

XVIII FISH

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(Plate vii—ix.)

The total number of species of fish collected in the course of the Abor Expedition is forty-three, among which there is a mountain-loach representing a new genus. The discovery of this new genus affords some indication of the richness of the unexplored Himalayan fauna of the N. E. Frontier of India. There are also three new species and two new varieties of known generic groups, one of which belongs to Himalayan and sub-Himalayan districts, while the rest are of rather extended distribution. Nearly half the species collected have a very wide range, which includes Assam and Burma on the one hand and more westerly districts on the other. This was to be expected, as collecting commenced at Dibrugarh. Four species, viz. *Oreinus sinuatus* (Heckel), *Oreinus richardsonii* (Gray), *Oreinus plagiostomus* (Heckel) and *Schizothorax progastus* (McClell.), represent a Himalayan or sub-Himalayan element; four species, viz. *Exostoma labiatum* (McClell.), *Amblyceps mangois* (H. B.), *Barbus chola* (H. B.), *Danio aequipinnatus* (McClell.) occur, among other places, both in Assam and Burma. Of these latter the rare species *Exostoma labiatum* had been previously reported only from the Mishmi country and from Burma. Seven species, viz. *Barbus hexastichus*, McClell., *Barbus hexagonolepis*, McClell., *Barbus sophore* (H. B.), *Labio dyochilus* (McClell.), *Pseudecheneis sulcatus* (McClell.), as well as *Danio aequipinnatus* and *Exostoma labiatum*, show the preponderating Assamese (as distinct from Himalayan) character of the fish-collection from the Abor country. One young eel of two inches and a half in length, found under a stone in a stream at an altitude of 2000 ft., is very interesting. Adult specimens of the same species were found in numbers buried in the mud of a stream at a lower altitude. The collection includes one species previously reported from Eastern Tibet only, viz. *Exostoma davidi*. This perhaps indicates some influence of the fauna of Eastern Tibet on that of the North-East Frontier of India.

LIST OF THE SPECIES OBTAINED.

1. *Aborichthys kempi*, gen. et sp. nov.
2. *Lepidocephalichthys guntea* (H. B.).
3. *Discognathus lumta* (H. B.).

4. *Oreinus plagiostomus* (Heckel).
5. *O. richardsonii* (Gray and Hardw.).
6. *O. sinuatus* (Heckel).
7. *O. molesworthi*, nov.
8. *Schizothorax progastus* (McClell.).
9. *Labeo angra* (H. B.).
10. *L. dyochilus* (McClell.).
11. *L. gonius* (H. B.).
12. *Cirrhina reba* (H. B.).
13. *Barbus chola* (H. B.).
14. *B. hexagonolepis*, McClell.
15. *B. hexastichus*, McClell.
16. *B. sarana* (H. B.).
17. *B. sophore* (H. B.).
18. *B. spilopholus*, McClell.
19. *B. ticto* (H. B.).
20. *B. tor* (H. B.).
21. *Nuria danrica* (H. B.).
22. *Rasbora rasbora* (H. B.) var. *kobonensis*, nov.
23. *Danio aequipinnatus* (McClell.).
24. *Amblyceps mangois* (H. B.).
25. *Clarias assamensis*, Day.
26. *Exostoma davidi*, Sauvage.
27. *E. labiatum* (McClell.).
28. *Macrones merianiensis*, nov.
29. *M. montanus* (Jerdon) var. *dibrugarensis*, nov.
30. *M. tengara* (H. B.).
31. *M. vittatus* (Bloch).
32. *Pseudecheneis sulcatus* (McClell.).
33. *Pseudeutropius atherenoides* (Bloch).
34. *P. garua* (H. B.).
35. *Saccobranhus fossilis* (Bloch).
36. *Moringua hodgarti*, nov.
37. *Ophiocephalus gachua* (H. B.).
38. *Belone cancila* (H. B.).
39. *Ambassis ranga*, L.
40. *Badis badis* (H. B.).
41. *Nandus nandus* (H. B.).
42. *Osphromenus nobilis* (McClell.).
43. *Trichogaster fasciatus*, Bl. Schn.

Sub-order OSTARIOPHYSI.

Fam. CYPRINIDAE.

Sub-family COBITIDINAE.

Aborichthys, gen. nov.

The body is elongate, compressed at the sides and still more so at the caudal peduncle; it has minute scales on the sides and back.

The head and snout are naked and considerably depressed. The position of the lateral line is much higher than the middle of the sides, the depth of the body above it being almost half of the depth below it. The mouth is wide, inferior, surrounded by a circular suctorial lip which is deficient in the middle below. There are three pairs of barbels, two on the snout and one at each side of the mouth. The eyes are small, without suborbital spine. The gill openings are not restricted to the sides. The dorsal fin is short, with nine rays, and is situated behind the vertical from the anterior root of the ventral. The vent is situated very far forward, its distance from the root of the caudal being five-sixths to eight-ninths of its distance from the snout. The position of the pectorals and ventrals is very low, their lengths being very much shorter than the intervals between the root of each and that of the next succeeding fin. The anal fin is short, with seven rays. The air-bladder is entirely enclosed in a bony capsule open at the sides. The fontanelle between the frontal and parietal bones is not large. The intestinal canal is short and broad, forming only one loop.

The new genus differs mainly from the two allied genera *Nemachilus* and *Nemachilichthys*, both of which are without suborbital spine, in having (1) the vent situated far forward close to the middle point, (2) the dorsal fin situated behind the vertical from the anterior limit of the root of the ventral fin, and (3) the lateral line much higher upon the body.

***Aborichthys kempī*, sp. nov.**

(Pl. vii, figs. 1, 1a, 1b.)

The depth of the body is contained seven times in the total length, the length of the head five times. The head is depressed, and a little less than one and a half times as long as broad. The snout is a little shorter than the post-orbital part of the head. The eyes are small; their breadth is contained seven and a half times in the length of the head and is two-fifths of the interorbital width. The mouth is inferior, half as wide as the length of the head, and is surrounded by a circular suctorial lip, fringed in front and dilated into two fleshy knobs in the middle of the lower lip, where it is deficient. The two nostrils are separated by a thin partition, tubular below, open and tapering above. There are three pairs of barbels, two on the snout not superimposed but with a considerable interval between, and one at the side of the mouth; all are nearly equal, the maxillary being the longest and two and a half times the diameter of the eye. The covering flaps of the gill openings are continuous with the skin of the isthmus, leaving less than half the width of the ventral surface between. The lateral line is incomplete, ending in front of the vertical from the anterior part of the root of the ventral, and is less than one-fourth of the total length; the distance of the lateral line from the dorsal profile is only half of its distance from the ventral profile. The scales are extremely minute and deciduous.

Dorsal II 7, first entire, second articulated, rest branched; the origin of the dorsal is somewhat posterior to the vertical from the anterior part of the root of the ventral, its distance from the gill opening being twice the depth of the body. The dorsal is equidistant between the tubular nostril and the root of the caudal; the longest ray is two-fifths the length of the head. The positions of the pectoral and ventral are low; the length of the pectoral is nearly two-thirds of the distance between the roots of the pectoral and ventral while the length of the ventral is nearly half the distance between the roots of the ventral and anal. The vent is placed far forward, being equidistant from the post-orbital line and the root of the caudal, and twice as much nearer the root of the ventral than the anal. Anal II 5, short. The free portion of the caudal end of the body is one and two-thirds as long as deep. The caudal fin is entire, longer than the length of the head and with its free end highly convex. The air-bladder is enclosed in a bony capsule open at the sides and covered with membranous skin only. The intestinal canal has only one convolution and a loop below the muscular stomach on its right-hand side.

Colour.—The head is marbled with round black and grey blotches and loops; the sides of full-grown specimens are striped—from the gill openings to above the anal fin—with dark brown transverse stripes 18 to 21 in number, inclined away from the head, on a yellowish white ground, the caudal peduncle being quite free from these transverse stripes. The stripes are broader at the top, become thinner gradually and disappear before reaching the ventral surface; in their broadest part they are only half as broad as the interspaces; the posterior ones are short, the last being less than half the depth of the body. The barbels, pectoral, ventral and anal fins, together with the ventral side of the body, are dull white; the dorsal fin is banded with dark brown spots and there is an irregular blotch at the upper corner of the root of the caudal. The caudal fin is beautifully banded with two broad black concentric curves, one about the middle which is somewhat blurred and deep and the other intensely black almost bordering the margin, but leaving a narrow white fringe. From the large series of young ones it has become possible to study the developmental changes in colouration and striping. In the young the dorsal and caudal fins are immaculate, but broad stripes are visible all over the sides of the body including the caudal peduncle. With the progress of age dark spots appear on the dorsal and caudal fins, and at the same time the broad transverse stripes on the sides of the body gradually get thinner and entirely disappear from the sides of the caudal peduncle. The dark spots on the dorsal and caudal fins are gradually arranged in banded series on the dorsal and into two beautiful broad concentric curves on the caudal fin.

Three full-grown specimens from Egar stream between Renging and Rotung, collected by Mr. S. W. Kemp. Their registered numbers in the Museum register and their total lengths with

the caudal are:—F. $\frac{7721}{1}$ (figured) = 93 mm., F. $\frac{7722}{1}$ = 100 mm., and F. $\frac{7723}{1}$ = 78 mm. (caudal damaged). Nine young specimens of all sizes from the same locality collected by Captain the Hon. M. de Courcy. Two young specimens from the Dihang River (east side), near Yembung (alt. 1100 ft.), and three young specimens from the Sirpo River near Renging, collected by Mr. S. W. Kemp. All the specimens were collected in the middle of the month of January, 1912.

Lepidocephalichthys guntea (H. B.).

Dibrugarh.

Sub-family *CYPRININAE*.

Discognathus lamta (H. B.).

Siyom River, below Damda, 1400 ft. Found in an Abor fish-trap. There is also a young *Discognathus* (36 mm. with the caudal) from Yembung, 1100 ft. The chest of the young specimen is without scales; it probably represents the common Assam race of the species.

Dr. N. Annandale has published a note on some of the so-called species and local races of this genus from Assam and elsewhere (Journ. As. Soc. Bengal, vol. ix, p. 36; 1913). He identifies the Abor specimens as probably *Discognathus lamta* subsp. *nasutus* (McClell.).

Oreinus plagiostomus (Heckel).

Yembung.

The anal opening is immediately in front of the anal fin. The species has been previously reported from Afghanistan, Kashmir and Bhutan.

Oreinus richardsonii (Gray and Hardwicke).

Yembung. Two specimens in a very much damaged condition.

Oreinus sinuatus (Heckel).

Yembung, alt. 1100 ft.

The scales of the lateral line are more numerous than usual.

Oreinus molesworthi, sp. nov.

(Pl. vii, figs. 2, 2a, 2b.)

The body is compressed and its depth is contained four times in the total length. The length of the head is contained four and a half times in the total length, and the width of the head is five-eighths of its length. The snout is broadly rounded. The eyes are nearer the end of the snout than the posterior border of the head; they are almost lateral and their diameter is contained five

times in the length of the head. The interorbital width is slightly less than half the length of the head, and the width of the mouth is nearly two and a half times the length of the head. The edge of the rostral flap is entire; on it as well as all over the snout there are numerous conical warts with pointed denticles. There is a narrow groove in front of the paired nostrils, the anterior nostril being fleshy and tubular. There are four barbels; those of the rostral pair are longer than half the diameter of the eye; those of the maxillary pair are partially concealed by the over-turned lower lip and are three-fourths of the diameter of the eye. Both the lips are overturned to form a suctorial disk, the lower lip being more broken up. The margin of the lower jaw is mounted with a hard horny covering and there is a narrow transverse groove at the anterior edge of the opercle in the lower three-fourths. Dorsal V 7. The first two spines are very small, almost like scales; the last spine is the longest and is less than the length of the head by one length of the diameter of the eye. It is strongly serrated with a double row of thirty teeth in each series. The upper edge of the dorsal is cut almost straight; it is equidistant between the anterior orbital and the root of the caudal; in front of it there are sixty-four scales. The pectoral is less than two-thirds of the distance between the bases of the pectoral and ventral, and is slightly shorter than the length of the dorsal. The length of the ventral is equal to five-sixths of the interval between the bases of the ventral and anal. Anal II 5. The first branched ray is the longest; it is as long as the ventral and does not reach the root of the caudal. The caudal is deeply divided, and the caudal peduncle is one and a one-third times as long as deep. The head is smooth and the portion of the body behind the opercle and below the lateral line is scaleless and smooth down to half the length of the pectoral fin. The scales are minute and thickset over the rest of the body, those over the sheath enclosing the vent and the base of the anal being one and a half times as large as those in the middle of the body. There are 113 scales in the lateral line, $\frac{21}{24}$ in the transverse series, 14 between the lateral line and the ventral fin, and 42 round the caudal peduncle.

Colour.—The head and scaleless portion of the lower part of the side just behind the opercle are bluish grey, the rest of the body black with a deep bluish tint. The ventral and lower side of the paired fins is dull white, the rest of the fins grey with irregular dark blotches on the caudal.

One specimen numbered F. $\frac{7735}{1}$ in the Museum register, measuring 202 mm. with the caudal, from Yembung, 1100 ft., collected by Mr. S. W. Kemp. The species is named after Captain A. L. M. Molesworth of the 8th Gurkha Rifles.

Schizothorax progastus (McClell.).

The Siyom River below Damda, altitude 1400 ft., found in Abor fish-trap. Also one young specimen from the Egar stream

between Renging and Rotung, measuring 36 mm., collected on the 9th January, 1912.

The latter record affords some clue to the breeding season of this mountain barbel, for the young specimen was probably in its first year. It is interesting to note in this connection Captain F. H. Stewart's remarks on the breeding habits of *Schizopygopsis stoliczkae* (Rec. Ind. Mus., vol. vi, p. 84).

Labeo angra (H. B.).

Yembung, 1100 ft. Two specimens, both in a damaged condition.

Both examples agree with Burmese specimens in lacking the black lateral band, but differ from them in being without the black blotches on the side of the tail. Barbels also are wanting, as in Burmese examples, in one specimen (F. $\frac{7742}{1}$); in the other, barbels are present as usual.

Labeo dyochilus (McClell.).

Yembung.

Cirrhina reba (H. B.).

Dibrugarh.

Barbus chola (H. B.).

Dibrugarh; four specimens.

The customary dark blotch on the sides is entirely absent. In some a black spot and in others a black band is present on the dorsal fin. The caudal fin is tinged with blue in the middle.

Barbus hexagonolepis, McClell.

Yembung, 1100 ft. One young specimen 60 mm. (without caudal) and another very young scarcely longer than 15 mm., probably only a month old.

These specimens were collected between the 13th and the 17th January, 1912. The record gives an approximate idea of the breeding season and the rate of growth; the young specimen, 60 mm. in length, is likely to be a fingerling of a year's growth. On the 17th January, Major Wilson caught an unripe female of a total length of 664 mm. (without caudal) weighing 15 lb.

Barbus hexastichus, McClell.

Yembung, 1100 ft. Three adult specimens much damaged and three young specimens in good condition

In the adult specimens the eyes appear to be larger, and the dorsal fin longer than usual. In the young specimens the dark band along the lateral line ends in a black blotch in front on the root of the caudal fin.

Barbus sarana (H. B.).

Dibrugarh.

Barbus sophore (H. B.).

From the stream below Balek.

There are ten rows of scales in front of the dorsal fin instead of nine. *Colour*—reddish brown.

Barbus spilopholus, McClell.

(Pl. viii, figs. 1, 1a, 1b.)

The body is deep and strongly compressed, its greatest depth, at the origin of the dorsal fin, is contained three and one-third times in the total length, the length of the head is a little over three and a half times. The snout is rounded, its length is contained two and one-fourth times in that of the head. The diameter of the eye is contained five times and the interorbital width two and a half times in the length of the head. The mouth is small and anterior. There are two barbels on each side, the anterior one and one-third times the diameter of the eye and the posterior one and a half times; the distance between them measures one and one-third times the diameter of the eye. Dorsal III 8, equidistant from the end of the snout and the root of the caudal; the last undivided spine is strongly denticulated and the longest ray is two-thirds the length of the head. In front of the dorsal there are sixteen scales. Anal III 6. The posterior four rays are nearly equally elongated, they almost reach the root of the caudal and are one and one-third times the length of the anterior shorter rays. The caudal peduncle is nearly twice as long as deep. There are 46 scales in the lateral line, 6 between the lateral line and the ventral fin, $\frac{11}{9}$ in the transverse line and 12 round the caudal peduncle.

Colour in life, as noted by Mr. Kemp "general colour greyish, silvery below. Anal and posterior part of dorsal tinged with pink, caudal fin also tinged with pink, slightly bluish at extreme end, ventral side also pink." The base of each scale is deeply marked with black, giving the characteristic spotted appearance.

One specimen, 248 mm. in length with caudal, obtained at Kobo by dynamiting a pool in the Brahmaputra river.

This species of McClelland was merged somewhat unfairly in the synonymy of *Barbus chagunio* (H. B.) by Day; probably he was misled by a casual remark in the descriptive lettering of plate xxxix of McClelland's Indian Cyprinidae. McClelland corrected this mistake about ten years later in Cal. Jour. Nat. Hist., vol. v, p. 280. Moreover, Günther in the Zoological Record for 1869 and subsequently in Proc. Zool. Soc. of 1872, p. 875, demonstrated the absurdity of the attempt to identify *B. chagunio* (H. B.) with an unpublished manuscript drawing of Hamilton Buchanan marked *B. kunta*. After this Day was compelled in a manner to admit the independent existence of *Barbus spilopholus*, but relegated it in

his "Fishes of India" and in the "Fauna of British India" to the position of a variety of *Barbus chagunio* (H. B.), which itself remained undetermined. As the specimen secured by Mr. Kemp happens to be an excellent example and as McClelland's description and figure were both imperfect and meagre, the present opportunity is taken to supply a short description and a figure of the species.

***Barbus tor* (H. B.).**

An unripe female, 1245 mm. in length without caudal fin and weighing 52 lb, was caught by Major Wilson on 15th January, 1912, at Yembung. This was the largest mahseer obtained on the expedition.

***Barbus ticto* (H. B.).**

Dibrugarh.

The specimens have a reddish tinge on the abdomen.

***Nuria danrica* (H. B.).**

Dibrugarh.

The end rays (external) both of the pectoral and ventral fins are considerably elongated beyond the fin-membranes.

***Rasbora rasbora* (H. B.) var. *kobonensis*, nov.**

(Pl. viii, figs. 2, 2a, 2b.)

The depth of the body is contained three and three-quarter times in the total length, the length of the head three and a half times. The head is a little less than twice as long as broad, and the upper profile is slightly convex; the snout is three-fourths as long as the diameter of the eye, which is contained three times in the length of the head. The interorbital length is contained two and one fifth times in the length of the head. The mouth extends to below the anterior border of the eye; the lower jaw is prominent. The prominences on the jaws are well marked. Dorsal II 7, originating midway between the root of the caudal and the anterior border of the eye, the longest ray is nearly as long as the head. There are thirteen scales in front of the dorsal fin. Anal II 5, the longest ray being two-thirds the length of the head. The pectoral is pointed, shorter than the length of the head and also than the interval between the roots of the pectoral and ventral. The caudal is deeply forked and the caudal peduncle is one and one-third times as long as deep. The scales have numerous radiating striae, the lateral line is concave to the dorsal profile and is incomplete. Nineteen out of the thirty scales in the line are perforated, the series of perforated scales stopping just in front of the anal fin. There are $\frac{5}{3}$ scales in a lateral transverse row and two between the lateral line and the ventral fin; round the peduncle there are fourteen.

Colour.—The body is brown, with a broad black band running along the middle of each side beginning from the corner of the mouth passing through the middle of the eye and body to the root of the caudal; the band extends to the middle of the caudal fin in two attenuated black lines. There is also a black line on the dorsal side from the occiput to the root of the caudal, and the margin of each scale is spotted with minute black points. The fish resembles *Rasbora rasbora* (H. B.) more than *Rasbora daniconia* (H. B.), except in having the middle band distinctly black, instead of being merely a faint streak.

The new variety differs from both these species in having the lateral line incomplete, in the number of scales in front of the dorsal fin and in other particulars, including the proportions.

One specimen, type of the new variety, numbered F. $\frac{7796}{1}$ in the Museum register, was found at Kobo, 400 ft.: its length with caudal is 47 mm. Three specimens were taken at Dibrugarh.

Danio aequipinnatus (McClell.).

Yembung, alt. 1100 ft. Twelve specimens.

The broad black band extends along the middle line to the caudal fin. Another damaged specimen which was received with this lot probably belongs to the same species but is a deeper fish.

Fam. SILURIDAE.

Amblyceps mangois (H. B.).

Four specimens were found in a stream south of Yembung.

One specimen is dark grey, the rest are dark brown, the usual colour of the species.

Clarias assamensis, Day.

Dibrugarh.

Exostoma davidi, Sauvage.

Between Rotung and Renging. Two specimens only.

The pectoral fins reach the root of the ventral.

This species has previously been reported only from Eastern Tibet.

Exostoma labiatum (McClell.).

Egar stream, between Rotung and Renging, six specimens. Previously reported from the Mishmi hills, Eastern Assam and Burma.

Of the mandibular barbels the two internal ones, which are very small, are attached to the margin of the middle lobe of the overturned lower lip, but the outer pair are fairly long, attached to the skin of the isthmus outside the margin of the outer lobes. There is a broad dark brown band along the middle line from the operculum to the root of the caudal.

Macrones merianiensis, sp. nov.

(Pl. ix, figs. 1, 1a, 1b.)

The depth of the body is contained four and a half times in the total length, the length of the head five times. The eye is situated in the middle of the head, its diameter is contained three and a half times in the length of the head, one and a half times in the length of the snout and one and a quarter times in the interorbital length. The width of the mouth is equal to the inter-ocular width. The lips are fimbriated; there are villiform teeth on the jaws. The barbels are thin and slender, the nasal is one-third the length of the head; the maxillary barbels are longer, five-sevenths the length of head; the outer mandibular is one-fourth the length of the head and nearly double the length of the inner. Dorsal I 7, entirely in advance of the vertical from the root of the ventral fin and twice as distant from the root of the caudal as from the end of the snout. The spine of the dorsal is perfectly smooth and measures three-fourths the length of the head; the second ray is the longest and is quite as long as the head. The pectoral fin nearly reaches the root of the ventral, its spine is as long as and stronger than that of the dorsal and is strongly denticulated on the inner side. The anal opening has a fimbriated margin and is nearer to the root of the ventral than to the anterior root of the anal. The ventral fin reaches the anal papilla close to the anterior end of the anal fin; the anal papilla is thick and produced into a short filament. The distance of the anal opening from the root of the caudal is four-fifths its distance from the snout, and its distance from the anterior base of the ventral is one-fourth its distance from the anterior root of the anal. The adipose fin is midway above the root of the caudal and the end of the dorsal, slightly longer than the length of the head and as high as half the diameter of the eye. The caudal peduncle is nearly twice as long as deep. The caudal fin is deeply forked, the lobes being equal and twice as long as the undivided base. The air-bladder is osseous and is placed behind the gill-opening, communicating with the outside by a thin membranous covering.

Colour in spirit—head greenish grey, body deep brown variegated with markings: a broad but faintly black band extends from the back of the neck obliquely to the middle line, another irregularly broad but deeply black band extends from the anterior root of the dorsal fin to the middle line, and a broad deeply black blotch extends from below the adipose fin to the middle line. The fins are dull white, with a deep black blotch on the outer upper half of the dorsal fin.

This species resembles *Macrones affinis* (Blyth) more than any other species in the genus, but differs from it in having a shorter head and longer snout, longer maxillary barbels and a smooth spine in the dorsal, and also in having the adipose fin situated further back. Blyth's type-specimen was from Tenasserim.

From a pond at Mariani junction, Assam. Type specimen numbered F. $\frac{7781}{1}$ in the register of the Indian Museum: length 73 mm. with caudal.

Macrones montanus (Jerdon) var. dibrugarensis, nov.

(Pl. ix, figs. 2, 2a, 2b.)

The depth of the body is contained four and one-eighth times in the total length, the length of the head three and three-quarter times. The eye is slightly in front of the middle of the head; its diameter is contained four and a quarter times in the length of the head, one and a half times in the length of the snout and one and three-quarter times in the interorbital length. The upper jaw is slightly protruding, villiform teeth are present on both jaws. The nasal barbel is longer than half the length of the head and reaches the post-orbital region; the maxillary barbels reach the middle of the caudal peduncle and are thrice as long as the length of the head; the outer mandibular reaches the end of the pectoral and the inner mandibular reaches the root of the pectoral; the inner mandibular is two-thirds the length of the outer mandibular. Dorsal I 7. The last rays are just over the vertical of the ventral fin, the distance of the anterior base of the dorsal from the snout is three-fourths of the distance of the posterior root from the caudal; its spine is perfectly smooth on both sides, and is nearly half the length of the head. The pectoral spine is one and a half times as long as the dorsal spine; it is strongly denticulated on the inner and feebly serrated on the outer side. The margin of the anal opening is lobulated; it is situated quite close to the root of the ventral. The end of the ventral if laid along the body reaches down to the anal papilla close to the anterior base of the anal fin. The distance of the anal opening from the root of the caudal is two-thirds of its distance from the snout; the distance of the anal papilla from the root of the caudal is just half its distance from the snout; the distance of the anal opening from the anterior base of the anal is three times its distance from the root of the ventral; the distance of the anal papilla from the root of the ventral is three times its distance from the anterior root of the anal. The anterior end of the adipose fin is a little in front of the vertical from the anterior base of the anal, and ends in a raised lobe above the posterior base of the anal fin. The length of the base of the fin is contained five and one-eighth times in the total length. The caudal is deeply forked; the lobes are equal and widely apart, the length of the lobe being three times the length of the undivided base.

Colour.—Head grey, dorsal side dark brown, body brownish. The membranous covering of the air-bladder behind the gill opening is black, and a black line from above this membrane extends through the middle of the side to the middle of the root of the caudal fin, ending in a black circular blotch. The barbels are black, except the inner mandibular, which, with the fins, is dull white.

Dibrugarh. Type specimen numbered F. $\frac{7795}{1}$ in the Museum register; total length with caudal 68 mm.

Macrones tengara (H. B.).

Kobo and Dibrugarh.

In some cases the maxillary barbels reach beyond the anal fin. In some specimens the longitudinal bands cannot be distinguished.

Macrones vittatus (Bloch).

Mariani, Assam. Two specimens.

The tips of the anal, ventral and dorsal fins are dark. The maxillary barbels reach beyond the anal fin.

Pseudecheneis sulcatus (McClell.).

Yembung, 1100 ft.

This species has previously been reported only from Darjiling and the Khasi Hills.

Pseudeutropius atherinoides (Bloch).

Dibrugarh. Six specimens.

These specimens lack the collections of black spots forming longitudinal bands. The anal fin has more numerous rays than usual.

Pseudeutropius garua (H. B.).

Dibrugarh.

Saccobranchus fossilis (Bloch).

Dibrugarh.

Two longitudinal yellow bands extend along the middle of each side. The caudal fin is injured.

Sub-order **APODES.**Fam. **MORINGUIDAE.****Moringua hodgarti**, sp. nov.

(Pl. ix, figs. 3, 3a, 3b.)

The length of the head from the snout to the gill opening is contained eleven and one-quarter times in the distance from the snout to the vent; the length of the tail is contained three times in that distance (from snout to vent), and four and one-quarter times in the total length. The height of the body is contained one and a half times in the length of the head. The eyes are rather high up, very small, immediately behind the posterior nostrils and right above the opening of the mouth. The upper jaw is slightly the longer. The interorbital length is slightly shorter than the length of the snout. The length of

the head is contained three times in the distance between the end of the snout and the apex of the heart. The gill openings form two oblique slits on the ventral side as far behind the cleft of the mouth as the end of the snout is in front of it. The teeth are uniserial, directed backwards and pointed. The dorsal and caudal fins are slightly developed, confined to the posterior one-third of the tail and continuous with each other. There are no pectorals.

Colour.—Muddy grey, the ventral side being slightly lighter.

Upper Rotung, alt. 2000 ft. Five adult specimens from the streams reserved for drinking purposes, found buried in the mud, total lengths from 220 mm. to 182 mm. One young specimen, found in a small branch of a shallow stream in Upper Rotung, under a stone, is only 62 mm. in total length. The occurrence of such a young specimen in a shallow hill stream is extremely interesting.

Sub-order **PERCESOCES.**

Fam. OPHIOCEPHALIDAE.

Ophiocephalus gachua, Ham. Buch.

Yembung, 1100 ft. ; Balek and Dibrugarh.

Fam. SCOMBRESOCIDAE.

Belone cancila (H. B.).

Dibrugarh.

Black patches are wanting. The longitudinal band does not extend quite up to the eye.

Sub-order **ACANTHOPTERYGII.**

Division—Perciformes.

Fam. SERRANIDAE.

Ambassis ranga (H. B.).

Dibrugarh.

Fam. NANDIDAE.

Badis badis (H. B.).

Kobo, 400 ft. ; also from a stream below Balek.

The Balek specimen has two distinct round black blotches on the dorsal fin—one at the commencement and the other at the end, but the specimens from Kobo have only one black blotch near the posterior base of the dorsal fin.

Nandus nandus (H. B.)

Dibrugarh.

Fam. OSPHROMENIDAE.

***Osphromenus nobilis* (McClell.).**

Dibrugarh.

Every specimen has a black light-edged ocellus on the upper part of the base of the caudal fin. The superbranchial respiratory organ is well developed.

The Assam streams appear to be a favourable habitat for the genus, and *O. olfax* (Com.) would be likely to prove more successful in them than in Southern India, where several attempts have been made to acclimatize that species. The indigenous Indian species of the genus is confined to Assam.

***Trichogaster fasciatus*, Bl. Sch.**

Dibrugarh.

