores on the snout. Rostral barbels longer than maxillary ones.

Teeth.—Pharyngeal teeth plough-shaped and with their sides serrated, 5, 4, $\frac{3}{3}$, 4, 5.

Fins.—Dorsal arises in the adult considerably in advance of the ventrals, and midway between the snout and the posterior portion of the base of the anal fin ; upper margin of fin concave. Pectoral falciform. Caudal deeply forked or lunated, the centre rays being about $\frac{2}{7}$ the length of the outer ones.

Scales :—in straight rows, $6\frac{1}{2}$ between lateral line and the base of the ventral fin.

Lateral line : nearly straight.

Colours.—Silvery, every scale having a red centre, except along the abdomen where they are of a dirty yellowish white. Dorsal and caudal stained with grey, also the outer end of the anal and pectoral. A darkish line after death is seen along the centre of rows of scales.

Habitat.—Godavery, Kistna and Cauvery rivers, and generally in Southern India. Grows to $1\frac{1}{2}$ feet in length. Is a very active fish and fair eating, but bony.

4. CIRRHINA MRIGALA, Pl. IX. f. 6. *ab.*

Cyprinus mrigala, Ham. Buch., Gang. Fish., pp. 279, 386, pl. 6. f. 79 ; McCelland, Ind. Cyp., pp. 276, 350.

Cirrhina rubripinnis, Cuv. and Val., XVI, p. 288, pl. 479.

? *Cirrhina plumbea*, Cuv. and Val., XVI, p. 289.

Cirrhinna mrigala, Cuv. and Val., XVI, p. 294 ; Günther, Catal., VII, p. 35.

Mrigala Buchananii, *Bleeker, Prod. Cyp., p. 226.

Mirragah, Ooriah ; *Mrigah*, Beng. ; *Nga-kyin* and *Nga-gyein*, Burm.

B. III. D. $\frac{3}{12}$, P. 15, V. 9, A. $\frac{3}{5}$, C. 19, L. 1. 40—43, L. tr. $6\frac{1}{2}/8\frac{1}{2}$.

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

Eyes :—diameter $\frac{2}{7}$ of length of head.

Small pores sometimes present on the snout.

The posterior extremity of the maxilla extends to nearly beneath the anterior margin of the orbit. Snout not tuberculated. Rostral barbels only present, well developed and nearly as long as the eye. Opercle two-thirds as wide as high, greatest width of exposed portion of interopercle equals half the diameter of the eye.

Teeth.—Pharyngeal teeth plough-shaped, 5, 4, $\frac{2}{2}$, 4, 5.

Fins.—Dorsal arises rather nearer to the snout than to the base of the caudal fin, and opposite the 12th scale of the lateral line, upper margin of fin very slightly concave. Caudal with sharp and deeply forked lobes, which have convex edges internally.

Scales :—in straight rows, seven in the line between the origin of the dorsal fin and the lateral line, and $5\frac{1}{2}$ between the latter and the base of the ventral.

Lateral line :—in single tubes, and almost straight in its direction.

Colours.—Silvery, dark grey along the back, sometimes having a coppery tinge, and the pectoral, ventral and anal orange. Eyes golden.

Habitat,—Rivers and tanks in Bengal and Burma, grows to 3 feet in length. It is an excellent species for stocking tanks with. I have taken it in Rangoon 18lb in weight.

This species is closely allied to *C. chinensis*, Günther, the head, however, is shorter and the mouth not quite so wide. The two species might almost be classed as local varieties.

5. CIRRHINA ANISURA.

Gobio anisurus, McClelland, Ind. Cypr., pp. 278, 360, pl. 40, f. 2 ; *Cuv. and Val., XVI, p. 463.

Cirrhina anisura, Steind., Sitz. Ak. Wiss., Wien, 1867, LVI, *Günther, Catal., VII, p. 37.

B. III. D. $\frac{3}{9-10}$, P. 17, V. 9, A. $\frac{2}{5}$, C. 19, L. 1. 38, L. tr. $7\frac{1}{2}/10\frac{1}{2}$.

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

Eyes.—Diameter $\frac{2}{7}$ of length of head, 1 diameter from end of snout, $1\frac{1}{2}$ diameters apart. Upper lip entire, lower lip fringed. No barbels.

Fins.—Dorsal commences midway between the snout, and base of caudal, lower lobe of caudal longer than the upper. Ventral under centre of dorsal.

Scales.—Five and a half rows between lateral line and base of ventral fin.

Colours.—Silvery.

Habitat.—Bengal and Assam.

6. CIRRHINA DYOCHEILA.

Labeo (Cyprinus) dyocheilus, McClell., Ind. Cyp., pp. 268, 330, pl. 37, f. 1 ; Cuv. and Val., XVI, p. 461.

Cirrhina dyochilus, Günther, Catal., VII, p. 37.

Goreah, Assam.

B. III. D. 3/10, P. 18, V. 9, A. 8, C. 19, L. 1. 42, L. tr. 8/8.

Barbels rudimentary or absent.

Snout with pores, lower lip distinct.

Fins.—Dorsal commences nearer to the end of the snout than to the root of the caudal, and opposite the tenth scale of the lateral line.

Scales.—Five rows between the lateral line and the base of the ventral fin.

Colours.—Bluish or brownish black above, becoming silvery white on the abdomen.

Habitat.—“It is found in the clear active currents of the Brahmaputra, from middle Assam to the rapids at the extremity of the valleys, but appears to be equally unknown in mountain torrents, and sluggish rivers and jheels in the plains.” (*McClelland*). It grows to two feet and upwards in length.

7. **CIRRHINA DERO.*

Cyprinus dero, Ham. Buch., Fish. Ganges, pp. 277, 331, 385, pl. 22, f. 78 ; **McClelland*, Ind. Cyp., pp. 267, 326.

Cirrhina dero, **Cuv.* and *Val.*, XVI, p. 296.

Dhengro, Assam.

B. III. D. 3/10, P. 18, V. 9, A. 7, C. 19.

“Head oval and blunt. The snout projects a little beyond the mouth, is fleshy, and marked with callous points. * * The mouth is small, the upper jaw protruding in opening. The lips are fleshy and smooth on the edges. * * A ridge on the lower jaw. * * At each corner of the mouth is a minute tendril.”

Eyes.—“High up and small.”

“The back slopes gently before the fin, and is rather sharpened. The edge of the belly is rounded.”

Fins.—“The pectoral fins are shorter than the head. * * The lobes of the tail are sharp and equal.”

Lateral line :—“is below the middle and is bent downwards.”

Scales :—“of moderate size.”

Colours :—“of the back and belly are irregularly indented into each other on the sides. The dorsal and caudal fins are dotted.”

Habitat.—Brahmaputra river, attaining four inches in length.

This species may be a *Labeo* (*Tylognathus*) under which genus Dr. Günther has placed it amongst the doubtful species, observing, "two (?) barbels, well developed, at the angle of the mouth," their length evidently having reference to the figure and not to the text.

8. *CIRRHINA SADA.

Cyprinus sada, Ham. Buch., Fish. Ganges, pp. 344, 393; *Cuv. and Val., XVI, p. 385.

Gonorhynchus fimbriatus, *McClell., Ind. Cyp., pp. 282, 375, pl. 43, f. 3.

Crossochilus sada, *Günther, Catal., VII, p. 74.

B. III, D. 13, V. 9, A. 7.

Barbels four, longer than the eye, but shorter than the head. Upper lip said to be fringed. From the figure the snout appears to overhang the mouth.

Colours.—Green above, silvery below.

Habitat.—Assam.

9. CIRRHINA GOHAMA.

Cyprinus gohama, Ham. Buch., Fish. Ganges, pp. 346, 393; *Cuv. and Val., XVI, p. 413.

Gonorhynchus brevis, *McClell., Ind. Cyp., p. 373, pl. 43, f. 6 (from H. B. MS.)

Crossocheilus gohama, Bleeker, Prod., Cyp. p. 110 (no description); Günther, Catal., VII, p. 72; Day, Proc. Zool. Soc. 1869, p. 371.

Kala-batta, Bengali.

B. III. D. $3/8$, P. 15, V. 9, A. $2/5$, C. 19, L. l. 38—40, L. tr. $6/6$.

Length of head $2/11$, height of body $2/11$, of dorsal fin $1/5$ of the total length.

Eyes.—Diameter $1/3$ of length of head; 1 diameter from end of snout and apart.

Dorsal profile more convex than the abdominal. Upper surface of the head broad; snout overhanging the jaws and having a small lateral lobe. Both lips fringed. A pair of rostral barbels half as long as the diameter of the orbit.

Fins.—Dorsal commences midway between the snout and the posterior extremity of the base of the anal fin, caudal deeply forked.

Lateral line:— $3\frac{1}{2}$ to 4 rows of scales between it and the base of the ventral fin.

Colours.—Brownish olive, irregularly spotted with black marks. Dorsal and caudal fins yellowish, stained with grey, the others orange.

Habitat.—Orissa and Bengal. It attains 6 inches in length.

10. CIRRHINA LATIUS.

Cyprinus latius, Ham. Buch., Fish. Ganges, pp. 345, 393 ; *Cuv. and Val., XVI, p. 411.

Gonorrhynchus macrosomus, McClell., Ind. Cyp., pp. 282, 372, pl. 43, f. 7, (from H. B.'s MSS.)

Crossocheilus latius, *Bleeker, Pro. Cyp., p. 110 (no description) ; Günther, Catal., VII, p. 71.

B. III. D. $\frac{3}{8}$, P. 15, V. 9, A. $\frac{2}{5}$, C. 19, L. 1. 39, L. tr. $5\frac{1}{2}/6\frac{1}{2}$.

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

Eyes.—Diameter $\frac{1}{4}$ of length of head ; $1\frac{1}{3}$ diameters from end of snout.

Lips thin, the upper one fringed. The rostral pair of barbels rather shorter than the eye, the maxillary pair minute.

Fins.—Upper lobe of the caudal the longest.

Lateral line:— $3\frac{1}{2}$ rows of scales between it and the base of the ventral fin.

Colouration:—uniform.

Habitat.—Northern Bengal, Nepaul, and Assam. It appears to be a small species.

11. CIRRHINA DIPLOCHILUS.

Barbus diplochilus, Heckel, Fische aus Cashmir, p. 53, t. 10, f. 1 ; Cuv. and Val., XVI, p. 204.

Tylognathus barbatulus, Heckel, in Hügels Reise, IV, p. 376, and in Russ. Reisen, II, iii, p. 283, (no description).

Crossocheilus diplochilus, Steind., Verh. Zool.-bot. Gesellsch. Wien, 1866, p. 791.

Crossochilus barbatulus, Günther, Catal., VII, p. 72.

B. III. D. $\frac{3}{8}$, P. 15, V. 9, A. $\frac{2}{5}$, C. 19, L. 1. 36—39, L. tr. $4\frac{1}{2}/6$.

Length of head $\frac{1}{4}$, of body $\frac{2}{9}$ of total length without the caudal fin.

Snout thick much projecting beyond the jaws. Rostral barbels short, maxillary ones minute.

Eyes.—Of moderate size, situated somewhat before the middle of the length of the head.

Fins.—Dorsal commences in advance of the ventrals, and nearer the end of the snout than the root of the caudal, which latter fin is deeply forked.

Lateral line :— $3\frac{1}{2}$ rows of scales between it and the base of the ventral fin.

Colours :—uniform.

Habitat.—Cashmere. It does not appear to grow to a large size.

12. CIRRHINA BATA.

Cyprinus bata, Ham. Buch., Fish. Gang., pp. 283, 386 ; *Cuv. and Val., XVI, p. 427.

Cyprinus acra and *cura*, Ham. Buch., l. c. pp. 284, 386 ; *Cuv. and Val. XVI, p. 428.

Gobio lissorhynchus, McClell., Ind. Cyp., pp. 277, 355, pl. 55, f. 5.

Crossochilus rostratus, Günther, Catal., VII, p. 72.

Crossocheilus bata, Day, Proc. Zool. Soc., 1869, p. 371.

Dunguda-porah, Ooriah ; *Dommarci-batta*, Beng.

B. III. D. $\frac{2-3}{9}$, P. 19, V. 9, A. $\frac{2}{5}$, C. 19, L. 1. 36—38,
L. tr. $\frac{5\frac{1}{2}-6\frac{1}{2}}{6-7}$.

Length of head $\frac{2}{9}$, of caudal $\frac{2}{9}$, height of body $\frac{1}{4}$, of dorsal fin $\frac{2}{9}$ of the total length.

Eyes.—Diameter $\frac{1}{4}$ of length of head ; 1 diameter from end of snout ; nearly 2 diameters apart.

Snout considerably in advance of the jaws in the young, but slightly so in the adult, when it is usually covered with pores. Both lips fringed in the young, generally only the lower one in the old. A pair of maxillary barbels.

Teeth, pharyngeal.—The two outer teeth of the upper row plough-shaped, the rest molarform, 5, 3, $\frac{2}{2}$, 3, 5.

Fins.—Dorsal commences midway between the snout and the posterior extremity of the base of the anal fin. Caudal deeply forked.

Lateral line :— $6\frac{1}{2}$ rows of scales between it and the base of the ventral fin.

Colours :—vary with the age of the fish ; generally silvery, darkest along the back, and with the lower fins stained orange, fine black dots on all the fins. When about 4 inches long, there are 3 or 4 small black spots on the 5th and 6th scales of the lateral line, which gradually and almost entirely fade as age advances.

Habitat.—Rivers of Bengal as far south as the Mahanuddi. As this fish, which attains nearly 2 feet in length, is extensively used for stocking tanks, it is not improbable, as suggested by McClelland, that the three varieties mentioned by Hamilton Buchanan refer to one species. In one specimen, 10 inches long, the snout was covered by pores, another captured of the same size, and the same day, in the same tank had no pores.

13. *CIRRHINA MOSARIO.

Cyprinus mosario, Ham. Buch., Fish. Ganges, pp. 346, 393 ; *Cuv. and Val., XVI, p. 448.

Gonorrhynchus gobioides, McClell., Ind. Cyp., pp. 280, 369, pl. 43, f. 1 ; *Cuv. and Val., XVI, p. 465.

Crossocheilus gobioides, *Bleeker, Pro. Cyp., p. 110, (no desc.)

Herilwa, Assam.

B. III. D. 10, P. 15, V. 9, A. 7, C. 19, L. 1. 37, L. tr. 9 to base of ventral.

Length of head is equal to the height of the body, and one-fourth of its length. Dorsal and abdominal profiles equally convex. Snout overhanging the mouth. Mouth small, transverse. Upper lip fringed. No barbels. Alimentary canal 8 times the length of the body.

Colours :—uniform.

Habitat.—Assam, attains about 6 inches in length.

A somewhat similar fish is described as the *Chondrostoma fulungee*, Sykes, *Gymnostomus fulungee*, *Günther.

14. CIRRHINA REBA.

Cyprinus reba, Ham. Buch., Fish. Ganges, pp. 280, 386 ; McClelland, Ind. Cyp., pp. 276, 354.

Gobio limnophilus, McClell., Ind. Cyp., pp. 279, 385, pl. 55, f. 3 ; *Cuv. and Val., XVI, p. 464.

?*Gobio bicolor*, McClell., l. c. pp. 360, 278.

Chondrostoma boggut, Sykes, Trans. Zool. Soc., 1841, p. 359 ;

*Jerdon, M. J. L. and Sc., 1849, p. 309.

Chondrostoma gangeticum, *Cuv. and Val., XVII, p. 399 ; *Günther, Catal., VII, p. 76.

Cirrhina Dussumieri et reba, Cuv. and Val., XVI, pp. 291, 292, pl. 480.

Cirrhina Bengaliensis, Bleeker, Verh. Bat. Gen., XXV, Beng. and Hind. p. 136.

Mrigala Bengaliensis, Bleeker, Pro. Cyp., p. 226, (no description).

Cirrhinichthys Dussumieri, Bleeker, Atl. Ich. Cyp., p. 28.

Gobio bangon, limnophilus et Dussumieri, Jerdon, M. J. L. and S., 1849, p. 308.

Cirrhina rewah, Steind., Sitz. Ak. Wiss. Wien, LVI.

Crossocheilus reba, Günther, Catal., VII, p. 74.

Eelemose and *Chittahri*, Tel. ; *Chetchua-porah* Ooriah ; *Batta*, Bengali.

B. III. D. 3/8-9, P. 15, V. 9, A. 3/5, C. 19, L. l. 35—38, L. tr. 7/7.

Length of head 1/6, of caudal nearly 1/4, height of body nearly 1/4, of dorsal fin 2/11 of the total length.

Eyes :—diameter nearly 1/4 of length of head, 1½ diameters from end of snout, nearly 2 diameters apart.

Mouth anterior ; upper lip of the young indistinctly fringed, of the adult generally entire. One pair of short rostral barbels. Some fine pores over the snout.

Teeth, pharyngeal, 5, 4, 1/1, 4, 5.

Fins.—Dorsal commences slightly anterior to the ventral, upper margin of the fin concave. Caudal with deep, sharp lobes.

Lateral line :—4 to 5 rows of scales between it and the base of the ventral fin.

Colours.—Silvery, scales generally darkest at their edges.

Habitat.—Throughout India, attaining a foot in length.

15. CIRRHINA ISURUS.

Gobio isurus, McClelland, Ind. Cyp., pp. 277, 357 ; *Cuv. and Val., XVI, p. 431.

B. III. D. 2/8, P. 17, V. 9, A. 2/5, C. 19, L. l. 36, L. tr. 4½, 5½.

Length of head 1/6, height of body 1/5, of dorsal fin 1/5 of the total length.

Eyes :—diameter 2/7 of length of head ; nearly 2 diameters from end of snout and the same distance apart.

Snout thick, projecting, no pores or lateral lobe; mouth transverse, inferior. Upper lip deeply fimbriated. Lips reflected from off both jaws which have sharp edges, but no horny covering. Rostral barbels two-thirds as long as orbit.

Fins.—Dorsal commences midway between the snout and the posterior margin of the base of the anal. Caudal deeply forked, upper lobe the longest.

Lateral line:— $3\frac{1}{2}$ rows of scales between it and the base of the ventral fin.

Colours.—Silvery, apparently a dark stripe along the middle of the side.

Habitat.—Hooghly.

[To be continued in the next number.]

NOTES ON TERRESTRIAL MOLLUSCA FROM THE NEIGHBOURHOOD OF MOULMEIN (TENASSERIM PROVINCES), WITH DESCRIPTIONS OF NEW SPECIES,—by DR. F. STOLICZKA, *Palæontologist, Geol. Surv. of India; Hon. Secy. Asiat. Soc. Bengal.*

(With 8 plates.)

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The following observations are offered on a small collection of Mollusca made, during the month of August 1869, in the neighbourhood of Moulmein, Tenasserim Provinces. It is not my intention to give a complete list of all the shells which have been described from that neighbourhood,—though such may at some future time prove to be a very desirable acquisition,—but merely to restrict my remarks to those species which I have myself collected, particularly with reference to some points in the anatomy of the animals.

The land shells of this part of the Malayan country received early attention through the collecting zeal of the Rev. Dr. Mason, Capts. Sankey and Gordon, Mr. Theobald and many others. The materials have been chiefly worked out by Dr. A. Gould, Mr. Benson, and Mr. Theobald.



Day, Francis. 1871. "Monograph of Indian Cyprinidæ, (Part I,)." *The journal of the Asiatic Society of Bengal* 40(II), 95–143.

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