

Several specimens of this species, originally described from Cameroon. The largest measures 190 millim.

Depth of body 14 to 17 times in total length, length of head $8\frac{1}{2}$ or 9 times. Length of head 4 to $4\frac{1}{2}$ times in distance from snout to vent, $1\frac{1}{2}$ to twice as great as its distance from first dorsal spine; a præorbital and 2 or 3 præopercular spines. Dorsal XXVIII-XXXI, 110-130; anal II, 110-130. The coloration varies: some specimens are nearly uniform brown, with an ill-defined darker lateral band, others are spotted with darker or with lighter; a series of alternating dark and light bars may be present at the base of the anal fin.

EXPLANATION OF THE PLATES.

PLATE XXVIII.

- Fig. 1. *Protopterus annectens*, young, p. 325.
 2. *Petrocephalus ansorgii*, p. 325.
 3. *Barbus nigeriensis*, p. 327.

PLATE XXIX.

- Fig. 1. *Synodontis melanopterus*, p. 327.
 2. *Pelmatochromis pellegrini*, p. 328.
 3. *Mastacembelus loembergii*, p. 329.

3. Last Account of Fishes collected by Mr. R. B. N. Walker, C.M.Z.S., on the Gold Coast. By Dr. A. GÜNTHER, F.R.S., V.P.Z.S.

[Received November 7, 1902.]

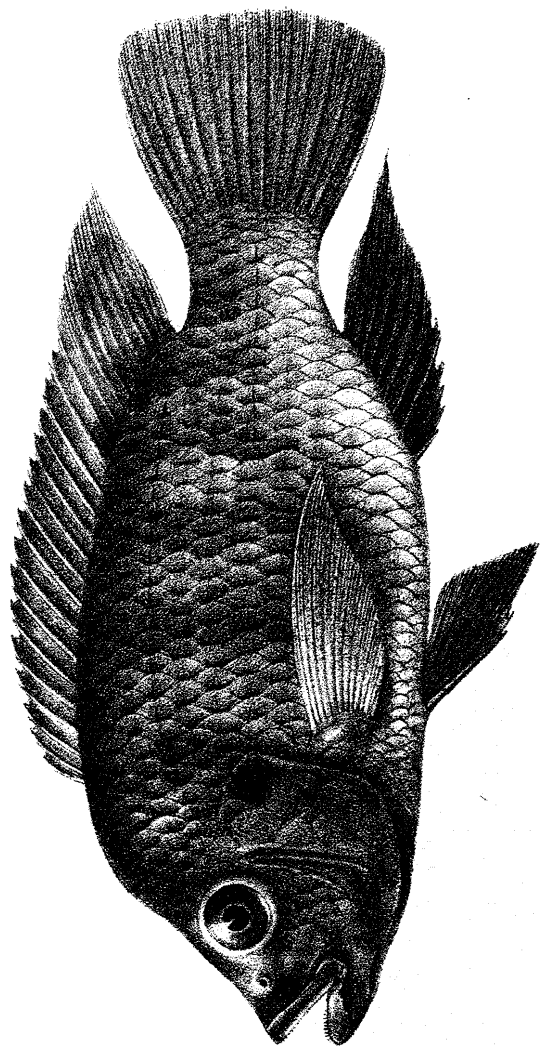
(Plates XXX.-XXXIII.¹ & Text-fig. 62.)

Shortly after the publication of my previous paper on Fishes from the Gold Coast (Proc. Zool. Soc. 1899, pp. 716-732), Mr. Walker paid another visit to that district. On this occasion he travelled into Ashantee, visited Lake Busum-chi, and followed the River Enon on a portion of his return journey. He did not long survive the fatigues of this, his last, voyage.

It was his intention to supply me with full particulars as regards the stopping-places at which he obtained the fishes; and I was all the more anxious to obtain this information, as some of the places are small and not important enough to be shown on any of the most recent maps of the country. Fortunately he was careful in labelling the bottles with the names and sometimes with the positions of the localities, although not always in a very legible manner; and supplementing this source of information with what I can gather from his letters, I am able to supply the following list:—

1. River Atesu,
2. River Ibbi, and

¹ For explanation of the Plates, see p. 339.

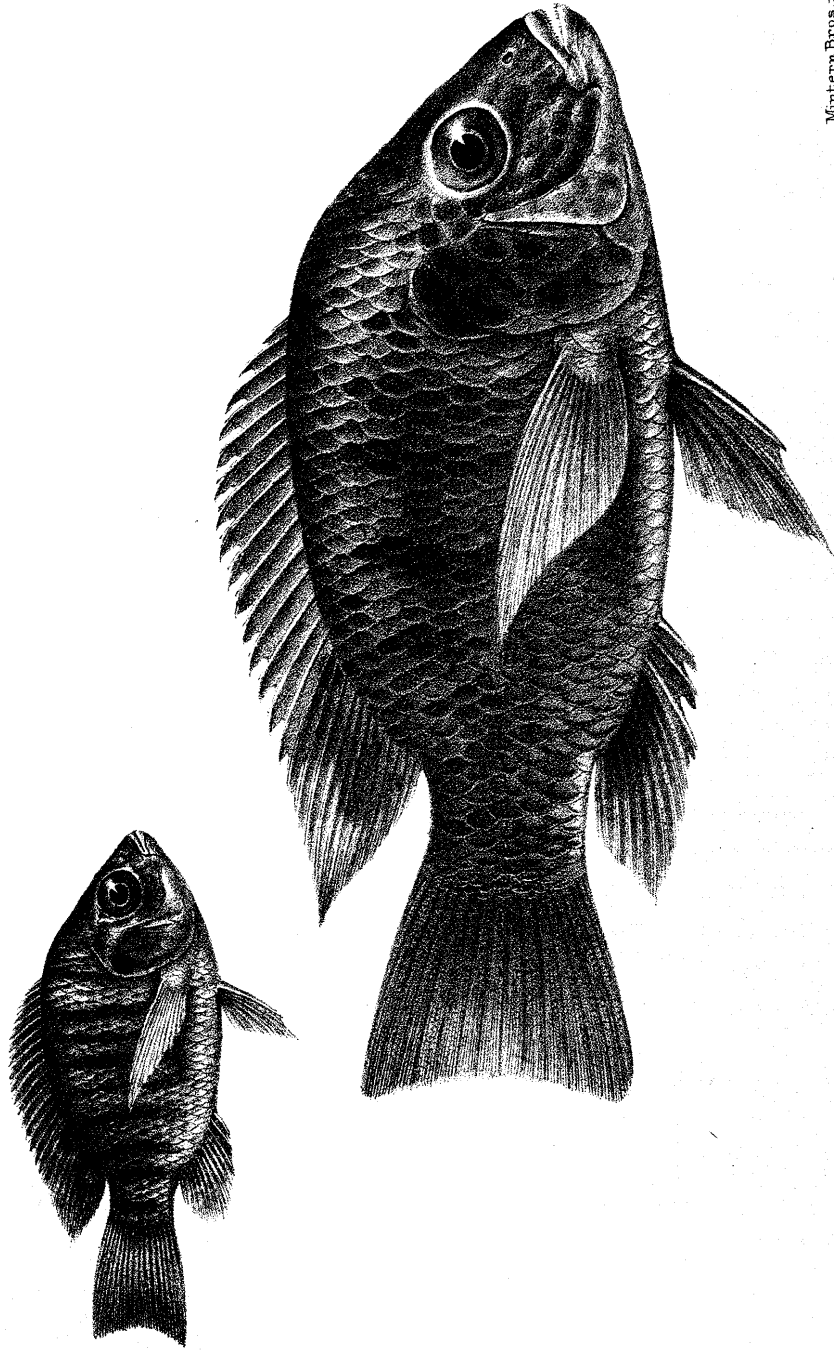


J Green del et lith.

CHROMIS BUSUMANUS.

Minter n. Bros. imp.

P.Z.S. 1902, vol. II, Pl. XXXI.

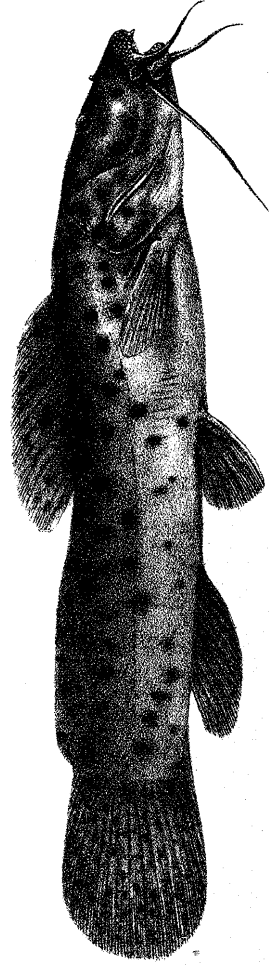
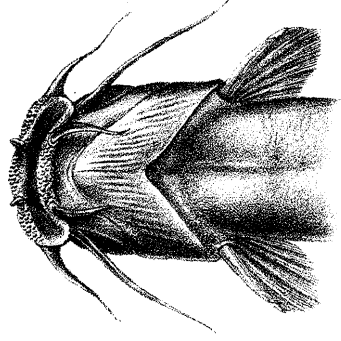
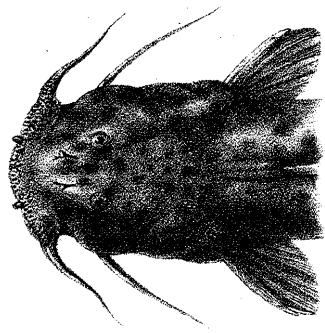


Mintern Bros. imp.

CHROMIS MULTIFASCIATUS.

J. Green del et lith.

P.Z.S. 1902, vol. II. Pl. XXXII.

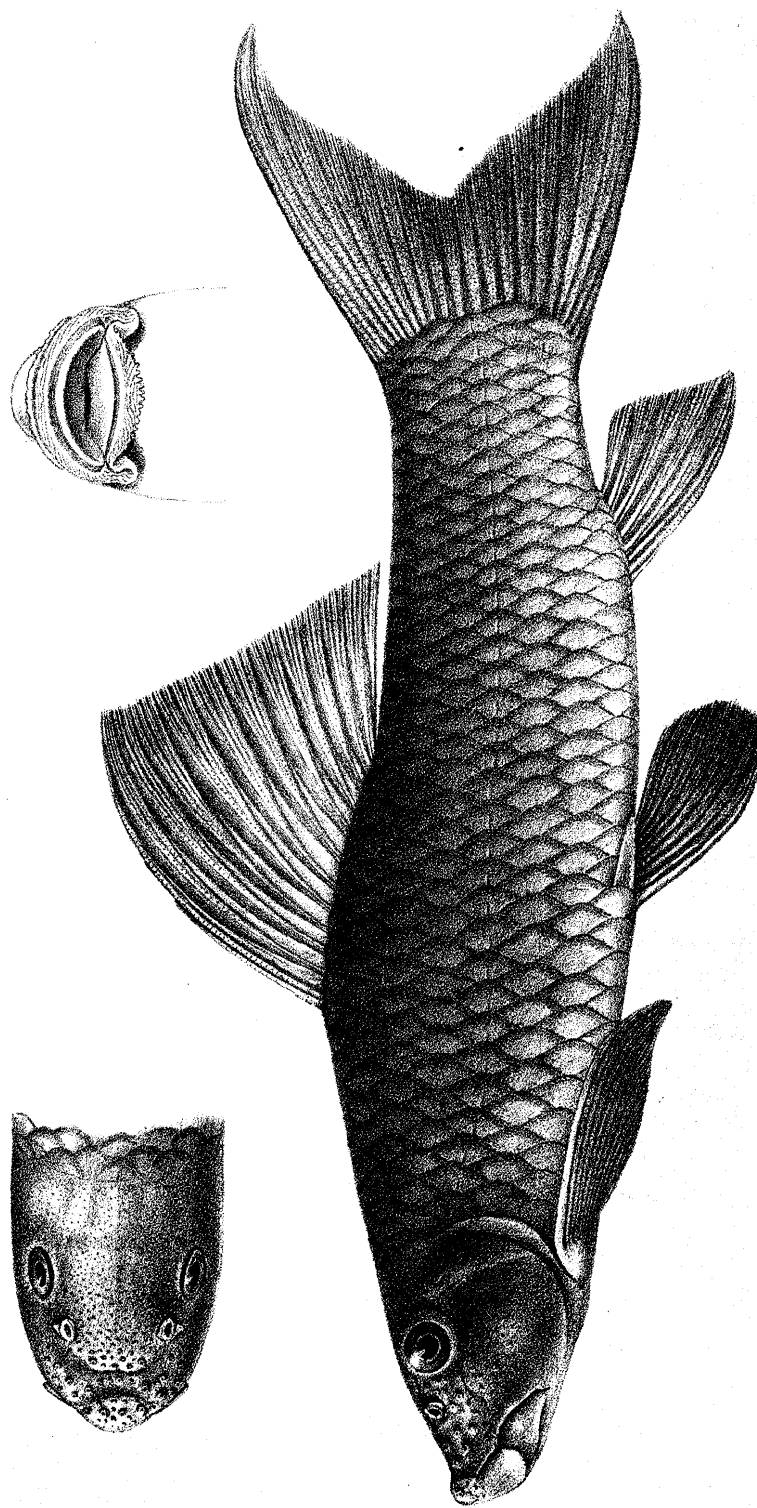


J. Green del et lith.

NOTOGLANIDIUM WALKERI.

Monter Bros. imp.

P.Z.S. 1902, vol. II, Pl. XXXIII.



J Green del et lith.

LABEO WALKERI.

Mintern Bros imp.

3. Bokitsa Mine—are two small rivers and a locality in the Wasa district.

4. Ingogosu is described on the label as a village in the mining centre of Kinkiankwã.

5. Infoan, a small place on a tributary of the River Offim.

6. Dunkwa, a place on the River Offim or on one of its tributaries. Mr. Walker speaks of it sometimes as a place and sometimes as a river. There is another place with the same name north and inland of Cape Coast Castle.

7. Odumasi, a place on the upper part of the River Enon, east of Koumassi.

8. Lake Busum-chi.

9. Nyankoma, a place on the River Enon.

10. Town of Akropon.

Mr. Walker's connection with commercial affairs on the West Coast of Africa extended over a period of more than forty years, the greater part of which he resided in the country. It seems that the late Mr. T. Moore, Curator of the Liverpool Museum, was the first to interest him in making collections of Reptiles and Fishes. He retained this interest to the end of his life, much advancing our knowledge of the fauna of the Gaboon country and the Gold Coast; and there is no doubt that he would have accomplished still more if circumstances had permitted us to supply him with more ample means than were at his disposal, while, moreover, the primary objects of his pursuits demanded nearly all his time and energy.

CHROMIS OGOWENSIS.

Chromis ogowensis Günth. Ann. & Mag. N. H. 1896, xvii. p. 271; Proc. Zool. Soc. 1899, p. 717.

This species is not to be united with *C. latus*, to which it has been referred by Boulenger (Proc. Zool. Soc. 1899, p. 125). In a smaller specimen of *C. latus* the anterior maxillary teeth are *absolutely* larger than, and the anterior mandibular teeth as large as, the corresponding teeth of larger specimens of *C. ogowensis*¹. The pectoral fin may be rather shorter or rather longer than the head; it generally does not reach the anal.

Mr. Walker's latest collection contains several additional

¹ In treating of the species of *Chromis* in the Congo, Mr. Boulenger (Poiss. du Congo, p. 453) states that for specific discrimination no reliance is to be placed on the number of teeth in the outer premaxillary series: first, because it varies "selon les individus," and secondly, because as a rule the teeth are relatively smaller and more numerous in adult than in young specimens. The first statement is opposed to my experience. There are broad-toothed and narrow-toothed species; but, of course, there is some variation even in the former, and the limits of variation widen in species characterized by small and numerous teeth, in which case it is not even desirable or useful to attempt to state the number of teeth. That young individuals have a smaller number than adult is true, as I also have already stated in Proc. Zool. Soc. 1896, p. 217, but this dental development cannot be called variation; with the advancing growth of the jaws more teeth are added laterally. I continue to

specimens of this species; he collected them on the River Dunkwa, and at Nyankoma, R. Enon.

Some of these specimens differ in certain points, as the height of the spinous dorsal fin, the form of the cheeks, &c., from those previously received and among themselves. However, I regard these differences as merely individual variations; they are indicated in the following table, in which measurements are given in millimetres; the teeth are counted on one side of the upper jaw only:—

	Total length.	Length of head.	Length of s D. spine.	Height of cheek.	Length of cheek.	Teeth in upper jaw.	Gill-rakers.	P. just reaching A.	P. not reaching A.
<i>Ch. ogowensis</i> :									
1. Lambarene, type ...	170	47	19	12	12	28	11+3	*	
2. Kotehwah R.	154	37	16	9	10	23	11+3	...	*
3. Prah R.	142	36	18	8	10	27	12+4	...	*
4. Prah R.	140	35	16	8	10	26	11+4	...	*
5. Kakum R.	162	42	20	10	13	29	12+5	...	*
6. Kakum R.	140	35	18	7	11	25	13+4	*	
7. Kakum R.	117	30	15	6	9	25	12+4	...	*
8. Dunkwa R.	130	32	17	7	10	25	11+4	...	*
9. Dunkwa R.	125	32	17	7	10	24	12+4	*	
10. Nyankoma.	132	33	16	7	10	24	11+3	...	*
11. Nyankoma.	129	33	16	7	11	26	12+5	...	*
12. <i>Ch. latus</i> , type ...	112	28	13	6	9	19	9+3	...	*

CHROMIS DISCOLOR, sp. n.

D. $\frac{15}{8}$. A. $\frac{3}{8}$. L. lat. 29–30. L. transv. $\frac{3}{11}$.

Nineteen or twenty teeth on each side of the upper jaw. Maxillary rather short, not extending to the vertical from the front margin of the eye. Upper profile of the snout straight; interorbital space flat, wider than the orbit, which is nearly one fourth of the length of the head. Three series of scales on the

regard the size and number of teeth as a valuable specific character which should always be taken into consideration, combined with a statement of the size of the specimens to which the statement of the dental number applies.

Therefore I must demur to Mr. Boulenger's statement that in *C. ogowensis* the teeth "vary" from 15 to 30 on each side (*l.c.* p. 466). The typical specimen, from which alone my original description is taken, is 170 millim. long, and probably mature. The collector put into the same bottle two young specimens, 62 and 66 millim. long, which presumably may belong to the same species. I say presumably, for I confess that the uncertainty and difficulties attending the determination and specific discrimination of the young of closely-allied species of *Chromis* are too great to allow me to offer a categorical opinion upon them.

cheek. Form of the body rather oblong, its depth being contained $2\frac{1}{3}$ or $2\frac{1}{2}$ in its length (without caudal), and more than the length of the head. Gill-rakers of the outer arch twelve (4+8). Pectoral fin as long as, or even slightly longer than, the head, extending to the vent or origin of the anal. Ventral produced into a filament which may reach beyond the origin of the anal. The eighth dorsal spine is contained $2\frac{1}{2}$ or $2\frac{1}{3}$ in the length of the head. Caudal fin truncate, with the corners pointed. Scales cycloid. Colour variable: the whole fish may be brownish-black, the vertical and ventral fins and the base of each scale being deep black; or it may be of a uniform light colour, with some irregular black blotches on the opercle and throat.

Three specimens from Lake Busum-chi, measuring from 100 to 125 millim.

CHROMIS BUSUMANUS, sp. n. (Plate XXX.)

D. $\frac{15}{10}$. A. $\frac{3}{8}$. P. 13. L. lat. 29-30. L. transv. 3/11.

Scales cycloid, those on the cheek in three (two¹) series. Teeth small, a few notched, in several series, from 24 to 28 on each side of the upper jaw; those of the lower jaw minute. Mouth rather small, the maxillary scarcely reaching the vertical from the anterior border of the eye. The depth of the body is *two fifths* of the total length (without caudal), the length of the head one third. Eye one fourth of the length of the head, two thirds of that of the snout, and rather less than the width of the inter-orbital space. *Nape of the neck more or less elevated, rendering the upper profile of the head slightly concave. Pectoral fin as long as the head*, extending nearly to, and sometimes even to, the origin of the anal. Caudal fin truncate or scarcely emarginate, with the corners rounded, or with the upper angular and the lower rounded, scaly at the base. The spinous dorsal fin rather low, the length of the eighth spine being about one third of that of the head. Gill-rakers of the outer branchial arch from 15 to 17 on the whole arch, or from 11 to 12 on its lower portion. Coloration uniform, or with six very indistinct cross-bands; operculum and dorsal fin with the usual black spot.

Total length 135 millim.

Several specimens from Lake Busum-chi.

CHROMIS MULTIFASCIATUS, sp. n. (Plate XXXI.)

Allied to *C. macrocephalus* Bleek.

D. $\frac{15}{13}$. A. $\frac{3}{9}$. P. 13. L. lat. 28. L. transv. 3/11.

Scales cycloid, those on the cheek in two series. Teeth very small, in several series, notched, about 36 or 34 on one side of the upper jaw²; those of the lower jaw minute. Mouth small, transverse, the maxillary terminating at some distance in advance

¹ Three series in three species, in two others the third series is reduced to a single scale.

² Young specimens of about 70 millim. in length have a smaller number, viz. 28 or 30.

of the orbit. The depth of the body is contained $2\frac{1}{3}$ times in the total length (without caudal), the length of the head $2\frac{1}{3}$ or $2\frac{2}{3}$ times. Eye one fourth of the length of the head, and rather more than two thirds of that of the snout and of the width of the interorbital space; it is therefore a little nearer to the end of the snout than to the end of the opercle. Interorbital space transversely somewhat convex; upper profile of the head nearly straight. Pectoral fin as long as the head, extending to or beyond the origin of the anal fin. Caudal fin truncated, scaly at the base. Gill-rakers of the outer branchial arch from 24 to 26 on the whole arch, or from 19-22 on its lower portion¹. Body with well-marked black cross-bands, eight or nine in number in young individuals, alternately deeper in colour and broader in width, the foremost (if distinct) being above the root of the pectoral fin, the second opposite to the fifth or sixth dorsal spine. In mature individuals the narrower cross-bands disappear, only five remaining, the last being across the root of the caudal. A large black opercular spot; sometimes a rounded blackish spot behind the last dorsal spine.

Total length	143 millim.
" " without caudal ...	112 "
Length of eighth dorsal spine ...	15 "

Several examples from Lake Busum-chi.

CLARIAS KINGSLEYÆ, sp. n.

D. 79-87. A. 68. P. 1/9.

Vomerine teeth villiform, forming a horseshoe-like band, narrowed in the middle, its broadest part being as broad as the intermaxillary band; each half of the latter is not quite twice as wide as it is broad, and laterally scarcely extends as far outwards as the vomerine band. Head covered above with thick skin, two elevenths of the total length (without caudal), or nearly twice the distance from the origin of the dorsal fin. The width of the interorbital space is nearly one half of the length of the head. Barbels moderately long; the nasal nearly reaching to the gill-opening, the maxillary nearly to the origin of the dorsal fin, which is somewhat behind the end of the pectoral. Anal fin not low. No free space separating the caudal from the other vertical fins. Coloration uniform.

Total length 280 millim.

One specimen from Odumasi, another from Infoan on the R. Offim.

HETEROBRANCHUS ISOPTERUS Blkr.

Two specimens from Nyankoma and Infoan.

¹ As the branchial arch is in many of the species a segment of a more or less perfect circle, it is difficult to fix the boundary between its "lower," posterior or upper portion, and therefore it appears to be safer to count the gill-rakers of the whole arch, and not of a portion alone.

EUTROPIUS MENTALIS.

Eutropius congensis Günth. Proc. Zool. Soc. 1899, p. 730.

Eutropius mentalis Bouleng. Poiss. Congo, 1901, p. 269.

A dozen young specimens (5-7 in. long) were collected by Mr. Walker on the R. Offin. I believe them to be the same as a specimen of much larger size from the Prah River which, although it had its fin-spines mutilated, I referred to *E. congensis*. These young specimens do not quite agree among themselves as regards the comparative length of the barbels, but all have the nasal barbel considerably shorter than the maxillary or outer mandibular one; and therefore I hesitate to refer them to *Eutropius mandibularis*¹. The amount of variation in the length of the barbels within the limits of a species, and any change in this character dependent on growth, are quite unknown at present.

CHRYSICTHYS WALKERI.

Chrysiichthys walkeri Günth. Proc. Zool. Soc. 1899, p. 720.

One specimen, R. Offin.

CHRYSICTHYS LAGOENSIS. (Text-fig. 62, p. 336.)

Chrysiichthys lagoensis Günth. Proc. Zool. Soc. 1899, p. 725.

One specimen, Nyankoma.

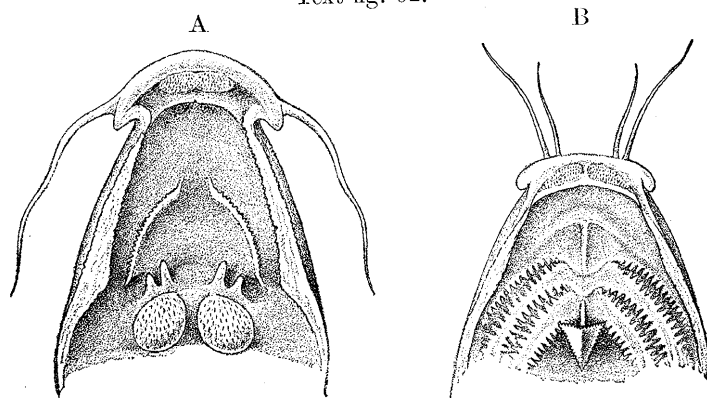
This specimen is a male 177 millim. long. It presents a peculiar modification of the integument of the buccal cavity, which I have also observed in other specimens of this genus, in which, however, the excrescences were collapsed and indistinct owing to the less perfect state of preservation. On the palate (text-fig. 62, A) the mucous membrane is raised into two fringed ridges divergent towards the pharynx; the upper part of the pharynx is occupied by a pair of large, elliptic, soft, cushion-like pads, into which the pharyngeal denticles are sunk, and in front of each of which two long papillæ are suspended from the roof of the pharynx. Below (text-fig. 62, B), in the median line between the roots of the anterior branchial arches, a high, short ridge rises, with a fringed flap dependent on each side; finally each branchial arch is provided with two rows of soft papilliform gill-rakers.

There are two functions which may be ascribed to this singular structure. It may serve as an organ of taste by which the fish is able to distinguish in muddy water between nutritive and uneatable substances: or, as many Cat-fishes carry their ova and young in the mouth, it may assist in the lodgment or, perhaps,

¹ Unfortunately I am unable to re-examine the type of *E. mandibularis*. The majority of the specimens described in the paper quoted were lent to me for description by my friend, the late Mr. T. Moore, Curator of the Free Public Museum, Liverpool, with the understanding that all unique types should be returned to him. This was done, and the safe arrival of the specimens acknowledged by him. However, none of them can now be found by Mr. Moore's successor, Dr. J. O. Forbes, who, at my request, kindly instituted a search for them.

in the nutrition of the fry. In a female 377 millim. long the structure is but little developed.

Text-fig. 62.

Mouth of *Chrysichthys lagoensis*.

A, palatal view; B, lower view.

AMPHILIUS PLATYCHIR Gthr.

This species varies somewhat in the relative proportions of the dorsal fins. In well-nourished and well-preserved examples the adipose fin rises along a greater extent of the dorsal profile, thus approaching nearer to the rayed fin: a condition not rarely observed in other Siluroids with a long adipose fin. The barbels are distinctly compressed. The back of these Gold Coast specimens is marbled; dorsal and caudal fins with a black band across the base and another across the middle.

The specimens were collected on the River Atesu, and are probably young, being $2\frac{1}{2}$ inches long. The occurrence of these specimens at no great distance from the mouth of the river proves that *Amphilius* is not confined to mountain-streams¹.

NOTOGLANIDIUM, g. n

Head broad, depressed, covered with thick skin; eyes small, without free orbital margin, situated at the upper side of the head; posterior nostrils in a pit rather nearer to the eye than to the end of the snout, anterior in the upper lip, terminating in a short tube pointing downwards. Snout broad, with rather wide mouth and three pairs of barbels. Teeth minutely villiform, none on the palate. Gill-membranes attached to the isthmus without

¹ The typical specimens are stated to be from Sierra Leone, and there is no reason to doubt the correctness of the statement (see Boulenger, Ann. & Mag. N. H. 1898, i. p. 254). They were given to me on the occasion of a visit to Fort Pitt Museum in 1862 by one of the Army surgeons, who had brought them from Sierra Leone where he had been stationed.

a free central portion. Anterior dorsal rather long, with more than seven rays and with a pungent spine; adipose fin low and long; ventrals six-rayed, below the posterior third of the dorsal.

NOTOGLANIDIUM WALKERI, sp. n. (Plate XXXII.)

D. 1/14-15. A. 12. P. 1/7. V. 6.

Body moderately elongate, of nearly the same depth in its whole length, the tail being strongly compressed. Head depressed, much broader than deep, two-sevenths of the total length (without caudal); the very small eye entirely in the anterior half of the head; snout broad, depressed, two fifths of the length of the head, nearly twice as long as the interorbital space is long. Mouth anterior, with the upper jaw rather larger, surrounded by fleshy lips; all the barbels are rather thick near their base: the maxillary extending to the middle of the operculum, the outer mandibular to the base of the pectoral fin; the inner mandibular rather shorter than the maxillary. The maxillary patch of teeth is single, oblong, small, but wider than long; the mandibular patches separated in the middle, smaller than, but similar in outline to, the maxillary.

Pectoral fins short, not longer than ventral, with a strong spine, which, however, is enveloped in thick skin, only its point being free. Dorsal fin very low, only about half as high as the body, with a singularly short spine, not quite half as long as the snout. Adipose fin long, low, commencing shortly behind the dorsal and subcontinuous with the caudal. Caudal rounded.

Reddish-brown, darker on the back, body, dorsal and caudal fins, with scattered round black spots, the spots on the caudal fin being the more numerous and smaller.

Total length 122 millim.

Two specimens from the River Ibbi (Apollonia).

SYNODONTIS ROBBIANUS J. A. Smith.

Several young specimens (3-6 in. long) from the R. Offin.

On comparing these specimens with the single young specimen of *S. robbianus*, I find that they have the interorbital space a little broader than the Old Calabar fish. This does not seem to me to constitute a distinctive specific character.

MALAPTERURUS ELECTRICUS L.

A young specimen from the R. Offin.

BARBUS CAMPTACANTHUS Bleek.

Many specimens were collected at Infoan, at the town of Akropon, and on the River Atesu.

BARBUS TRISPILUS Bleek.

Many specimens from Infoan, Akropon, and Ingogosu, a village in the mining centre of Kinkiankwã.

PROC. Zool. Soc.—1902, Vol. II. No. XXII.

LABEO WALKERI sp. n. (Plate XXXIII.)

Closely allied to *L. brachypoma*.

D. 14. A. 7. L. lat. 33. L. transv. 4/6.

Mouth broad. Lips very thick, with a distinct inner fold in their entire circumference; lower lip fringed along its anterior and posterior margins. Snout thick, produced, much projecting beyond the lower jaw, with a broad lobe on each side; the terminal portion of the snout is rather contracted and turned upwards; maxillary barbel small, hidden in the lateral groove. Eye lateral, immediately below the upper profile, about as large as the exposed portion of a scale, situated entirely in the posterior half of the head. Head small and thick, a little less than one fourth of the total length (without caudal); the width of the flat interorbital space one half of the length of the head. Gill-cover very short. There are three longitudinal series of scales between the lateral line (which is indistinct) and the ventral fin. The free portion of the scales much higher than long. Dorsal fin high, with the upper margin straight, equidistant from the root of the caudal and the front margin of the orbit; anal extending to the root of the caudal, at least in our largest example; caudal forked. Pectoral fin not reaching the base of the ventral; ventral inserted in front of the vertical from the last dorsal ray. Body moderately elongate, tail strongly compressed; the height of the body is not quite one fourth of the total length (without caudal); free portion of the tail as deep as long, its greatest depth being two thirds of the length of the head. Coloration uniform.

Snout covered with tubercles in mature specimens.

Several specimens from Nyankoma, the largest measuring 205 millim.

HAPLOCHILUS SPILAUCHEN Dum.

Town of Akropon, and Infoan (a village on a tributary of the Offim R.).

HAPLOCHILUS INFRA-FASCIATUS Gthr.

Bokitsa Mine (Wasa district); R. Atesu.

ALESTES LONGIPINNIS Gthr.

Alestes chaperi Sauvage, Bull. Soc. Zool. France, vii. 1882, p. 320, pl. v. fig. 3.

From the examination of a long series of specimens, including types of *A. longipinnis* and *A. chaperi*, I come to the conclusion that the two forms should not be specifically separated. *A. longipinnis* was described as having the origin of the dorsal fin nearer to the end of the snout than to the root of the caudal, *A. chaperi* being distinguished by a more backward position of that fin. However, in some of the specimens before me the first dorsal ray is exactly midway between those two points; and I am unable to find any other specific differences.

ALESTES MACROLEPIDOTUS C. V.

R. Offin and R. Enon, village of Nyankoma.

PETERSIUS OCCIDENTALIS Gthr.

Many specimens from Akropon and Infoan.

HYDROCYON LINEATUS Schleg.

R. Offin and R. Enon, Nyankoma.

SARCODACES ODOË Bl.

R. Enon, Nyankoma.

NANNOCHARAX FASCIATUS Gthr.

Town of Akropon.

MORMYRUS USSHERI Gthr.

R. Offin.

EXPLANATION OF THE PLATES.

PLATE XXX.

Chromis busumanus, p. 333.

PLATE XXXI.

Chromis multifasciatus, p. 333.

PLATE XXXII.

Notoglanidium walkeri, p. 337.

PLATE XXXIII.

Labeo walkeri, p. 338.

4. On a Specimen of the Okapi lately received at Brussels. By C. I. FORSYTH MAJOR, F.Z.S.

[Received November 18, 1902.]

(With Text-figures 63-67.)

Last month the Authorities of the Congo Independent State received the skin of an Okapi which was at first supposed to have been obtained by a missionary stationed at or near Stanley Pool, but which subsequently proved to have been forwarded by the Commandant Sillye, "chef de la zone du Haut-Ituri." Though it was apparently of an adult individual, the skin shows no traces of horns.

The examination and comparison of the two Brussels skins, of which photographs are exhibited, show first of all that in the pattern of the striping, especially of the hind-quarters, some variation occurs between one side and the other; this warns us not to attach too much importance to similar variations when