pithecus and *Semnopithecus*; the third and fourth very nearly so, the last two characters are found also in *Cynocephalus*, but are more characteristic of *Cynopithecus* and *Semnopithecus*.

It will be seen that if one were permitted to base a classification upon cerebral characters, *Cynopithecus* would have to be removed from its position among the Baboons and placed nearer to the Langurs; this is not too extreme an interpretation of the brain-characters considered on purely morphological grounds. We may possibly regard *Cynopithecus* as occupying a somewhat basal position with regard to *Cynocephalus* on the one hand, and *Semnopithecus* on the other. For, in fact, its characters occur in both, though the Baboon-like characters are on the whole less marked.

3. On the Fishes collected by Mr. G. L. Bates in Southern Cameroon. By G. A. Boulenger, F.R.S., V.P.Z.S.

[Received November 28, 1902.]

(Plates I.–V.)

The freshwater fish-fauna of Cameroon is still very imperfectly known. A small list published by Peters in 1876[1] and another by Lönnberg in 1895[2] are the only contributions that have hitherto appeared on this subject. The collection made by Buchholz and reported upon by Peters was important as yielding the first specimen of the curious *Pantodon buchholzi*, since rediscovered in the Niger Delta and in the Upper Congo and Ubangi. It has now been ascertained that this little fish flies or darts through the air, and is, in fact, a freshwater flying-fish. Dr. Pellegrin, of the Paris Museum, has kindly informed me that, according to the notes of M. J. de Brazza, the specimen obtained in the Congo by this explorer was caught by means of a butterfly-net whilst moving like a dragonfly above the surface of the water.

Mr. G. L. Bates, whose previous collections included some very remarkable Batrachians described in these Proceedings, has now made, at my request, a rather extensive collection of freshwater fishes in Cameroon, of which I here give a list, together with descriptions of nine new species, one of which deserves to be made the type of a new genus.

The specimens were obtained mostly in the Kribi River, some 15 miles from the sea; others are from a small tributary of the Campo River, near Efulen, Bulu Country, 1500–2000 feet; whilst others again are from the Mvile River, a small stream flowing southwards into the Campo, at about the same altitude as the preceding.

[1] Mon. Berl. Acad. 1876, pp. 195 & 244.
[2] Œfvers. Vetensk.-Ak. Förh. Stockholm, 1895, p. 179.

MORMYRIDÆ.

1. PETROCEPHALUS SIMUS Sauv.

2. ISICHTHYS HENRYI Gill.

3. MARCUSENIUS SPHECODES Sauv.

4. MARCUSENIUS BRACHYHISTIUS Gill.

CHARACINIDÆ.

5. BRYCONÆTHIOPS MICROSTOMA Gthr.

6. ALESTES LONGIPINNIS Gthr.

7. ALESTES INTERMEDIUS, sp. n. (Plate I. fig. 1.)

Depth of body 3 times in total length, length of head 4 times. Head as long as deep, twice as long as broad; snout shorter than diameter of eye; latter $2\frac{2}{3}$ to $2\frac{3}{4}$ times in length of head; adipose eyelid indistinct; interorbital width $\frac{1}{3}$ length of head; width of mouth equal to diameter of eye; maxillary not extending quite to below anterior border of eye; 14 teeth $(\frac{6}{8})$ in the upper jaw, 8 in the outer row of the lower jaw; length of lower border of second suborbital less than diameter of eye. Gill-rakers moderately elongate, 12 or 13 on lower part of anterior arch. Dorsal II 8, above ventrals, originating a little nearer end of snout than caudal, middle branched rays much produced ($1\frac{1}{2}$ to $1\frac{2}{3}$ as long as head) in the males. Adipose fin small, $1\frac{1}{2}$ to twice as distant from the rayed dorsal as from the caudal. Anal III 19–21, the outline very convex in the males. Pectoral shorter than head, not reaching ventral; latter produced into a long filament in the males. Caudal forked. Caudal peduncle a little longer than deep. Scales 33–34 $\frac{6\frac{1}{2}}{3\frac{1}{2}}$, 2 between lateral line and ventral. Silvery; a large black spot on the caudal peduncle and on the median rays of the caudal; latter yellow, blackish at the end; dorsal black and red.

Total length 85 millim.

Three specimens from the Kribi River.

Intermediate between *A. longipinnis* Gthr. and *A. tholloni* Pellegr. Differs from the former in the smaller scales, from the latter in the smaller number of anal rays.

8. ALESTES OPISTHOTÆNIA, sp. n. (Plate I. fig. 2.)

Depth of body $3\frac{1}{5}$ or $3\frac{1}{4}$ times in total length, length of head 4 or $4\frac{1}{5}$ times. Head a little longer than deep, twice as long as broad; snout a little shorter than diameter of eye; latter $2\frac{3}{4}$ or 3 times in length of head; adipose eyelid very feebly developed; interorbital width $\frac{2}{7}$ or nearly $\frac{1}{3}$ length of head; width of mouth equal to diameter of eye or a little less; maxillary not extending quite to below anterior border of eye; 16 teeth $(\frac{8}{8})$ in the upper

jaw, 8 in the outer row of the lower jaw; length of lower border of second suborbital equal to diameter of eye. Gill-rakers moderately elongate, closely set, 20 to 23 on lower part of anterior arch. Dorsal II 8, entirely behind base of ventrals, originating a little nearer caudal than end of snout, twice as deep as long. Adipose fin small, $2\frac{1}{2}$ or $2\frac{2}{3}$ times as distant from the rayed dorsal as from the caudal. Anal III 13–15. Pectoral as long as head, reaching ventral or nearly so far. Caudal forked. Caudal peduncle as long as deep. Scales 25 $\frac{4\frac{1}{2}}{3\frac{1}{2}}$, 2 between lateral line and ventral. Silvery, brownish on the back; a black humeral spot and a black lateral band, commencing under the dorsal and extending on the median rays of the caudal; dorsal, caudal, and ventral fins lemon-yellow.

Total length 130 millim.

Four specimens; Kribi River and Mvile River.

Very closely allied to *A. fuchsii* Blgr. and *A. kingsleyæ* Gthr. Distinguished from the former by the less massive form and the longer pectoral fin; from the latter by the more posterior position of the dorsal fin and the larger eye; from both by the more numerous gill-rakers.

9. Alestes macrolepidotus Cuv.

10. Distichodus notospilus Gthr.

11. Xenocharax spilurus Gthr.

Cyprinidæ.

12. Labeo annectens, sp. n. (Plate II. fig. 1.)

Body compressed, its depth nearly equal to length of head, $4\frac{1}{2}$ to 5 times in total length. Head $1\frac{1}{3}$ as long as broad; snout rounded, strongly projecting beyond the mouth, with numerous nuptial tubercles; eye supero-lateral, in the second half of the head, its diameter 5 to 7 times in length of head, $2\frac{1}{2}$ to $3\frac{1}{2}$ times in interocular width; width of mouth, with folded lips, $\frac{1}{2}$ to $\frac{3}{5}$ length of head; rostral flap and posterior border of lip feebly denticulated; inner surface of lip with numerous feeble, transverse plicæ; a small barbel hidden in the folds at the sides of the mouth. Dorsal III 9–10, with strongly notched border; the longest ray equals the length of the head and twice that of the last; the fin equally distant from end of snout and from root of caudal. Anal II 5; longest ray $\frac{2}{3}$ length of head. Pectoral rounded, a little shorter than head, not reaching ventral; latter reaching or nearly reaching vent, its first ray falling under the ninth (sixth branched) ray of the dorsal. Caudal deeply forked, with pointed lobes. Caudal peduncle $1\frac{2}{3}$ as long as deep. Scales $36–39\frac{4}{7}$, 3 between lateral line and ventral, 12 round caudal peduncle. Olive above, whitish beneath, with a rather indistinct darker lateral band; fins greyish.

Total length 210 millim.

Two specimens from near Efulen.

This new species, allied to *L. parvus* Blgr., is interesting as completely connecting *Labeo* with *Tylognathus*, and showing that the latter genus can no longer be distinguished.

13. Barbus progenys, sp. n. (Plate III. fig. 1.)

Depth of body $3\frac{2}{3}$ times in total length, length of head $3\frac{1}{2}$ times. Snout rounded, depressed, $3\frac{1}{2}$ times in length of head; eye supero-lateral, its diameter equal to the interorbital width and 5 times in length of head; mouth large, its width $3\frac{1}{2}$ times in length of head, lower jaw projecting beyond the upper; lips well-developed, lower interrupted on the chin; barbels two on each side, anterior $\frac{3}{4}$ diameter of eye, posterior as long as eye, the distance between them $\frac{2}{3}$ diameter of eye. Dorsal III 10, last simple ray feeble, not stronger than those following, $\frac{2}{3}$ length of head; free edge of the fin emarginate; its distance from the occiput less than its distance from the caudal. Anal II 5, longest ray $\frac{1}{2}$ length of head. Pectoral $\frac{2}{3}$ length of head, not reaching ventral; latter slightly posterior to origin of dorsal. Caudal peduncle $1\frac{2}{3}$ as long as deep. Scales $33\frac{5\frac{1}{2}}{4\frac{1}{2}}$, $2\frac{1}{2}$ between lateral line and ventral, 12 round caudal peduncle. Silvery, brownish on the back, dorsal and lateral scales brown at the base; dorsal and anal edged with blackish, the former with an ill-defined dark band across the middle; other fins whitish.

Total length 180 millim.

A single specimen from the Kribi River.

Allied to *B. bowkeri* Blgr., from Natal. Distinguished by the more anterior dorsal fin with 10 branched rays, the shorter anal fin, the narrower interorbital region.

14. Barbus tæniurus, sp. n. (Plate II. fig. 2.)

Depth of body $3\frac{1}{3}$ to $3\frac{1}{2}$ times in total length, length of head $3\frac{3}{4}$ to 4 times. Snout rounded, $3\frac{1}{2}$ to 4 times in length of head; diameter of eye 4 times in length of head, interorbital width $2\frac{1}{3}$ to $2\frac{1}{2}$ times; mouth inferior, its width 3 to $3\frac{1}{2}$ times in length of head; lips moderately developed, interrupted on the chin; barbels two on each side, anterior $1\frac{1}{2}$, posterior $1\frac{2}{3}$ to 2 diameters of eye, the distance between them equal to diameter of eye. Dorsal III 8, last simple ray ossified and moderately strong, but much thicker than the first branched ray, a little shorter than head; free edge of the fin emarginate; its distance from the occiput much less than its distance from the caudal. Anal III 5, longest ray $\frac{3}{5}$ to $\frac{2}{3}$ length of head. Pectoral $\frac{3}{4}$ to $\frac{4}{5}$ length of head, not reaching ventral; latter a little posterior to origin of dorsal. Caudal peduncle $1\frac{1}{2}$ as long as deep. Scales 24–27 $\frac{3\frac{1}{2}-4\frac{1}{2}}{4\frac{1}{2}}$, $2\frac{1}{2}$ between lateral line and ventral, 12 round caudal peduncle. Olive-brown above, yellow on the sides and below; a series of black dots on the lateral line, and a black band on each side of the caudal peduncle; fins white.

Total length 120 millim.

Several specimens from the Kribi River and from Efulen.

Allied to *B. camptacanthus* Blkr. and *B. potamogalis* Cope. Differs from both in the stronger third simple dorsal ray, the more numerous scales in the lateral line (24–27 instead of 21–24), and the coloration. From the first in the longer posterior barbel, from the second in the longer barbels, the smaller eye, and the broader interorbital region.

15. Barbus batesii, sp. n. (Plate III. fig. 2.)

Depth of body equal to length of head, $3\frac{2}{3}$ times in total length. Snout rounded, 3 times in length of head; diameter of eye 5 times in length of head, interorbital width 3 times; mouth inferior, its width 4 times in length of head; lips well-developed, lower continuous; barbels two on each side, subequal, nearly twice as long as eye, the distance between them half their length. Dorsal IV 8, last simple ray strong, bony, not serrated, slightly curved, $\frac{2}{3}$ length of head; free edge of the fin emarginate; its distance from the occiput less than its distance from the caudal. Anal III 5, longest ray $\frac{1}{2}$ length of head. Pectoral $\frac{3}{4}$ length of head, not reaching ventral; latter below anterior rays of dorsal. Caudal peduncle $1\frac{1}{2}$ as long as deep. Scales $30\frac{4\frac{1}{2}}{4\frac{1}{2}}$, 3 between lateral line and ventral, 12 round caudal peduncle. Brownish above, the scales darker at the base, white beneath; fins greyish.

Total length 235 millim.

A single specimen from the Kribi River.

This is the first discovered West African representative of the *B. bynni* group. Its nearest ally is *B. tanensis* Gthr., from the Tana River, East Africa.

16. Barbus kessleri Stdr.

17. Barbus guirali Thomin.

18. Barilius ubangensis Pellegr.

19. Barilius kingsleyæ Blgr.

Siluridæ.

20. Clarias liberiensis Stdr.

21. Chrysobagrus longipinnis Blgr.

22. Auchenoglanis ballayi Sauv.

23. Amphilius longirostris Blgr. (Plate I. fig. 3.)

Anoplopterus longirostris Bouleng. Ann. & Mag. N. H. (7) viii. 1901, p. 447.

Depth of body 9 times in total length, length of head 4 times. Head longer than broad; eyes small, in the second half of the head, two diameters apart; interocular width $\frac{2}{5}$ length of snout,

which is rounded and projects a little beyond lower jaw; posterior nostril midway between eye and end of snout; præmaxillary teeth forming a very short band, measuring about $\frac{1}{4}$ width of mouth; maxillary barbel $\frac{2}{3}$ length of head, reaching root of pectoral; mandibular barbel $\frac{1}{2}$ length of head. Dorsal I 6, nearer end of snout than root of caudal, first ray $\frac{2}{3}$ length of head. Adipose short, as long as dorsal. Anal I 5, midway between root of ventral and root of caudal. Pectoral a little longer than ventral, $\frac{2}{3}$ length of head. Caudal forked. Caudal peduncle $1\frac{1}{2}$ as long as deep. Dark olive-brown above, mottled with black, white beneath; dorsal, pectorals, and ventrals light, with two transverse series of blackish spots; caudal whitish, with some black spots, black at the base, with a large black blotch on each lobe.

Total length 77 millim.

A single specimen from hills in the Bulu country, near Efulen.

24. Synodontis obesus Blgr.

Microsynodontis, gen. nov.

Closely allied to *Synodontis*, differing only in the absence of a free orbital border and of suborbital bones, in the more elongate form and the rounded caudal fin, and in the curious modification of the transverse processes of the fourth vertebra.

25. Microsynodontis batesii, sp. n. (Plate IV.)

Depth of body 5 to 6 times in total length, length of head $4\frac{1}{2}$ to 5 times. Body subcylindrical or feebly compressed in the præcaudal region, strongly compressed behind; vent in the middle of the total length. Head broader than deep, $1\frac{1}{4}$ to $1\frac{1}{3}$ as long as broad, without ridges or keels; skin on vertex, occiput, and nuchal shield adherent to the finely rugose bones; a small frontal fontanelle; eye directed upwards, in middle of head, its diameter 6 or 7 times in length of head, twice in interorbital width. Lips moderately developed; maxillary barbel simple, nearly as long as head; mandibular barbels with long, slender branches; outer mandibular barbels $\frac{4}{5}$ length of head, inner $\frac{3}{5}$. Præmaxillary teeth small, forming a villiform band; mandibular teeth much shorter than the eye, 20 to 30 in number. Gill-cleft restricted to the sides. Occipito-nuchal shield a little longer than broad, ending in two rounded processes. Humeral process narrow, sharply pointed, rugose. Skin smooth. Dorsal I 6; spine strong, straight, striated but not serrated, about $\frac{2}{3}$ length of head. Adipose dorsal low, elongate, 2 to 3 times as long as its distance from the rayed dorsal. Anal III–IV 8–9. Pectoral spine $\frac{2}{3}$ to $\frac{3}{4}$ length of head, strong and striated, with feebly serrate outer edge, with 12 to 17 strong retrorse teeth on the inner side. Ventral not reaching anal. Caudal rounded. Dark brown or blackish, with 5 yellowish cross-bars above, the first on the occiput, the second at the base of the dorsal; the body lower down with round yellowish spots; throat and belly greyish, spotted or marbled wit'

dark brown; fins spotted with dark brown, caudal yellowish at the base.

Total length 100 millim.

Several specimens from the Mvile River.

The vertebral column consists of 38 vertebræ, 13 præcaudals and 25 caudals. The first 7 are completely united, and the transverse processes of the 4th, which form the spring-mechanism in *Synodontis*, have a very extraordinary form. This process bears a spheroidal expansion in front, whilst behind, where it presses against the bladder, it is slightly excavated or cup-shaped. It may be described as similar to its homologue in *Synodontis*, but with a large, bell-shaped, bony knob attached to its anterior surface. The air-bladder is large, as in *Synodontis*. The male genital gland is very peculiar, being lacerated into numerous digitiform lobes.

Cyprinodontidæ.

26. Haplochilus sexfasciatus Gill.

Epiplatys sexfasciatus Gill, Proc. Acad. Philad. 1862, p. 136 (Gaboon R.).

Pœcilia sexfasciata Peters, Mon. Berl. Ac. 1864, p. 396 (Liberia).

Haplochilus infrafasciatus, part., Günth. Cat. Fish. vi. (1866), pp. 313 & 357 (Old Calabar).

Haplochilus sexfasciatus Günth. l. c.

Lycocyprinus sexfasciatus Peters, Mon. Berl. Ac. 1868, p. 146 (Gaboon).

Epiplatys infrafasciatus Cope, Proc. Amer. Philos. Soc. xi. 1871, p. 457.

Haplochilus infrafasciatus Steind. Notes Leyd. Mus. xvi. 1894, p. 76 (Liberia); Lönnberg, Œfv. Vet.-Ak. Förh. Stockh. 1895, p. 188 (Cameroon).

27. Haplochilus elegans Blgr.

Ophiocephalidæ.

28. Ophiocephalus obscurus Gthr.

Anabantidæ.

29. Anabas maculatus Thomin.

30. Anabas pleurostigma, sp. n. (Plate V. fig. 1.)

Closely related to *A. kingsleyæ* Gthr., but snout longer, as long as the eye in the adult, at least two-thirds the interorbital width. Dorsal XIV–XVI 10–11; anal VIII–IX 10–11. Scales 27–29 $\frac{2\frac{1}{2}}{8}$; lateral line 14–17/10–12. A large round blackish spot on the middle of the side, above the extremity of the pectoral fin; no dark spot at the base of the caudal fin.

Total length 170 millim.

Several specimens from the Kribi River.

CICHLIDÆ.

31. PELMATOCHROMIS BATESII Blgr.

Recently described from the Benito River.

32. PELMATOCHROMIS SUBOCELLATUS Gthr.

33. TILAPIA LATA Gthr.

MASTACEMBELIDÆ.

34. MASTACEMBELUS LOENNBERGII Blgr.

28 dorsal spines. Length of head $3\frac{1}{2}$ times in its distance from vent.

35. MASTACEMBELUS SCLATERI, sp. n. (Plate V. fig. 2.)

Depth of body 12 to 13 times in total length, length of head (without rostral appendage) 6 to 7 times; vent equally or nearly equally distant from end of snout and base of caudal; length of head $2\frac{1}{4}$ to $2\frac{3}{4}$ times in its distance from vent, and $\frac{1}{4}$ to $\frac{2}{7}$ in its distance from first dorsal spine. Snout 3 times as long as eye, ending in a trifid dermal appendage which is longer than eye; cleft of mouth extending hardly to below nostril; a strong præorbital and two strong præopercular spines. Vertical fins united with rounded caudal. Dorsal XXVI–XXVII 85–90; spines very short. Anal II 80–90. Pectoral not quite $\frac{1}{3}$ length of head. Scales very small, 19 or 20 between origin of soft dorsal and lateral line. Olive-brown, whitish on the belly; a dark band on each side of the head, passing through the eye, sometimes continued on the anterior part of the body; a more or less distinct series of large, dark, light-edged ocelli along the base of the dorsal.

Total length 225 millim.

This new species, named after our retiring Secretary, Mr. P. L. Sclater, in recognition of many favours received from him during his tenure of office, is based on four specimens from the Mvile River. *M. sclateri* differs from *M. marchii* Sauv. in the more numerous dorsal spines, from *M. cryptacanthus* Gthr., *liberiensis* Blgr., and *loennbergi* Blgr. in the larger head, and from *M. congicus* Blgr. in the presence of only two anal spines and the still smaller scales.

EXPLANATION OF THE PLATES.

PLATE I.

Fig. 1. *Alestes intermedius*, p. 22, natural size.
2. *Alestes opisthotænia*, p. 22, $\frac{6}{7}$.
3. *Amphilius longirostris*, p. 25, natural size.
3 *a*. „ „ Upper view of head and pectoral fin, × $1\frac{1}{2}$.
3 *b*. „ „ Lower view of head, × $1\frac{1}{2}$.

PLATE II.

Fig. 1. *Labeo annectens*, p. 23, $\frac{4}{5}$.
2. *Barbus tæniurus*, p. 24, natural size.

PLATE III.

Fig. 1. *Barbus progenys*, p. 24, $\frac{5}{7}$.
2. *Barbus batesii*, p. 25, $\frac{5}{7}$.

PLATE IV.

Microsynodontis batesii, p. 26.
a. The whole fish, natural size.
b. Mouth, × 2.
c. Skeleton, natural size.
d. Upper view of skull, shoulder-girdle, and nuchal shield, × 1½.
e. Side view showing air-bladder and anterior part of vertebral column, × 2.
f. Left transverse processes of coalescent anterior vertebræ, × 3.

PLATE V.

Fig. 1. *Anabas pleurostigma*, p. 27, $\frac{6}{7}$.
2. *Mastacembelus sclateri*, p. 28, natural size.

4. On the Anatomy of the Gephyrean *Phascolosoma teres*, n. sp. By W. K. HUTTON, M.A., M.B., Senior Demonstrator of Anatomy in the University of Glasgow.

[Received November 6, 1902.]

(Plates VI.–VIII.[1] & Text-figure 9.)

Some time ago, while engaged in dredging-operations in the Firth of Clyde, Dr. J. F. Gemmill obtained two specimens of the Gephyrean worm figured in Plate VI. fig. 1. These he handed over to me, and at his suggestion I undertook the task of identifying them. My examination having led me to the conclusion that I was dealing with an animal hitherto undescribed, it seemed advisable to give some account of its anatomy; and this I have essayed to do in the following pages.

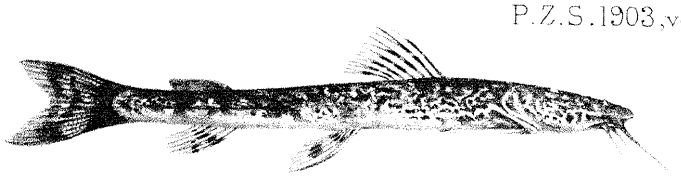
Unfortunately the presence of sand in the alimentary tract, no less than the leathery nature of the animal's skin, formed an almost insuperable obstacle in the way of obtaining continuous series of sections: as a result, my account is in some respects incomplete. The worm was dredged from a depth of 60 fathoms, nine miles to the south-west of the Corsewall Light. The bottom was fine mud.

External Characters and Integument.

The worm is shaped like a very long-necked Florence oil-flask and measures 40 mm. in length. Since, however, in both individuals examined the introvert was almost completely invaginated, in order to estimate the true length probably 8 mm. must be added to this figure. The body of the worm is seen (Plate VI. fig. 2) to consist of three portions which differ externally, and are found upon dissection to have definite relations to the contained viscera.

First, occupying the anterior third or more of the animal's

[1] For explanation of the Plates, see p. 40.



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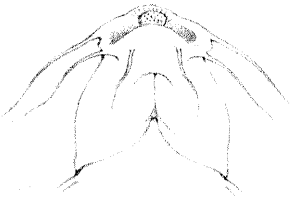

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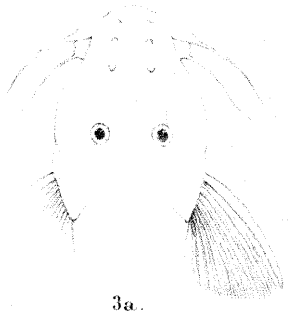

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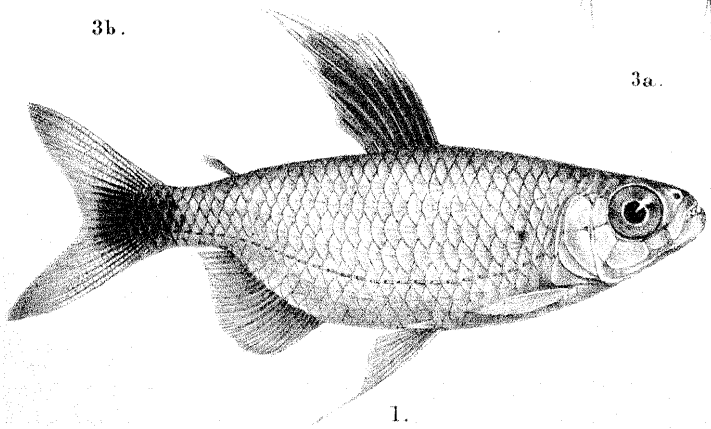

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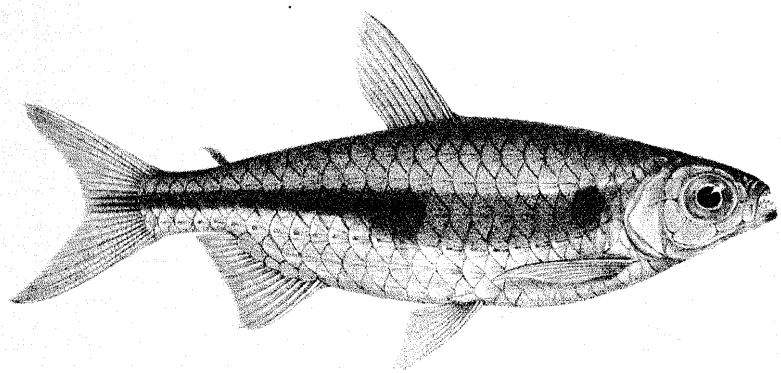
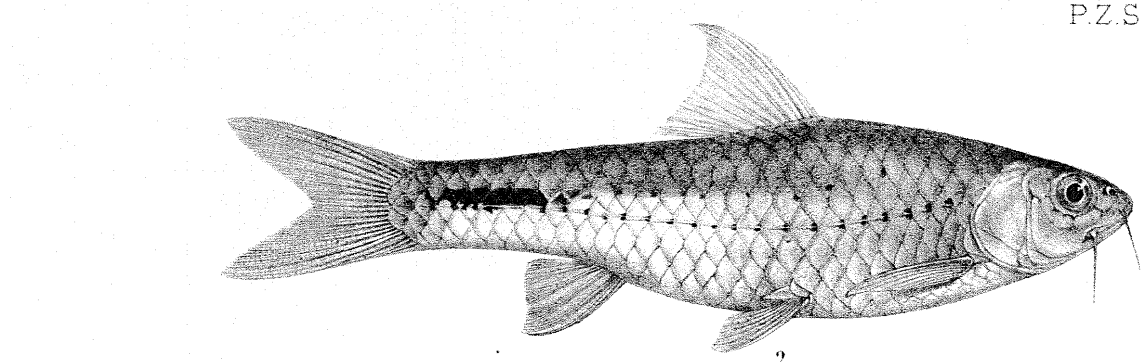


J. Green del. et lith.

2.

Mintern Bros. imp.

1. ALESTES INTERMEDIUS. 2. ALESTES OPISTHOTÆNIA.
3. AMPHILIUS LONGIROSTRIS.



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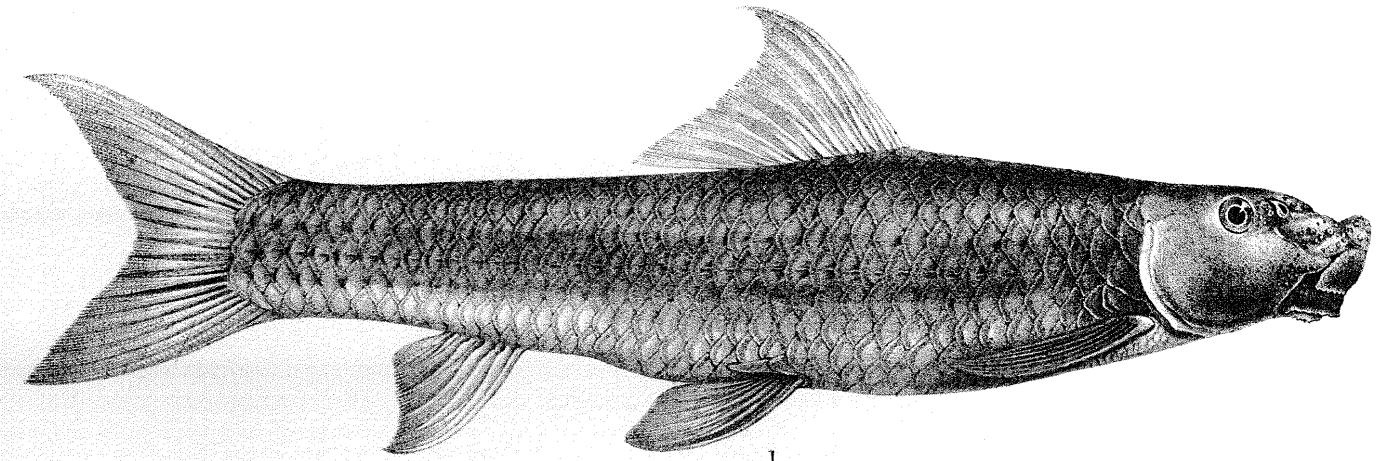
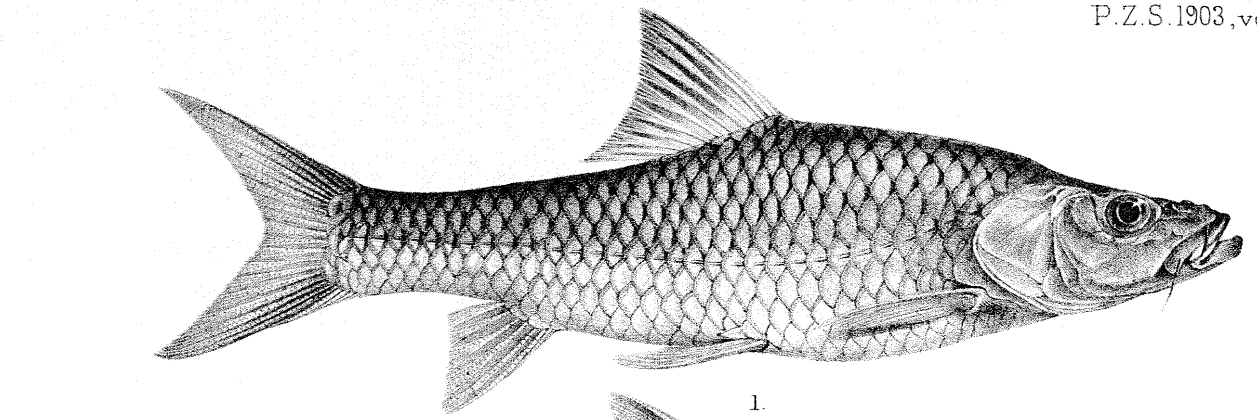


1.

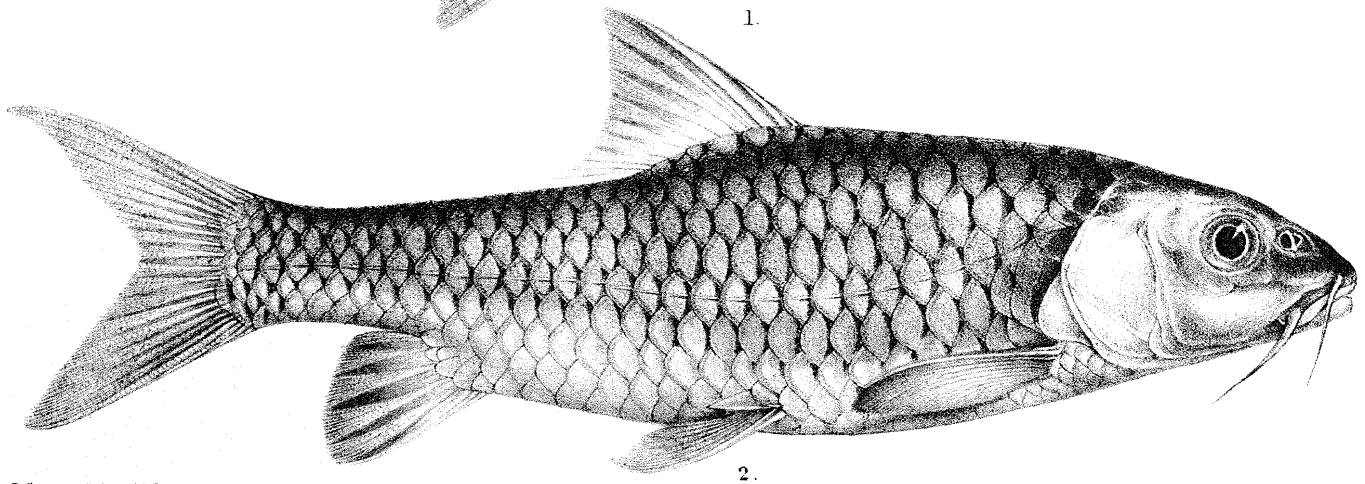
J.Green del.et lith.

1.LABEO ANNECTENS. 2.BARBUS TÆNIURUS.

Mintern Bros.imp.



1.

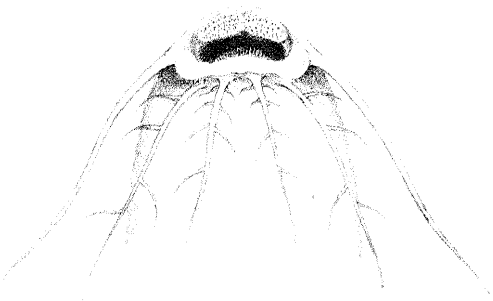


2.

J.Green del et lith.

Mintern Bros. imp.

1.BARBUS PROGENYS. 2.BARBUS BATESII



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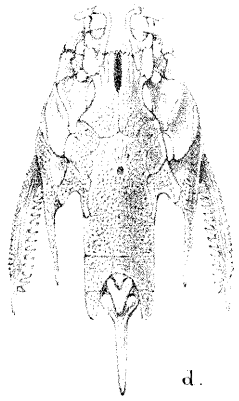

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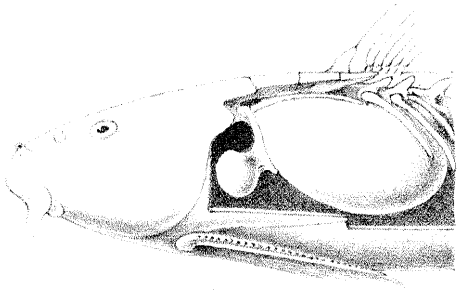

e.

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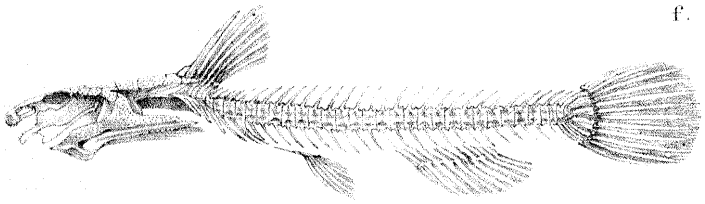

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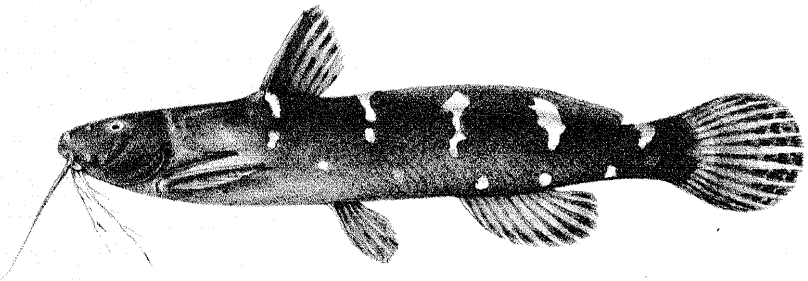
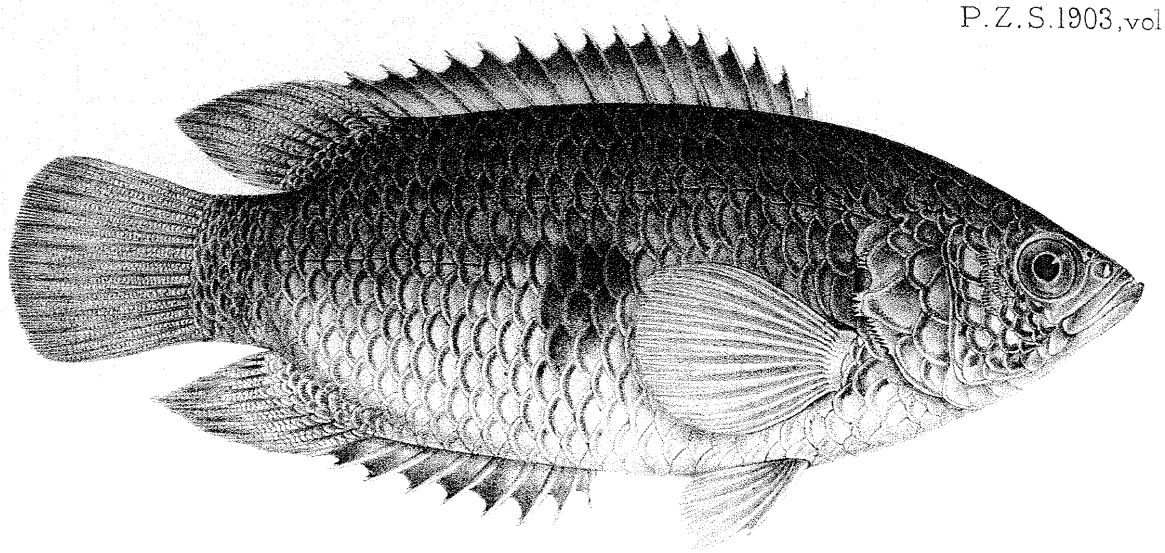


a.

J.Green del. et lith.

Mintern Bros. imp.

MICROSYNODONTIS BATESII.



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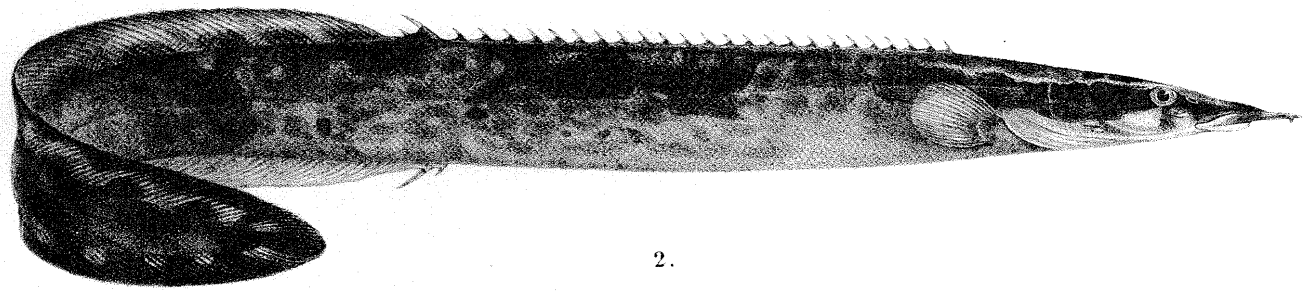

2.

J.Green del. et lith.

Mintern Bros. imp.

1. ANABAS PLEUROSTIGMA. 2. MASTACEMBELUS SCLATERI.