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**ZOOLOGICAL RESULTS OF THE GEORGE VANDERBILT AFRICAN
EXPEDITION OF 1934. PART III, — THE FRESH
WATER FISHES**

BY HENRY W. FOWLER

The Academy is fortunate in securing the very interesting collection obtained by this expedition. Considering the wide range of localities or stations across transcontinental Africa, of which 39 are listed in part 1 of the present series of papers,¹ only 7 yielded fishes. These are: (13) Athi River Crossing, (17) Kitala, (23) Saidi's Village, (24) Vube, (26) Eki-bondo's Village, (27) Fort Sibut and (33) Nola. Other smaller lots of materials were later received from 30 kilometers east of Kribi, Cameroons, and Batangafo, Chad Basin.

The specimens number nearly 3000, representing 115 species, of which 10 are described as new genera or subgenera and 36 as new species or subspecies. This is surely a remarkable showing, especially in view of the comparatively short amount of time available and the mobility of the expedition.

To Mr. George Vanderbilt is due special acknowledgment for his personal interest in the collecting of the specimens, and amassing comprehensive series for the museum of the Academy.

POLYPTERIDAE

Polypterus endlicheri Heckel. Figure 1.

Depth $7\frac{1}{2}$; head 4, width $1\frac{3}{8}$. Snout 5 in head from snout tip; eye 10, 2 in snout, $2\frac{3}{4}$ in interorbital; maxillary reaches eye diameter behind eye, length $2\frac{5}{8}$ in head from snout tip; interorbital $3\frac{4}{8}$, low, depressed medially; nasal tube $1\frac{3}{8}$ times eye. Gill rakers 10 low, rudimentary broad tubercles; gill filaments slightly longer than eye.

Scales 52 in lateral line; 6 above, 7 below to anal origin; 16 predorsal forward to occiput.

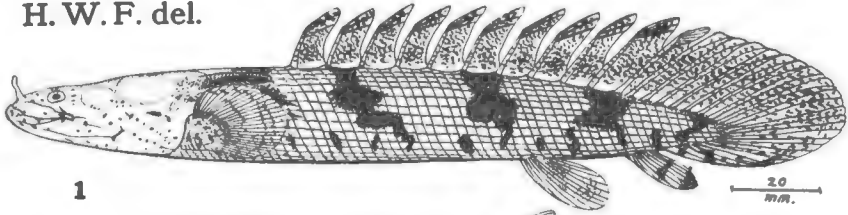
D. XI, 8, adnate with caudal which of 12 rays, first spine short and others gradually longer to last, which $2\frac{1}{4}$ in total head length, rayed fin height $1\frac{1}{2}$; caudal $1\frac{1}{2}$, rounded; A. 11, length $2\frac{1}{4}$; pectoral $1\frac{7}{8}$, total rays 40; ventral rays 13, 2 in total head length.

Back brown, sides and below paler to whitish. Five broad irregular inclined blackish blotches on back and sides. Along lower sides about a dozen dark blotches. Head marked with scattered small dark dots or specks. Opercular gill blackish. Dorsals and caudal with dark lines, pencilled or waved. Other fins with dark markings.

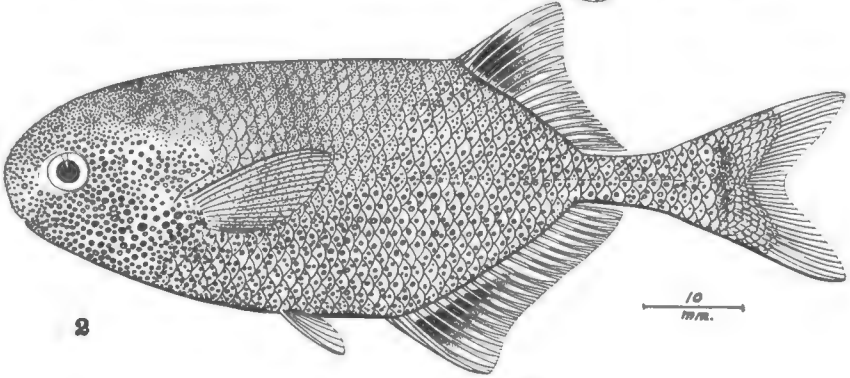
One 180 mm. Batangafo, Ubangi-Shari.

¹ These PROCEEDINGS, LXXXVIII, pp. 1-14, map (1936).

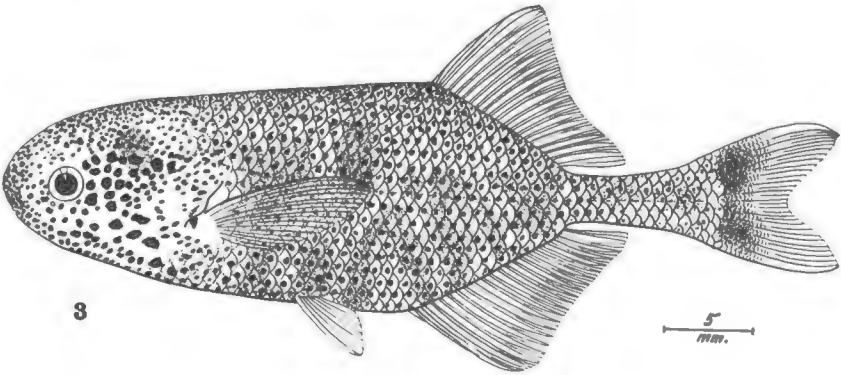
H. W. F. del.



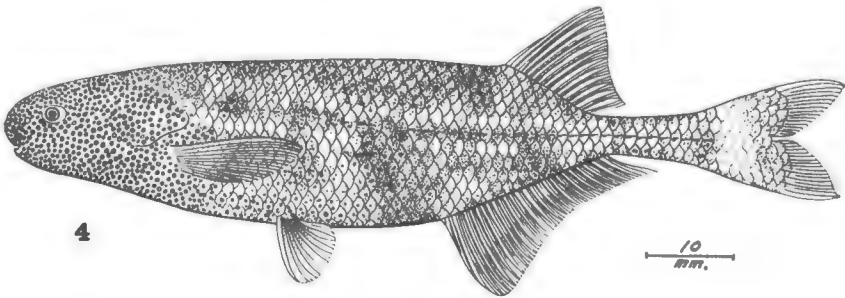
1



2



3



4

1. *Polypterus endlicheri*. 2. *Petrocephalus vanderbilti*.
3. *Petrocephalus guttatus*. 4. *Marcusenius adustus*.

Polypterus senegallus Cuvier.

Depth $7\frac{1}{4}$ to $7\frac{1}{2}$; head $5\frac{1}{3}$ to 6, width $1\frac{1}{2}$ to $1\frac{2}{3}$. Snout $4\frac{1}{2}$ to $4\frac{2}{3}$ in head; eye 8 to $8\frac{1}{3}$, $1\frac{1}{2}$ in snout, 2 in interorbital; maxillary reaches $\frac{1}{2}$ to $\frac{2}{3}$ an eye diameter behind eye, length $2\frac{1}{2}$ to $2\frac{3}{4}$ in head; interorbital $3\frac{2}{3}$ to 4, low, slightly convex; nasal tube 1 to $1\frac{1}{5}$ times eye. Gill rakers 10 low, rudimentary broad tubercles; gill filaments $1\frac{1}{4}$ in eye,

Scales 55 to 57 in lateral line; 6 above, 7 or 8 below to anal origin; 17 predorsal forward to occiput.

D. X, 6, adnate with caudal of 10 or 11 rays, first spine short and others graduated to last, which 2 to $2\frac{3}{4}$ in head, rayed fin height $1\frac{1}{4}$ to $1\frac{3}{8}$; caudal $1\frac{1}{4}$ to $1\frac{1}{3}$; A. 13 to 17, length $1\frac{1}{2}$ to $1\frac{3}{4}$; pectoral $1\frac{1}{3}$ to $1\frac{1}{2}$, rays 37; ventral rays 11 or 12, fin $1\frac{1}{8}$ to 2 in head.

Gray brown above, uniform, under surfaces whitish. Iris dark gray. Fins all with more or less gray brown.

Three, 200 to 245 mm. Batangafo, Ubangi-Shari.

MORMYRIDAE**Mormyrops masuianus** Boulenger.

Depth $6\frac{2}{5}$; head $4\frac{1}{5}$, width $2\frac{2}{5}$. Snout $4\frac{4}{5}$ in head; eye 16, 3 in snout, $3\frac{1}{3}$ in interorbital, without free lids; mouth cleft extends $\frac{3}{4}$ to eye, width $4\frac{3}{4}$ in head; lips very thick and coriaceous; 14 compressed, cuneate teeth above, 16 below; interorbital 5 in head, broadly convex, rather low. Gill rakers 4 + 4, short points, $\frac{1}{3}$ of gill filaments, which $1\frac{2}{3}$ times eye.

Scales about 85 in lateral line; 12 above, 13 below; 64 predorsal scales forward to occiput. Scales larger on tail. Caudal almost entirely scaled. Scales with 16 basal and 16 apical striae, all enmeshed by reticulations; circuli fine, even, parallel.

D. 29, fin height $3\frac{1}{2}$ in head; A. 42, 1, begins space before dorsal equal to combined snout and eye, fin height $4\frac{2}{5}$ in head; caudal 3, lobes rounded; pectoral $2\frac{1}{5}$, rays 1, 9; ventral rays 1, 5, fin $3\frac{3}{5}$ in head.

Largely uniform, dull, dark brown. Iris dark gray. Lips rather pale brown.

One 310 mm. Fort Sibut, Ubangi-Shari. October 13.

Petrocephalus simus Sauvage.

Depth $2\frac{2}{5}$ to $3\frac{1}{5}$; head $3\frac{1}{4}$ to $3\frac{1}{3}$, width 2 to $2\frac{1}{5}$. Snout 5 to $5\frac{1}{2}$ in head; eye 3 to $4\frac{2}{5}$, greater than snout in young to subequal with age, $1\frac{1}{3}$ to $1\frac{1}{4}$ in interorbital; mouth cleft very short, mouth width $4\frac{3}{4}$ in head; teeth minute, bicuspid; interorbital $3\frac{1}{4}$ to $3\frac{1}{2}$, convexly elevated. Gill rakers 5 + 5, rudimentary short points, about $\frac{1}{3}$ of gill filaments, which $2\frac{1}{5}$ in eye.

Scales 30 to 35 + 3 in lateral line; 12 to 14 above, 13 or 14 below; predorsal region naked along median area. Caudal with basal $\frac{2}{5}$ scaled. Scales with 16 to 20 basal radiating parallel marginal striae, with coarse reticulations apically, of which 6 to 12 reach scale edge; circuli fine.

D. III, 22, 1 or III, 23, 1, first branched ray $1\frac{2}{5}$ to $1\frac{3}{5}$ in head, fin origin slightly behind anal origin; A. III, 25, 1 to III, 28, 1, first branched ray $1\frac{1}{5}$ to $2\frac{1}{4}$; caudal $1\frac{1}{3}$ deeply forked, tips of lobes pointed; least depth of caudal peduncle $4\frac{4}{5}$ to 5; pectoral $1\frac{1}{2}$ to $1\frac{2}{5}$, rays 1, 10; ventral rays, 1, 5, fin $2\frac{1}{5}$ to $3\frac{1}{5}$ in head.

Back dull brown to gray brown, sides and below pale to whitish. Iris gray. Mouth and under surface of head whitish. Head above and upper surface of body with small, crowded or close-set dark dots or specks. Fins all more or less pale, darker terminally. In young, dark dots only distinct on head above, very small and fine.

One 108 mm. Fort Sibut, Ubangi-Shari; one 60 mm. Batangafo, Ubangi-Shari; 21 examples 37 to 57 mm. November 24 and 25, and two 55 to 60 mm. November 26, 30 kilometers east of Kribi, Cameroons. All the last with a dark spot above the opercle.

Petrocephalus vanderbilti new species. Figure 2.

Depth $2\frac{3}{5}$ to 3; head $3\frac{1}{5}$ to $3\frac{1}{4}$, width 2 to $2\frac{1}{4}$. Snout $4\frac{2}{5}$ to 5 in head; eye 5 to $5\frac{2}{5}$, 1 to $1\frac{1}{5}$ in snout, 2 to $2\frac{1}{3}$ in interorbital; mouth cleft very short, very little before front eye edge; mouth width $4\frac{1}{2}$ to $5\frac{1}{4}$ in head; teeth bifid, 6 above, 8 below; interorbital $2\frac{2}{5}$ to $2\frac{3}{4}$, well elevated, convex. Gill opening long as eye.

Scales 36 or 37 + 2 to 4 in lateral line; 8 to 12 above, 10 to 14 below; predorsal with median area naked to head. Basal half of caudal scaly. Scales with 25 basal parallel striae, most joined with coarse reticulations apically of which 16 reaching scale margin; circuli moderately fine.

D. II, 15, I, or II, 16, I, first branched ray $1\frac{3}{4}$ to $1\frac{5}{8}$ in head, fin origin slightly behind anal origin; A. III, 20, I or III, 21, I, first branched ray $1\frac{7}{8}$ to 2; caudal $1\frac{1}{3}$ to $1\frac{2}{5}$, forked, lobes more rounded in young; least depth of caudal peduncle $4\frac{1}{2}$ to 5; pectoral $1\frac{1}{4}$ to $1\frac{2}{5}$, rays I, 8 or I, 9; ventral I, 5, fin $2\frac{1}{2}$ to $2\frac{2}{5}$ in head.

Pale brownish, head and body everywhere with small, crowded or close-set dark to blackish brown dots, largest on trunk and tail where usually one spot to a scale, thus forming more or less longitudinal rows. On lower sides of head dark spots somewhat enlarged. Iris gray. Lips whitish or pale. Fins pale to whitish, with dusky to blackish brown at bases of dorsal and anal anteriorly, also caudal base.

A.N.S.P., No. 65599. Fort Sibut, Ubangi-Shari. Length 85 mm. Type. Also A.N.S.P., Nos. 65600 to 65603. Same data. Length 54 to 78 mm. Paratypes.

A handsome species, with conspicuous dotted coloration and in combination with its deep body not like any known species.

(For Mr. George Vanderbilt in slight appreciation of his interest in the fishes of the Expedition.)

Petrocephalus guttatus new species. Figure 3.

Depth 3 to $3\frac{1}{5}$; head 3 to $3\frac{1}{5}$, width 2 to $2\frac{1}{4}$. Snout $4\frac{2}{5}$ to $4\frac{4}{5}$ in head; eye $5\frac{1}{5}$ to $6\frac{1}{5}$, $1\frac{1}{4}$ to $1\frac{1}{3}$ in snout, 2 to $2\frac{1}{5}$ in interorbital; mouth cleft very short, below middle in snout length; mouth width equals snout; interorbital $2\frac{2}{5}$ to $2\frac{4}{5}$, elevated, convex. Gill opening $4\frac{1}{5}$ to $4\frac{1}{2}$ in head.

Scales 36 to 40 + 4 in lateral line; 10 or 11 above, 10 or 11 below; predorsal with median naked strip. Caudal with basal half largely scaly. Scales with 16 basal radiating marginal striae, connected with coarse reticulations terminally of which 5 to 7 extend marginally; circuli moderate, complete.

D. III, 16, 1 or III, 17, 1, first branched ray $1\frac{3}{8}$ to $1\frac{2}{3}$ in head, origin slightly behind anal origin; A. III, 20, 1 or III, 21, 1, first branched ray $1\frac{4}{8}$ to $1\frac{1}{2}$; caudal $1\frac{1}{3}$ to $1\frac{2}{5}$, emarginate, lobes rounded; pectoral $1\frac{1}{2}$ to $1\frac{1}{4}$, rays 1, 8; ventral rays, 1, 5, fin, $2\frac{1}{4}$ to $2\frac{1}{3}$ in head.

Light brownish, obscurely clouded with darker. Head and body everywhere marked with rather large close-set blackish brown spots, one to each scale on trunk and tail. On sides of body and lower surface of head, same spots enlarged and conspicuous. Lips brown. Iris gray. Fins dull brown, with darker blotch at each caudal lobe basally. Some specimens show the fin rays of the vertical fins all more or less specked with dark brown.

A.N.S.P., No. 65504. Thirty kilometers east of Kribi, Cameroons. November 26, 1934. Length 51 mm. Type.

Others, paratypes, No. 65505, same data as type; No. 65506 to 65510, same locality, November 24 and 25, 1934; No. 65511, Batangafo, Ubangi-Shari. Length 31 to 49 mm.

Differs from known species in its finely spotted coloration, especially the contrasted black spots much larger on the head.

(*Guttatus* spotted.)

Marcusenius adustus new species. Figure 4.

Depth $4\frac{1}{3}$ to 5; head $3\frac{1}{3}$ to 4, width 2 to $2\frac{1}{3}$. Snout $4\frac{1}{4}$ to $4\frac{3}{4}$ in head; eye 7 to $9\frac{1}{3}$, $1\frac{1}{2}$ to 2 in snout, $2\frac{1}{3}$ to $2\frac{1}{2}$ in interorbital; mouth cleft very short, below first third of snout, width 6 in head; teeth 5 or 6 above, 6 below, broadly cuneate with slight notch at middle of cutting edge; interorbital $3\frac{1}{4}$ to $3\frac{1}{2}$, well elevated, convex. Gill opening 3 in head.

Scales 47 or 48 + 4 or 5 in lateral line; 7 or 8 above, 8 below; 40 to 46 predorsal forward to head. Caudal with basal half scaled. Scales with 28 to 30 basal parallel marginal striae, joined by reticulations of which 20 to 22 reach scale edge.

D. III, 12, 1 to III, 14, 1, first branched ray $1\frac{3}{4}$ to $2\frac{1}{3}$ in head, fin origin opposite first third of anal base; A. III, 23, 1 to III, 26, 1, first branched ray $1\frac{9}{10}$ to 2; caudal $1\frac{1}{4}$ to $1\frac{1}{2}$, lobes pointed, broad, fin emarginate; pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$, rays 1, 9; ventral rays 1, 5, fin origin little before end of depressed pectoral, fin $2\frac{1}{3}$ to $2\frac{1}{2}$ in head.

Color brown, marbled or clouded irregularly with dark or blackish brown on trunk and tail. Head, breast and belly with small, crowded, close-set dark to blackish brown spots. Iris dark gray. Dorsal and anal with membranes pale to whitish, though each ray basally for greater part of ray with blackish gray, and on front of fin blackish extends out on rays. Caudal subbasally dark gray, rest of fin whitish. Paired fins gray black.

A. N. S. P., No. 65512. Thirty kilometers east of Kribi, Cameroons. Length 100 mm. Type.

A. N. S. P., Nos. 65513 to 65522, same data, paratypes. Length 48 to 94 mm.

Differs from *Marcusenius batesii* Boulenger in the more posterior insertion of the dorsal and advanced insertion of the ventral. According to Boulenger's account the scales of *M. batesii* are 68 to 70 in the lateral line and the color uniform brown, or somewhat lighter beneath.

(*Adustus* swarthy.)

Marcusenius plagiostoma Boulenger.

Depth $2\frac{1}{8}$; head $4\frac{1}{2}$, width 2. Snout $3\frac{2}{5}$ in head; eye 7, 2 in snout, 2 in interorbital; orbit $4\frac{1}{2}$ in head, equals snout; mouth cleft very short, falls opposite first third in snout, mouth width 6 in head; interorbital $3\frac{1}{5}$, elevated, well convex. Gill opening 3 in head.

Scales $53 + 5$ in lateral line; 15 above, 15 below; predorsal ridge naked forward to head. Caudal with basal $\frac{2}{3}$ of fin scaly. Scales with 25 basal radiating striae, with coarse reticulations apically of which 8 to 10 reach margin; circuli fine.

D. III, 35, 1, first branched ray $1\frac{3}{4}$ in head; A. III, 22, 1, first branched ray $1\frac{4}{5}$, fin origin at first third of dorsal base; caudal $1\frac{1}{10}$, deeply forked, lobes slender and pointed; least depth of caudal peduncle $4\frac{1}{4}$; pectoral $1\frac{1}{2}$, rays 1, 10; ventral rays 6, fin $1\frac{9}{10}$, origin opposite last fifth of depressed pectoral.

Back and upper surfaces gray brown, with ochraceous tints on sides and lower surfaces of head and caudal peduncle. Iris gray. Fins dull brownish, paired ones pale.

One 260 mm. Fort Sibut, Ubangi-Shari. The mouth cleft is far more forward than shown by Boulenger.

Marcusenius macularius new species. Figure 5.

Depth 3; head $3\frac{2}{5}$, width 2. Snout $5\frac{1}{3}$ in head; eye 7, $1\frac{1}{2}$ in snout, 3 in interorbital; mouth cleft very short in profile, below first third of snout; mouth width 5 in head; teeth minute, bifid; interorbital $3\frac{2}{5}$, elevated, convex. Gill opening $2\frac{2}{5}$ in head.

Scales $37 + 3$ in lateral line; 10 above, 10 below; predorsal naked medially or scales scarcely distinct. Caudal with basal $\frac{2}{3}$ scaly. Scales with 23 basal radiating striae, short and marginal, connected with coarse apical reticulations of which 10 reach apical edge of scale; circuli moderate.

D. III, 17, 1, first branched ray $1\frac{2}{3}$ in head, fin origin slightly behind anal origin; A. I, 25, 1, first branched ray $1\frac{4}{5}$; caudal $1\frac{1}{4}$, forked, lobes broad; least depth of caudal peduncle 4; pectoral $1\frac{1}{3}$, rays 1, 9; ventral rays 6, fin $2\frac{2}{5}$ in head, origin opposite last fourth of depressed pectoral.

Pale or very light brown, marbled with dark brown, also finely speckled with dark brown. On head 4 dark brown bands radiate from eye, first or lowest downward and others obliquely down. Each of these bands marked with large blackish brown spots or blotches. Iris dark gray. Vertical fins with pale ground color, blotched and speckled with blackish. Paired fins paler, specks duller and less contrasted.

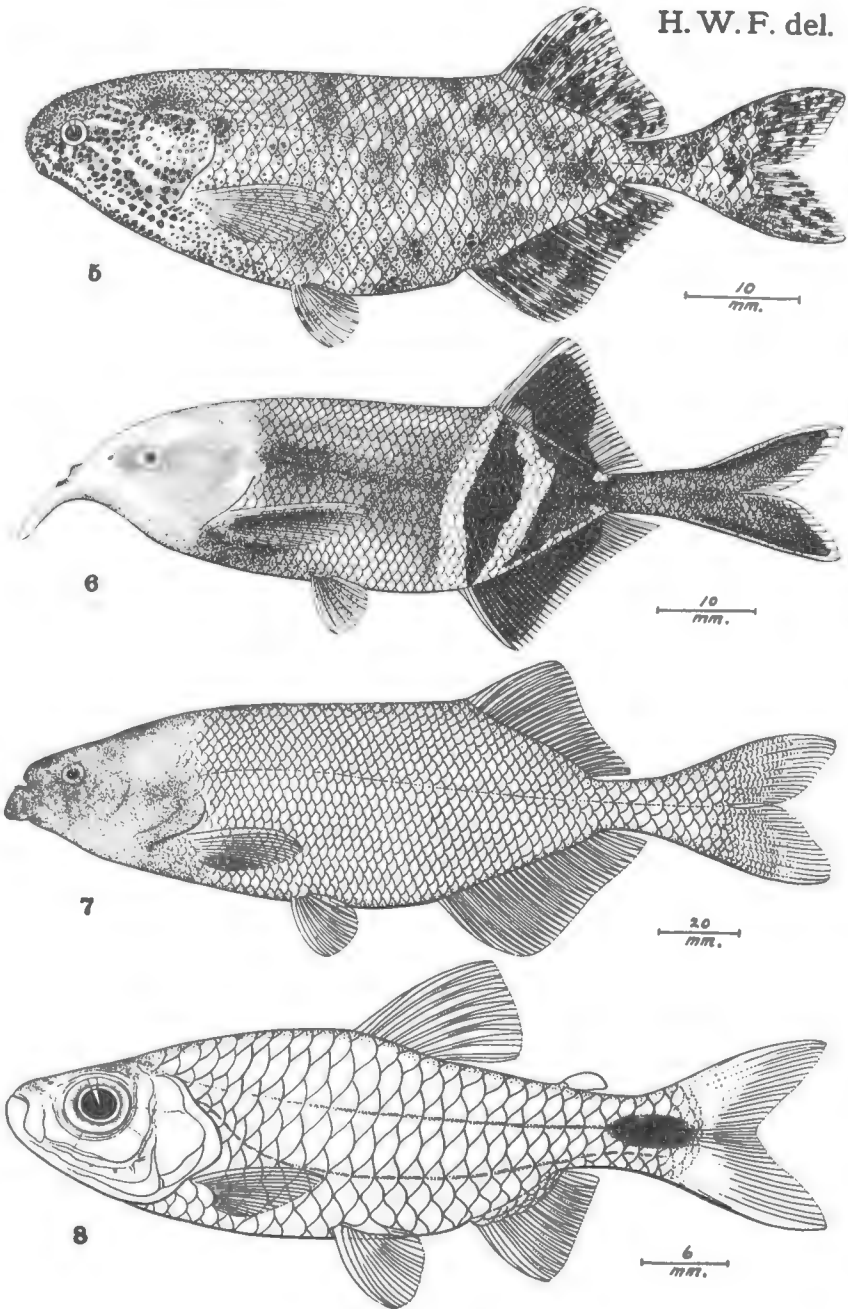
A.N.S.P., No. 65523. Fort Sibut, Ubangi-Shari. Length 73 mm. Type.

Greatly like *Marcusenius lhuysii* (Steindachner), but that species is figured with uniformly colored fins, much larger eye and a different physiognomy.

Apparently differs from *Marcusenius brevis* Boulenger, from Uelle, Upper Congo, in its smaller eye, fewer lateral scales and rounded caudal lobes. The coloration "Brownish, head darker, with dark dots and irregular spots", without a figure is hardly sufficiently clear.

(*Macularius* speckled.)

H. W. F. del.



5. *Marcusenius macularius*.
7. *Gnathonemus rehni*.

6. *Gnathonemus histrio*.
8. *Alestes abeli*.

Gnathonemus histrio new species. Figure 6.

Depth $3\frac{1}{2}$ to $3\frac{2}{3}$ (measured from snout tip); head $3\frac{1}{5}$ to $3\frac{2}{5}$, width $2\frac{1}{3}$ to $2\frac{2}{5}$. Snout $2\frac{2}{3}$ to 3 in head from snout tip; eye $6\frac{2}{3}$ to $7\frac{1}{2}$, 2 to $2\frac{1}{4}$ in snout, $2\frac{1}{4}$ to $2\frac{1}{2}$ in interorbital; mouth small, cleft very short, close below lower eye edge, width 8 to $9\frac{1}{2}$ in head from snout tip; interorbital 3 to $3\frac{1}{3}$, well elevated, convex. Gill opening $2\frac{2}{3}$ to 3. Mandibular appendage $2\frac{2}{3}$ in rest of head.

Scales 43 to 45 + 3 or 4 in lateral line; 10 or 11 above, 10 or 11 below; along predorsal ridge scales small, obsolete or little distinct. Caudal with at least basal half scaly. Scales with 12 basal radiating striae, short, connected with reticulations of which 8 to 10 reach apical edge; circuli fine, complete.

D. II or III, 22, I to II or III, 26, I, first branched ray $1\frac{1}{5}$ to $2\frac{1}{5}$ in head from snout tip, fin origin but slightly behind anal origin; A. II, 31, I or II, 32, I, first branched ray 2 to $2\frac{1}{4}$; caudal $1\frac{1}{2}$ to $1\frac{3}{4}$, deeply forked, lobes rather slender and pointed; least depth of caudal peduncle $4\frac{3}{4}$ to 5; pectoral $1\frac{1}{3}$ to $1\frac{2}{3}$, rays 9 or 10; ventral rays 6, fin $2\frac{2}{3}$ to 3 in head from snout tip, fin origin near last third in depressed pectoral.

Light brown to pale or whitish generally, contrasted with darker. On head many minute, close-set dark dots, darker behind eye and below and before pectoral, also entire medial side of trunk. Broad white band transversely from dorsal to anal origin, and behind arching backward another band, intervening area and posterior area, also caudal peduncle and caudal lobes medially blackish-brown to blackish. Second black broad transverse area continued up on front part of dorsal and anal fins, leaving an irregular whitish border to both fins. Edge of caudal whitish all around. Pectoral dark medially, pale to whitish marginally. Ventral similar, only paler.

A.N.S.P., No. 65524. Fort Sibut, Ubangi-Shari. Length 88 mm. Type.

Also Nos. 65525 to 65542, same data, paratypes. Length 67 to 80 mm.

A remarkably constant species in its general coloration, the details of pattern only slightly variable. Though suggestive of *Gnathonemus pictus* (Marcusen) of the White Nile, the present species differs constantly in its different color pattern and shorter caudal peduncle. All my specimens have the mandibular appendage.

(*Histrio* a harlequin.)

Gnathonemus rehni new species. Figure 7.

Depth $3\frac{1}{4}$ to $3\frac{3}{5}$; head $3\frac{1}{3}$ to $3\frac{1}{2}$, width 2. Snout $4\frac{2}{3}$ to 5 in head; eye $6\frac{1}{3}$ to 9, $1\frac{1}{3}$ to 2 in snout, $1\frac{4}{5}$ to $2\frac{1}{5}$ in interorbital; mouth cleft very short, about level with lower part of eye; mouth width 5 in head from snout tip; mandibular pad moderate, coriaceous; teeth 5 above, 5 or 6 below, simple, conic; interorbital 3 to $3\frac{1}{5}$, moderately high, rather broadly convex. Gill opening $2\frac{2}{3}$ to $2\frac{1}{2}$ in head.

Scales 46 to 50 + 4 or 5 in lateral line, largest on caudal peduncle; 12 or 13 above, 13 or 14 below; on predorsal medially more or less obscure or obsolete. Caudal largely scaly, only about hind or terminal fourth of fin naked. Scales with 18 to 20 basal radiating striae, parallel, marginal and several usually incomplete, connected by reticulations so 15 to 18 reach apical edge; circuli fine, complete.

D. III, 21, 1 or III, 22, 1, first branched ray 2 to $2\frac{1}{8}$ in total head length, fin origin little behind anal origin; A. III, 25, 1 to III, 28, 1, first branched ray $2\frac{1}{10}$ to $2\frac{1}{8}$; caudal $1\frac{1}{3}$ to $1\frac{2}{3}$, deeply emarginate, with broad, rounded lobes; least depth of caudal peduncle 4 to $4\frac{3}{4}$; pectoral $1\frac{1}{2}$ to $1\frac{2}{3}$, rays 1, 9; ventral rays 6, fin origin opposite last eighth of depressed pectoral, fin length $2\frac{1}{2}$ to $2\frac{7}{8}$ in total head length.

Largely dark sooty brown, head darker or blackish brown. Fins all dull brown, with olivaceous tints. Iris dark gray.

A.N.S.P., No. 65543. Lake Victoria at Kitala, Uganda. August 9 to 16. Length 208 mm. Type. Also No. 65544, same data, paratype. Length 200 mm.

Gnathonemus victoriae Worthington 1929 differs in the head $4\frac{1}{3}$ to 5, eye $2\frac{1}{3}$ to $2\frac{3}{4}$ in interorbital, pectoral 2 in head and reaching ventral origin, and scales 63 to 70. *G. rehni* has shorter pectorals than *G. leopoldianus* Boulenger.

(For Mr. J. A. G. Rehn, zoologist of the Expedition, to whose enterprise and care the scientific results are largely due.)

***Gnathonemus longibarbis* (Hilgendorf).**

Depth $3\frac{2}{3}$ to $3\frac{3}{4}$ (measured from snout tip); head 2 to $3\frac{3}{4}$, width $2\frac{1}{8}$ to $2\frac{1}{4}$. Snout 3 to $3\frac{1}{10}$ in head from snout tip; eye 7 to $7\frac{1}{2}$, $2\frac{1}{4}$ to $2\frac{1}{3}$ in snout, $2\frac{1}{4}$ to $2\frac{1}{2}$ in interorbital; mouth cleft very short, level with middle of eye; mouth width $6\frac{1}{2}$ to 8 in head from snout tip; mandibular appendage $2\frac{1}{2}$ to 3 in rest of head; teeth 4 above, 5 or 6 below, bifid; interorbital $3\frac{1}{8}$ to $3\frac{1}{4}$, moderately high, convex. Gill opening $2\frac{2}{3}$ to $3\frac{1}{4}$ in head from snout tip.

Scales 45 to 48 + 4 or 5 in lateral line; 11 above, 10 to 12 below; 44 predorsal, which more or less indistinct. Caudal mostly scaled, only hind margin naked. Scales with 21 or 22 basal radiating striae, joined with reticulations of which 16 to 18 extend to apical margins; circuli fine, complete.

D. III, 21, 1, first branched ray $2\frac{1}{8}$ to $2\frac{1}{6}$ in head from snout tip, origin of fin little behind anal origin; A. III, 27, 1 or III, 28, 1, first branched ray 2 to $2\frac{2}{3}$; caudal $1\frac{1}{3}$ to $1\frac{2}{3}$, well forked, lobes pointed; least depth of caudal peduncle $4\frac{1}{8}$ to $4\frac{1}{5}$; pectoral $1\frac{1}{2}$ to $1\frac{1}{3}$, rays 1, 9; ventral rays 6, fin $2\frac{1}{2}$ to $2\frac{4}{5}$ in head from snout tip, origin about opposite last fifth of depressed pectoral.

Dark or blackish brown, with obscure olivaceous tints. Iris gray, fins little duller than body.

Two 224 to 238 mm. Lake Victoria at Kitala, Uganda. August 9 to 16. Both females with ova.

***Gnathonemus cyprinoides* (Linnaeus).**

Depth $3\frac{1}{2}$ to $3\frac{1}{2}$; head $3\frac{4}{5}$ to 4, width $1\frac{1}{2}$ to 2. Snout $4\frac{1}{2}$ to $4\frac{2}{3}$ in head from snout tip; eye 6 to $6\frac{2}{3}$, $1\frac{1}{4}$ to $1\frac{1}{2}$ in snout, $2\frac{1}{4}$ to $2\frac{2}{3}$ in interorbital; mouth cleft very short, level with middle of eye, width $4\frac{1}{2}$ in head from snout tip; teeth 3 above, 5 below; mandible with fleshy cushion-like pad; interorbital $2\frac{4}{5}$ to 3, elevated, convex. Gill opening $2\frac{2}{3}$.

Scales 46 to 56 + 4 in lateral line; 14 or 15 above, 13 to 15 below; 48 to 52 predorsal forward to head. Caudal with $\frac{2}{3}$ basally scaled. Scales little enlarged on caudal peduncle. Scales with 9 basal radiating striae, joined with several reticulations of which 7 or 8 reach apical edge; circuli fine, complete.

D. III, 24, 1 to III, 26, 1, first branched ray $1\frac{3}{8}$ to 2 in head from snout tip, origin little behind anal origin; A. III, 31, 1 or III, 32, 1, first branched ray $1\frac{3}{4}$ to $1\frac{7}{8}$; caudal $1\frac{1}{5}$ to $1\frac{1}{3}$, forked, lobes pointed; least depth of caudal peduncle $3\frac{2}{3}$ to $4\frac{1}{3}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$, rays 1, 10; ventral rays 6, fin inserted opposite last fifth of pectoral, length 2 to $2\frac{2}{3}$ in head from snout tip.

Back brown, sides and below paler, evidently whitish. Entire upper surface with scattered, small, dark brown spots, producing a mottled appearance. Sides of head with very numerous small, close-set dark brown dots, fewer and more sparse on under surface of head. Iris gray. Mandibular pad above brown like lips, below whitish. Fins all pale or very light brown. With age body darker, small spots on head and body more numerous and crowded. Also vertical fins with scattered dark spots.

One 117 mm. Thirty kilometers east of Kribi, Cameroons.

Six 101 to 192 mm. Batangafo, Ubangi-Shari.

Mormyrus kannume Forskål.

Depth $3\frac{4}{5}$ to 4; head $3\frac{1}{2}$ to $3\frac{2}{3}$, width $2\frac{1}{8}$ to $2\frac{1}{5}$. Snout $2\frac{1}{3}$ to $2\frac{1}{2}$ in head from snout tip; eye $6\frac{1}{2}$ to $9\frac{2}{3}$, $2\frac{2}{3}$ to $3\frac{4}{5}$ in snout, $1\frac{1}{2}$ to $2\frac{1}{4}$ in interorbital; orbit $7\frac{3}{4}$ to $7\frac{4}{5}$ in head from snout tip, $3\frac{1}{4}$ to $3\frac{2}{3}$ in snout; mouth small, lower jaw slightly protruded; mouth width $7\frac{4}{5}$ to 9 in head from snout tip; teeth 5 or 6 above, 7 or 8 below, bifid; interorbital 4 to 5, well elevated, convex. Gill opening 3 to $3\frac{1}{8}$ in head from snout tip.

Scales 81 to 83 + 3 or 4 in lateral line; 28 to 30 above, 25 below; predorsal naked medially along its course. Caudal largely scaled, only hind border naked. Scales with 14 or 15 basal radiating striae, connected by coarse reticulations apically, of which 8 or 10 reach apical edge; circuli fine.

D. III, 55, 1 to III, 60, 1, fin height $3\frac{2}{3}$ to $3\frac{3}{4}$ in head from snout tip, inserted little before ventral origin; A. III, 16, 1 or III, 17, 1, first branched ray $2\frac{2}{3}$ to $2\frac{5}{6}$; caudal $1\frac{1}{3}$ to $1\frac{1}{2}$, forked, lobes rather broad and upper little longer; least depth of caudal peduncle 5; pectoral $1\frac{3}{8}$ to $1\frac{3}{4}$, rays 1, 13, not quite reaching to or extending slightly beyond ventral origin; ventral rays 6, fin $2\frac{1}{4}$ to $2\frac{2}{3}$ in head from snout tip.

Dark brown to brownish olive. Iris gray. Under surface of head and belly little paler in some young specimens. Fins brownish, sometimes little paler than body. Hind anal and caudal edge sometimes pale.

Eight 220 to 320 mm. Lake Victoria at Kitala, Uganda.

CHARACIDAE

Hydrocyonoides odoc (Bloch).

One 135 mm. Fort Sibut, Ubangi-Shari; one 114 mm. thirty kilometers east of Kribi, Cameroons.

Hydrocynus vittatus (Castelnau).

Depth 4 to $4\frac{1}{5}$; head $3\frac{1}{2}$ to 4, width 2 to $2\frac{2}{3}$. Snout 3 to $3\frac{1}{2}$ in head from snout tip; eye 4 to 5, $1\frac{1}{8}$ to $1\frac{3}{8}$ in snout, 1 to $1\frac{3}{4}$ in interorbital; adipose eyelids broad; maxillary reaches $\frac{1}{3}$ to $\frac{1}{4}$ in eye, length $2\frac{1}{2}$ to $2\frac{2}{3}$ in head from snout tip; row of 10 large outer canines in each jaw; interorbital $2\frac{7}{8}$ to $3\frac{3}{4}$, low, nearly level; broad suborbitals cover cheek, with fine striae; opercle striate. Gill rakers 5 + 8 to 10, lanceolate, $1\frac{1}{3}$ in gill filaments, which 2 in eye.

Scales 40 to 42 + 2 or 3 in lateral line; 8 above, 3 or 4 below to ventral origin, 3 or 4 below to anal origin; 18 to 20 predorsal. Caudal base scaled. Scales on breast large. Pointed axillary ventral scale $2\frac{1}{3}$ to $2\frac{2}{3}$ in ventral fin. Scales with 2 close-set basal radiating striae; circuli fine, basal, obsolete apically.

D. III, 8, 1, first branched ray $1\frac{1}{3}$ to $1\frac{2}{3}$ in total head length, fin origin above or little in advance of ventral origin; adipose fin 3 to $3\frac{2}{3}$; A. III, 12, 1, first branched ray 2; caudal $3\frac{1}{3}$ to $3\frac{2}{3}$ in rest of fish, widely forked, slender lobes pointed; least depth of caudal peduncle 3 to $3\frac{2}{3}$ in total head length; pectoral $1\frac{1}{2}$ to $1\frac{3}{4}$, rays 1, 13; ventral rays 1, 8; fin $1\frac{1}{3}$ to $1\frac{2}{3}$ in total head length.

Light brown, paler below, evidently whitish in life. Each row of scales with dark brown narrow median band or following longitudinally. Iris gray. Fins pale, tip of dorsal dark gray. Adipose fin with dark blotch above. Young with gray underlaid axial band on side of tail, most distinct posteriorly or on side of caudal peduncle.

One 334 mm. Lake Victoria at Kitala, Uganda; five 88 to 110 mm. Batangafo, Ubangi-Shari.

Brycinus macrolepidotus (Valenciennes).

Depth $4\frac{1}{3}$; head $4\frac{1}{3}$, width $1\frac{9}{10}$. Snout 3 in head, slightly protruding; eye 5, $1\frac{3}{4}$ in snout, $2\frac{1}{3}$ in interorbital, without adipose lids; maxillary reaches $\frac{4}{5}$ to eye, length $3\frac{1}{3}$ in head; teeth 10 in outer upper row and 10 in inner, lower with 10 outer and 2 inner; interorbital $2\frac{1}{2}$ in head, moderately high and broadly convex; suborbitals broad, cover cheek except narrow naked strip above curve of preopercle ridge. Gill rakers 15 + 20, slender, $2\frac{1}{2}$ in gill filaments which $1\frac{1}{5}$ in eye.

Scales 24 + 2 in lateral line; 2 below to ventral, 2 below to anal; 12 predorsal. Scales moderate on breast. Caudal base scaled. Anal with basal row of 8 low scales. Ventral with axillary scale 3 in fin. Scales with 3 or 4 basal radiating striae from scale center and 4 incomplete auxiliaries; 10 radiating apical striae, with reticulations; circuli fine, little coarser and parallel apically.

D. II, 8, 1, first branched ray $1\frac{1}{4}$ in head; adipose fin $5\frac{3}{4}$; A. III, 13, 1, first branched ray $1\frac{1}{2}$; caudal $3\frac{1}{4}$ in rest of fish, slender lobes elongate and pointed; pectoral $1\frac{1}{5}$ in head, rays 1, 12; ventral rays 1, 8, fin $1\frac{1}{3}$ in head.

Brown, base of each scale pocket darker. Iris brownish. Sides of head with silvery reflections. Fins brownish.

One 328 mm. Lake Victoria at Kitala, Uganda.

Brycinus nurse (Rüppell).

Depth $2\frac{7}{8}$ to $3\frac{1}{8}$; head $3\frac{3}{8}$ to 4, width $1\frac{3}{4}$ to $1\frac{7}{8}$. Snout $3\frac{1}{2}$ to $3\frac{3}{4}$ in head; eye 4, 1 to $1\frac{1}{4}$ in snout, $1\frac{2}{3}$ to $1\frac{4}{5}$ in interorbital, with narrow marginal lid; maxillary reaches $\frac{7}{8}$ to or to eye, length $3\frac{1}{4}$ to $3\frac{1}{2}$ in head; upper outer teeth 8 and 8 in inner row, lower outer row 8 and 2 in inner row; interorbital $2\frac{1}{4}$ to $2\frac{3}{4}$ in head, moderately low, broadly convex; suborbitals broad, cover cheek. Gill rakers 11 + 16, small, slender, lanceolate, 2 in gill filaments, which $1\frac{2}{3}$ in eye.

Scales 27 or 28 + 2 in lateral line; 6 above, 2 below to ventral, 3 below to anal; 12 predorsal. Caudal base scaly. Row of 11 or 12 low scales along anal base. Ventral with axillary scale $2\frac{2}{3}$ to $2\frac{1}{2}$ in fin. Scales with 3 basal

radiating striae from scale center and 4 apically branched until 8 to 10 branches reach scale edge; circuli fine, little coarser and irregular apically.

D. II, 8, 1, inserted behind ventral origin, first branched ray $1\frac{1}{10}$ to $1\frac{1}{4}$ in head; adipose fin $4\frac{1}{3}$ and $4\frac{2}{3}$; A. III, 11, 1 to III, 15, 1, first branched ray $1\frac{1}{5}$ to 2; caudal $3\frac{2}{5}$ to $3\frac{3}{5}$ in rest of fish, forked, lobes pointed; least depth of caudal peduncle $2\frac{1}{4}$ in head; pectoral $1\frac{1}{5}$ to $1\frac{1}{2}$, rays I, 11; ventral rays I, 8, fin $1\frac{2}{5}$ to $1\frac{1}{2}$ in head.

Back brown to dull olivaceous, lower and under surfaces whitish. Iris dull brownish. Blackish blotch, little less than eye and level with it close behind gill opening. Large blackish blotch at caudal base and on caudal peduncle twice as long as eye. Fins all dull, dorsal and caudal little grayish marginally.

One 138 mm. Batangafo, Ubangi-Shari; seven 183 to 210 mm. Lake Victoria at Kitale, Uganda.

Brycinus longipinnis (Günther).

Depth $2\frac{1}{3}$ to 3; head $3\frac{1}{4}$ to $3\frac{3}{5}$, width 2 to $2\frac{1}{5}$. Snout $3\frac{2}{5}$ to $3\frac{3}{5}$ in head; eye 3 to $3\frac{1}{10}$, greatly exceeds snout, 1 to $1\frac{1}{5}$ in interorbital; maxillary reaches eye, expansion 3 in eye, length $2\frac{2}{5}$ to $2\frac{3}{4}$ in head; teeth 6 above in outer series and 8 in inner row, below 8 in outer and 2 in inner row; interorbital $2\frac{4}{5}$ to $3\frac{1}{5}$ in head; suborbitals cover cheek. Gill rakers 10 + 16, lanceolate $1\frac{1}{2}$ in gill filaments, which 2 in eye.

Scales 23 or 24 + 2 in lateral line; 6 above, 3 below to ventral, 3 below to anal; 11 or 12 predorsal. Ventral axillary scale 3 in fin. Caudal base scaly. Scales moderate on breast. Row of 10 to 11 low scales along anal base. Scales with 4 basal radiating striae from scale center and 4 apically; circuli fine, little coarser to obsolete apically.

D. II, 7, 1 or II, 8, 1, longest rays all ending in long slender free filaments, reaching base of caudal or little beyond in largest examples, fin inserted little behind ventral origin; A. III, 17, 1 to III, 19, 1, third branched ray 2 to $2\frac{1}{5}$ in head; caudal $3\frac{1}{5}$ to $4\frac{1}{4}$ in rest of fish, deeply forked, lobes sharply pointed; least depth of caudal peduncle $2\frac{2}{5}$ to $2\frac{1}{2}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{3}$, rays I, 12; ventral I, 7, first branched ray ending in short filament, reaching little beyond front of anal, fin $1\frac{1}{10}$ to $1\frac{1}{5}$ in head.

Back brown, sides and below silvery white. Iris rather warm brown. Large black blotch longitudinally, broad, along side of caudal peduncle and reflected out on median caudal rays. Tail above anal base bright vermilion, fading pale above and forwards. Dorsal with each ray warm orange brown basally, fin terminally gray to blackish gray. Adipose fin blackish. Caudal with each lobe orange basally, as orange red tinge along upper side of caudal peduncle in some specimens. Anal base vermilion, grayish medially and terminally. Pectoral gray. Ventral whitish basally and on inner rays, fin otherwise gray black. Gray humeral blotch on third and fourth scale behind suprascapula.

Twelve 78 to 111 mm., thirty kilometers east of Kribi, Cameroons.

Brycinus imberi (Peters).

Depth $2\frac{2}{5}$ to $2\frac{7}{8}$; head $2\frac{7}{8}$ to 3, width 2 to $2\frac{1}{5}$. Snout $3\frac{1}{5}$ to $3\frac{2}{5}$ in head; eye $3\frac{2}{5}$ to $4\frac{1}{5}$, $1\frac{1}{5}$ to $1\frac{1}{3}$ in snout, $1\frac{1}{4}$ to $1\frac{3}{4}$ in interorbital, only narrow bordering or marginal adipose like rim; maxillary reaches $\frac{3}{4}$ to $\frac{4}{5}$ to eye, length $3\frac{1}{5}$

to $3\frac{2}{3}$ in head; teeth 8 in each row above and 8 in outer lower row and 2 in inner; interorbital $2\frac{1}{3}$ to $2\frac{3}{4}$, rather low, broadly convex; suborbitals cover cheeks. Gill rakers 9 + 18, slender, lanceolate, $1\frac{2}{3}$ in gill filaments, which $1\frac{3}{4}$ in eye.

Scales 22 or 23 + 2 in lateral line; 5 above, 3 below to ventral, 3 below to anal; 9 or 10 predorsal. Scales moderately large on breast. Pointed axillary ventral scale $2\frac{1}{4}$ to 3 in fin. Caudal base scaly. Anal with 3 rows of small basal scales. Scales with 4 basal radiating striae; apically along margins 8 to 10 well spaced striae, continuous with median reticulate area; circuli fine, little coarser apically.

D. II, 7, I or II, 8, I, first branched ray $1\frac{1}{3}$ to $1\frac{1}{2}$ in head; adipose fin $4\frac{1}{5}$ to $4\frac{1}{4}$; A. III, 13, I to III, 15, I, second ray $2\frac{2}{5}$ to $2\frac{1}{2}$; caudal $2\frac{3}{4}$ to 3 in rest of fish, fin deeply emarginate and lobes pointed; least depth of caudal peduncle 3; pectoral $1\frac{1}{3}$ to $1\frac{2}{3}$, rays I, 15; ventral rays I, 8, fin $1\frac{2}{5}$ to $1\frac{3}{4}$ in head.

Pale or light brown generally, evidently whitish in life, with back and top of head only slightly olivaceous. Dark gray blotch level with eye two scales deep and one scale wide. Base of caudal and fin with large, dark gray median blotch, larger than eye and reflected out over median caudal rays. Dorsal, adipose fin, caudal and anal grayish terminally. Iris dark gray.

Twenty 46 to 83 mm. Fort Sibut, Ubangi-Shari. Differ from Boulenger's figure in having the black spot at the caudal base reflected out as blackish on median caudal rays.

Alestes baremose (Joannis).

Depth $4\frac{2}{3}$; head $5\frac{1}{2}$, width 2. Snout 4 in head; eye 4, 1 in snout, $1\frac{1}{3}$ in interorbital, adipose lids broadly covering iris; maxillary reaches $\frac{2}{3}$ to eye, length $3\frac{2}{3}$ in head; upper teeth 6 in outer row and 8 in inner row, lower 8 in outer row and 2 in inner row; interorbital $3\frac{1}{4}$, low, broadly convex; suborbitals broadly cover cheek, leave only narrow naked strip in arch before preopercle ridge. Gill rakers 25 + 38, finely lanceolate, equal gill filaments, which $1\frac{1}{2}$ in eye.

Scales 38 + 3 in lateral line, 10 above, 2 below to ventral, 3 below to anal; 24 predorsal. Scales moderate on breast and caudal base. Axillary ventral scale $2\frac{2}{3}$ in ventral. Anal base with low, basal scaly sheath. Scales each with single basal radiating stria and 4 or 5 apical, none reaching common center of scale; circuli fine, obsolete or absent apically.

D. III, 8, first branched ray $1\frac{1}{3}$ in head, fin inserted opposite middle of depressed ventral; A. III, 25, I, first branched ray $1\frac{2}{3}$; least depth of caudal peduncle $2\frac{1}{3}$; pectoral $1\frac{1}{3}$, rays I, 11; ventral I, 8, fin $1\frac{2}{3}$ in head; caudal $3\frac{2}{3}$ in rest of fish, widely forked and slender lobes sharply pointed.

Back dark slate brown, sides and below paler or more brownish, evidently whitish in life. Eye gray. Fins brownish, lower all lighter.

One 320 mm. Lake Albert at Kasenyi, Belgian Congo. Caught on line.

Alestes abeli new species. Figure 8.

Depth 3 to $3\frac{2}{3}$; head $2\frac{2}{3}$ to 3, width $2\frac{2}{3}$ to $2\frac{1}{2}$. Snout $4\frac{1}{3}$ to $4\frac{1}{4}$ in head from snout tip; eye $3\frac{1}{3}$ to $3\frac{1}{4}$, greater than snout, subequal with interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{4}{5}$ in snout, length $3\frac{1}{3}$ to 4 in head; lips rather thick,

especially lower; interorbital $3\frac{1}{3}$ to $3\frac{2}{5}$, low, broadly convex; suborbitals broad, cover cheek. Gill rakers 11 + 19, finely lanceolate, long as gill filaments or $1\frac{1}{5}$ in eye.

Scales 22 to 24 + 2 in lateral line; 4 or 5 above, 2 or 3 below to ventral, 3 below to anal; 10 predorsal. Scales moderately large on breast. Caudal base scaly. Anal base with 2 or 3 rows of narrow scales. Scales with 6 or 7 basal radiating striae and 5 to 8 apically, all radiating from a common center; circuli moderate, little coarser apically.

D. II, 7, I, first branched ray $1\frac{2}{5}$ to $1\frac{1}{2}$ in total head length; adipose fin $4\frac{1}{8}$ to $4\frac{1}{4}$; A. III, 12, I, first branched ray $1\frac{1}{5}$ to $2\frac{1}{4}$; caudal 1 to $1\frac{1}{5}$, deeply emarginate; least depth of caudal peduncle 3 to $3\frac{2}{5}$; pectoral $1\frac{2}{5}$ to $1\frac{3}{5}$, rays I, 15; ventral rays I, 8, fin inserted little before dorsal, length $1\frac{1}{4}$ to 2 in total head length.

Pale brownish, lower surfaces paler, evidently whitish in life. A slightly darker axial line on side of body, most distinct along side of tail. No dark shoulder spot. Blackish blotch, elongate, on caudal peduncle and caudal base, little longer than eye and continued on median fin rays of caudal nearly to their middle. Fins otherwise all pale, only slightly grayish terminally. Some specimens with ends of longest dorsal and anal rays dusky or even blackish. Iris gray.

A.N.S.P., No. 65545. Fort Sibut, Ubangi-Shari. Length 63 mm. Type.

Also Nos. 65546 to 65549, same data, paratypes. Length 54 to 59 mm.

Apparently closely related to *Alestes humilis* Boulenger from Angola. That species is described and figured with the dorsal and ventral origins opposite or at the same vertical line. The dorsal if depressed would reach $1\frac{1}{2}$ times to the adipose fin, while in my specimens it reaches $1\frac{1}{5}$ times. Moreover the black caudal blotch is better defined and definite, not only on the caudal peduncle, but on the base of the caudal fin as well.

(For M. Henri Abel, Administrator at Fort Sibut, who developed native interest and materially assisted the expedition.)

Micralestes rochefoucauldi new species. Figure 23.

Depth $2\frac{2}{5}$ to $2\frac{1}{2}$; head $3\frac{1}{4}$ to $3\frac{1}{3}$, width $2\frac{1}{5}$ to $2\frac{1}{4}$. Snout 4 in head from snout tip; eye $2\frac{2}{5}$ to $2\frac{1}{2}$, greatly exceeds snout or interorbital; maxillary reaches $\frac{4}{5}$ to eye, length 3 in head from snout tip; teeth 8 above in outer series and 8 in inner series, lower with row of 8 outer and 2 inner; interorbital $3\frac{1}{4}$ to $3\frac{1}{2}$, low, broadly convex; suborbitals cover cheek. Gill rakers 7 + 12, lanceolate, $\frac{2}{3}$ of gill filaments, which $1\frac{1}{5}$ in eye.

Scales 21 to 23 + 2 in lateral line; 5 above, 3 below to ventral, 3 below to anal; 9 predorsal. Scales moderate on breast. Caudal base scaled. Anal with low basal scaly sheath, formed of small scales, deepest anteriorly. Axillary ventral scale $2\frac{2}{3}$ in fin. Lateral line complete. Scales with 4 basal radiating striae and 5 apical, all radiating from common reticulated center; circuli fine, basal, none apical.

D, II, 7, I, first branched ray $1\frac{1}{10}$ in total head length; adipose fin $3\frac{1}{2}$ to 4; A. III, 24, I to III, 26, I, third branched ray 1 to $1\frac{3}{4}$; caudal 3 to $3\frac{1}{5}$ in rest of fish, well emarginate; least depth of caudal peduncle $2\frac{2}{5}$ to 3 in total head length; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$, rays I, 13; ventral rays I, 7, inserted little before dorsal origin, fin $1\frac{1}{2}$ in total head length.

Light or pale brown, evidently largely whitish on sides and lower surfaces in life. Iris gray. Below and before adipose fin, for extent of 3 scales, blackish blotch, above lateral line and mostly below axial line of side of body. A very pale, inconspicuous, vertical gray bar, slightly inclined, and level with eye, also 2 or 3 scales behind head. Dark axial line on side of tail. Fins all pale.

A.N.S.P., No. 65549. Fort Sibut, Ubangi-Shari. Length 65 mm. Type.

Also Nos. 65550 and 65551, same data, paratypes. Length 39 to 46 mm.

Somewhat like *Micralestes altus* Boulenger, but less deep and the dark caudal spot advanced and lower.

(For the Viscount Sosthenes de la Rochefoucauld, a member of the expedition who contributed much toward the comprehensiveness of the zoological collections.)

Micralestes stigmatura new species. Figure 9.

Depth $2\frac{2}{5}$; head 3, width $2\frac{1}{3}$. Snout $5\frac{1}{5}$ in head from snout tip; eye 3, greater than snout, subequal with interorbital; maxillary vertical, reaches $\frac{3}{4}$ to eye, length $4\frac{1}{8}$ in head from snout tip; teeth 8 above in outer row and 8 in inner row, lower 8 in outer row and 2 in inner row; interorbital $3\frac{1}{5}$, low, broadly convex; suborbitals broad, cover cheek; occipital fontanel broad, well developed, extends forward opposite center of eye. Gill rakers 6 + 11, lanceolate, slender, $1\frac{1}{4}$ in gill filaments, which $2\frac{2}{3}$ in eye.

Scales 18 + 2 in median lateral series; 8 tubular scales in incomplete lateral line which only extends till above ventral; 8 scales transversely between dorsal and anal origins; 9 predorsal. Ventral with pointed axillary scale 3 in fin. Anal with basal scaly sheath, formed of row of 10 small scales. Scales with 3 basal radiating striae and 4 apical, all joined to a common center; circuli fine, basal, none apical.

D. II, 8, I, inserted behind ventral base, first branched ray $1\frac{1}{10}$ in total head length, when depressed reaches almost to adipose fin; adipose fin $4\frac{1}{4}$ in total head length; A. III, 18, I, fin height medially $2\frac{1}{2}$; caudal $1\frac{1}{2}$, emarginate; least depth of caudal peduncle $2\frac{2}{3}$; pectoral $1\frac{1}{2}$, rays 1, 12; ventral I, 8, fin $1\frac{3}{4}$ in total head length.

Brownish, little paler below. Dorsal and anal largely dark gray, latter broadly pale marginally. Black spot, size of pupil, at base of lower caudal lobe.

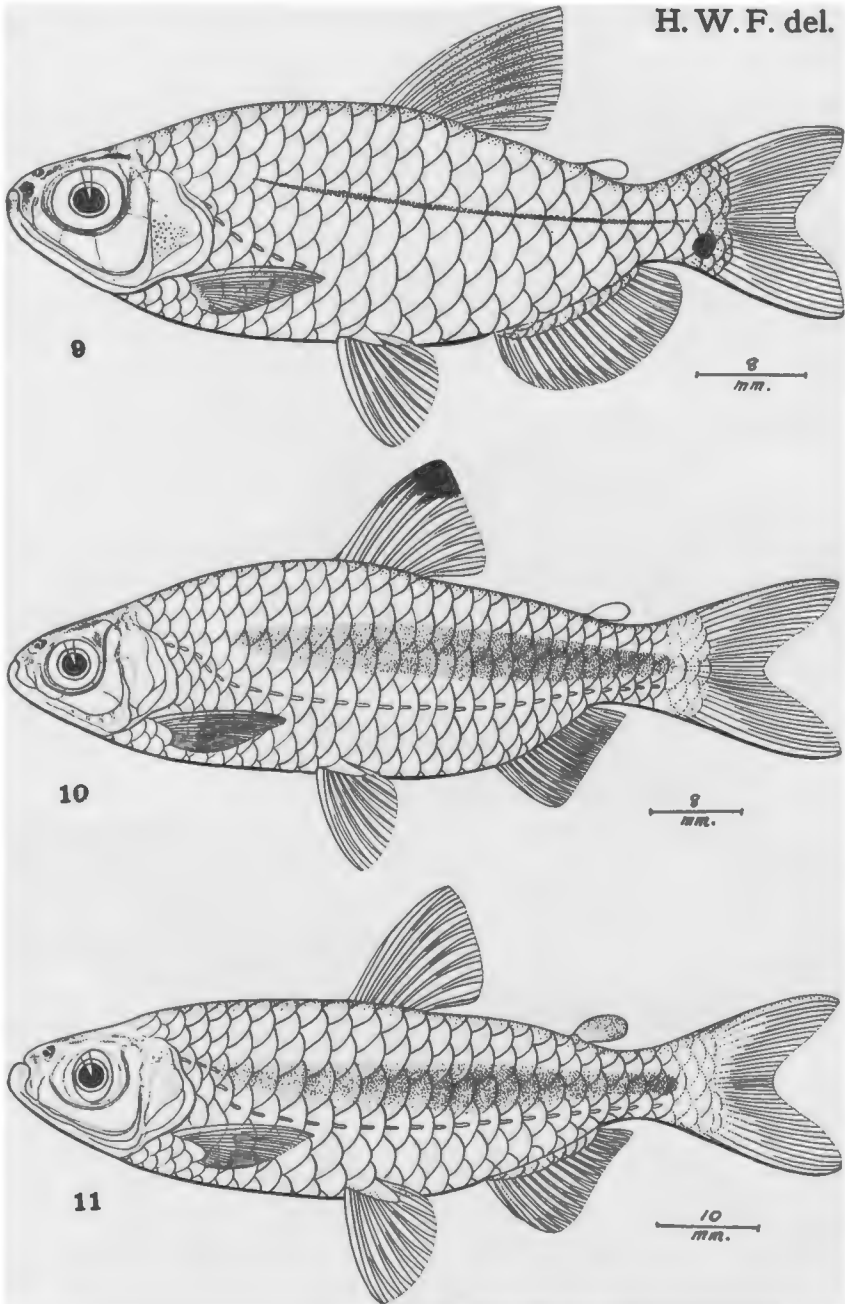
A. N. S. P., No. 65551. Thirty kilometers east of Kribi, Cameroons. Length 54 mm. Type.

Close to *Micralestes interruptus* Boulenger, from the upper Congo, but differing chiefly in a deeper body and the black spot at the base of the lower caudal lobe.

(στίγμα spot + ούρά tail.)

Micralestes acutidens (Peters). Figure 10.

Depth 3 to $3\frac{1}{5}$; head $3\frac{1}{2}$ to $3\frac{2}{3}$, width $2\frac{1}{4}$ to $2\frac{2}{5}$. Snout 4 to 5 in head from snout tip; eye 3 to $3\frac{1}{3}$, greater than snout or interorbital; maxillary reaches $\frac{4}{5}$ to eye, length $3\frac{1}{2}$ to $4\frac{1}{3}$ in head from snout tip; above row of 6 outer teeth and 8 inner, below row of 8 outer and 2 inner; interorbital 3, low, broadly convex; suborbitals wide, cover cheek. Gill rakers 9 + 14, lanceolate, slender, $\frac{1}{2}$ of gill filaments, which $1\frac{1}{5}$ in eye.



9. *Micralestes stigmatura*. 10. *Micralestes acutidens*.
11. *Micralestes stormsi*.

Scales 23 to 25 + 1 or 2 in lateral line; 5 above, 2 or 3 below to ventral, 2 below to anal, 9 to 12 predorsal. Scales moderate on breast and belly. Caudal base scaly. Ventral with pointed axillary scale, $2\frac{1}{2}$ in fin. Scales with single basal radiating stria and 4 apical, all meeting in common center; circuli fine, basal, obsolete or absent apically.

D. II, 7, I, inserted slightly behind ventral origin, first branched ray $1\frac{1}{4}$ to $1\frac{1}{2}$ in total head length; adipose fin 4 to $4\frac{1}{2}$; A. II, 15, I or II, 16, I, first branched ray $2\frac{1}{8}$ to $2\frac{3}{8}$; caudal $3\frac{1}{4}$ to $3\frac{1}{2}$ in rest of fish, deeply emarginate; least depth of caudal peduncle $2\frac{3}{8}$ to $3\frac{3}{8}$; pectoral $1\frac{1}{4}$, rays I, 12; ventral rays I, 7, fin $1\frac{2}{8}$ to $1\frac{3}{4}$ in total head length.

Pale brown generally, sides and lower surfaces pale to whitish. Iris grayish. A rather broad, dark brown axial lateral band, most distinct on tail and less in width than eye. Fins all pale to whitish, tip of dorsal contrasted black.

Six 41 to 74 mm. Fort Sibut, Ubangi-Shari; five 35 to 44 mm. Batangafo; three 25 to 38 mm., thirty kilometers east of Kribi, Cameroons.

Micralestes stormsi Boulenger. Figure 11.

Depth $3\frac{1}{3}$ to $3\frac{2}{3}$; head $3\frac{2}{3}$ to $3\frac{1}{2}$, width 2 to $2\frac{1}{4}$. Snout $3\frac{3}{4}$ to 4 in head from snout tip; eye 3 to $3\frac{1}{3}$, greater than snout, subequal with interorbital and with moderately broad adipose lids; maxillary vertical, reaches $\frac{3}{4}$ to eye, length $3\frac{3}{4}$ to 4 in head from snout tip; above 8 teeth in outer row and 8 in inner, below 8 in outer row and 2 in inner; interorbital $2\frac{2}{3}$ to $3\frac{1}{2}$, low, broadly convex; rather broad, well developed occipital fontanel extends forward opposite middle of eye; suborbitals broad, cover cheek. Gill rakers 8 + 11, lanceolate, $1\frac{1}{2}$ in gill filaments, which 2 in eye.

Scales 21 to 23 + 2 in lateral line; 5 above, 2 below to ventral, 2 below to anal; 11 or 12 predorsal. Scales on breast moderate. Caudal base scaly. Axillary ventral scale $2\frac{1}{8}$ in fin. Anal with basal row of 8 low scales, form narrow sheath. Scales with 3 basal and 3 apical radiating striae, all meeting in a common center; circuli fine, basal, none apical.

D. II, 7, I or II, 8, I, origin of fin opposite ventral origin, first branched ray $1\frac{1}{8}$ to $1\frac{1}{4}$ in total head length; adipose fin 3 to $3\frac{1}{8}$; A. II, 15, I to II, 17, I, second branched ray $2\frac{1}{8}$ to $2\frac{1}{4}$; caudal 1, deeply emarginate; least depth of caudal peduncle $2\frac{3}{8}$ to $2\frac{7}{8}$; pectoral $1\frac{1}{4}$ to $1\frac{3}{8}$, rays I, 12; ventral rays I, 7, fin $1\frac{2}{8}$ to $1\frac{1}{2}$ in total head length.

Pale brown, evidently largely whitish in life, especially under and lower sides. Dark or brownish axial lateral band, most distinct and widest posteriorly or above vent. Iris gray. Fins pale. Upper edge of adipose fin dark gray.

One hundred and ninety-one 33 to 82 mm. Fort Sibut, Ubangi-Shari.

I may note that *Hemigrammalestes* Pellegrin 1926 (type *Micralestes urotaenia* Boulenger) and *Hemigrammopetersius* Pellegrin 1926 (type *Petersius pulcher* Boulenger) are synonyms of *Micralestes* Boulenger.

Micralestes hilgendorfi Boulenger. Figure 12.

Depth $2\frac{1}{3}$ to $3\frac{1}{4}$; head $3\frac{1}{4}$ to $3\frac{3}{8}$, width $2\frac{1}{3}$ to $2\frac{1}{2}$. Snout $3\frac{3}{8}$ to $3\frac{7}{8}$ in head from snout tip; eye 3 to $3\frac{1}{3}$, greater than snout, subequal with interorbital; maxillary vertical, reaches $\frac{2}{3}$ to $\frac{3}{4}$ in snout, length $3\frac{3}{8}$ to $4\frac{1}{4}$ in head from snout tip; above 4 teeth in outer row as 2 approximated each side and 8 in

inner row, lower single row of 8 large teeth; interorbital $3\frac{1}{8}$ to $3\frac{1}{4}$, low, broadly convex; occipital fontanel broad, extends forward opposite first fourth of eye; suborbitals broad, cover cheek. Gill rakers 8 + 16, lanceolate, slender, subequal with gill filaments, which 3 in eye.

Scales 30 or 31 + 2 in lateral line; 7 above, 3 below to ventral, 3 below to anal. Scales moderate on breast and belly. Caudal base scaly. Axillary ventral scale $3\frac{1}{2}$ to 4 in fin. Anal with basal scaly sheath. Scales with 3 to 6 basal radiating striae and 4 to 6 apically, all meeting in common center; circuli very fine basally, often incomplete or obsolete apically.

D. III, 7, 1 or III, 8, 1, longest rays all ending in slender free filaments reaching back beyond adipose fin or nearly to caudal base, much shorter in young, fin origin above or close behind that of ventral; adipose fin 3 to $3\frac{1}{8}$ in total head length; A. III, 91, 1 or II or III, 20, 1, fin height $2\frac{1}{2}$ to $2\frac{3}{4}$; caudal 3 to $3\frac{3}{8}$ in rest of fish, emarginate; least depth of caudal peduncle $2\frac{3}{8}$ to $3\frac{1}{2}$ in total head length; pectoral $1\frac{1}{8}$ to $1\frac{1}{2}$, rays 1, 12; ventral rays I, 7, fin $1\frac{1}{8}$ to $1\frac{1}{2}$ in total head length.

Brown generally, but little paler below. Dark or blackish vertical blotch level with eye, behind head several scales and 2 or 3 scales deep. Dark axial line on side of body. Fins brownish. Dorsal dark gray to blackish terminally.

Seventeen 42 to 74 mm., thirty kilometers east of Kribi, Cameroons. Boulenger's figure of *Petersius hilgendorfi* in 1899 is shown with a broad dark lateral band, not now evident in my material, and beginning close behind the head. This much more forward if intended for "a vertical black bar above the pectoral."

Micralestes grandis new species. Figure 13.

Depth 3 to $3\frac{1}{4}$; head $3\frac{1}{4}$ to $3\frac{3}{8}$, width $2\frac{2}{5}$. Snout $3\frac{3}{4}$ to 4 in head from snout tip; eye 3 to $3\frac{1}{8}$, greater than snout or interorbital; maxillary extends $\frac{1}{2}$ to $\frac{3}{8}$ in snout, length $3\frac{3}{8}$ to 4 in head from snout tip; teeth above as 6 in outer row and 8 in inner, lower as row of 6 large outer and 2 small inner; interorbital $3\frac{1}{8}$ to $3\frac{3}{8}$, low, broadly convex; suborbitals broad, cover cheek; occipital fontanel long, extends nearly or from opposite front of eye up in occipital extension almost to its hind end. Gill rakers 5 + 16, slenderly lanceolate, subequal with gill filaments, which 2 in eye.

Scales 27 to 31 + 3 in lateral line; 7 above, 3 below to ventral, 3 below to anal; 12 or 13 predorsal. Scales moderately large on breast and belly. Caudal base scaly. Anal with low basal scaly sheath, formed of dozen scales. Ventral with short pointed axillary scale, $\frac{1}{4}$ of fin.

D. II, 7 or II, 8, in adult all longest rays prolonged in long slender filaments, longest reaching little beyond caudal base; adipose fin $3\frac{1}{2}$ to $3\frac{3}{8}$ in total head length; A. II, 21, 1 or II, 22, 1, fin height $1\frac{1}{2}$ to $1\frac{3}{8}$, in young examples branched rays graduated down from first branched rays; caudal 3 to $3\frac{1}{2}$ in rest of fish, emarginate behind and median rays not extended in point posteriorly in young; least depth of caudal peduncle 3 to $3\frac{1}{8}$ in total head length; pectoral $1\frac{1}{2}$ to $1\frac{3}{8}$, rays 1, 10; ventral rays I, 7, fin 1 to $1\frac{3}{8}$ in total head length, inserted opposite or little before dorsal.

Pale brown, apparently sides and below silvery white in life. A dark axial streak along side of body, little expanded behind, or most distinct on side of tail and caudal peduncle; posteriorly it extends to ends of median

caudal rays. A short, dark, inclined from vertical bar, level with eye and 1 to 4 scales behind head. Iris gray. Except as noted above fins pale, though elongated rays of dorsal in type dark to blackish gray.

A.N.S.P., No. 65553. Fort Sibut, Ubangi-Shari. October 1934. Length 45 mm. Type.

Also Nos. 65554 to 65555, same data, paratypes. Length 43 to 47 mm.

Similar to *Micralestes pulcher* (Boulenger) and *M. major* (Boulenger), from the Cameroons, the latter also in the Congo basin. The present species differs from both of the above, or all species of its genus, in its coloration and the dorsal and caudal filaments of the male.

(For M. Albert Grand, Administrator at Nola, Middle Congo, to whom the Expedition was indebted for assistance in accomplishing its objective while in his region.)

CITHARINIDAE

Ichthyoborus besse (Joannis). Figure 14.

Depth 5 to $5\frac{1}{8}$; head $3\frac{1}{5}$ to $3\frac{1}{2}$, width $3\frac{1}{3}$ to $4\frac{1}{4}$. Snout $2\frac{1}{8}$ to $3\frac{1}{2}$ in head; eye 5 to $5\frac{2}{3}$, 2 in snout, 1 to $1\frac{1}{10}$ in interorbital; maxillary nearly or quite reaches eye, length $2\frac{2}{3}$ to 3 in head; row of 18 to 20 teeth each side of upper jaw, 15 or 16 each side of lower; 2 upper front canines, 3 lower; interorbital $5\frac{1}{2}$ to $5\frac{3}{4}$, low, only very slightly convex; suborbitals form narrow rim along lower edge of eye; opercle finely striate; occipital fontanel large, broad, extends from eye to occipital extension, adjacent bones striated. Gill rakers 8 + 11, low, short points, $\frac{1}{4}$ of gill filaments, which $1\frac{2}{3}$ in eye.

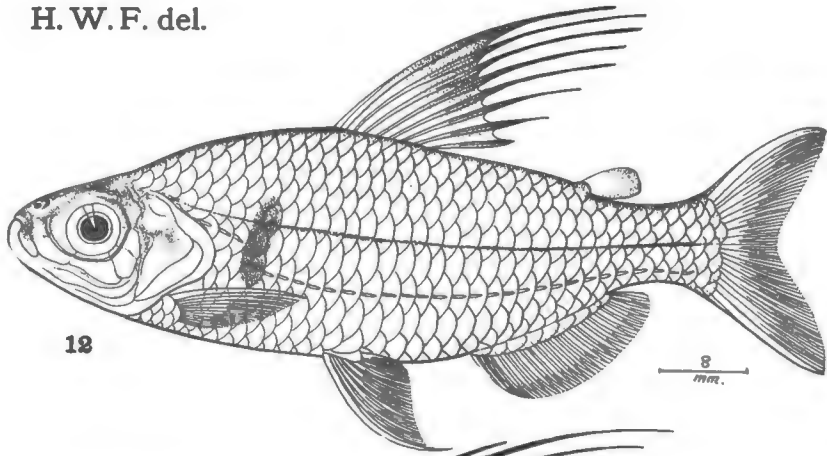
Scales 77 to 88 + 3 or 4 in lateral line; 12 or 13 above, 10 to 12 below to ventral, 10 to 12 below to anal; 34 to 55 predorsal. Scales but little smaller on breast and belly than on rest of fish. Caudal almost entirely covered with fine scales, only its hind edge smooth or naked. Ventral with small pointed axillary scale $\frac{1}{4}$ of fin. Scales without radiating striae; row of 23 or 24 short apical denticles, graduated little smaller each side; circuli fine, with several undulations basally, and apically with coarse horizontal lines.

D. II, 13, I or II, 14, I, first branched ray $1\frac{2}{5}$ to $1\frac{1}{2}$ in head, origin nearly opposite anal origin or little posterior; adipose fin $3\frac{2}{5}$ to $4\frac{2}{5}$; A. III, 12, I, first branched ray $2\frac{1}{3}$ to $2\frac{2}{3}$; caudal $1\frac{1}{4}$ to $1\frac{1}{3}$, deeply emarginate; least depth of caudal peduncle $3\frac{1}{2}$ to $4\frac{1}{4}$; pectoral 2 to $2\frac{1}{3}$, rays I, 12; ventral rays I, 9, fin 2 to $2\frac{1}{5}$ in head.

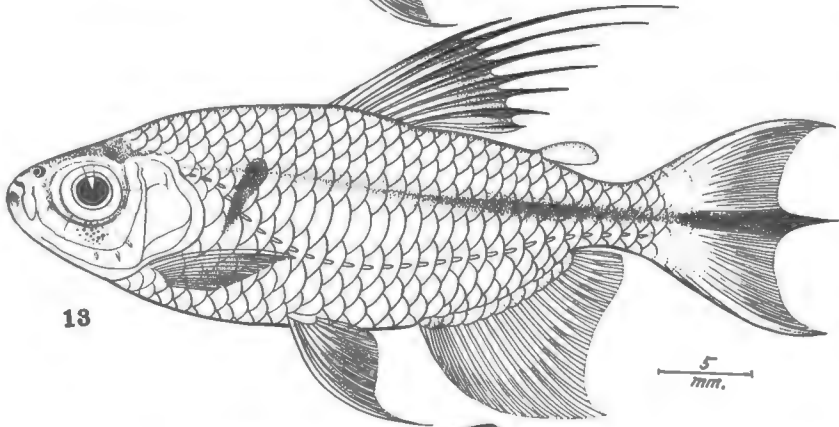
Pale brown, sides and lower surface little lighter. Darker brown streak or ill-defined band along upper side of back, including a row of variable darker markings. Axial on side of body dark longitudinal band embracing lateral line, also including variable dark blotches. Iris gray. Fins all pale brownish, only caudal variegated with black spots and bars. On postocular side of head dark lateral band, distinct in small or young examples.

Four 90 to 134 mm. Batangafo, Ubangi-Shari. *Ra* Whitley 1931 is a synonym of *Ichthyoborus* Günther, not invalidated by *Ichthyoborus* Kaup in birds.

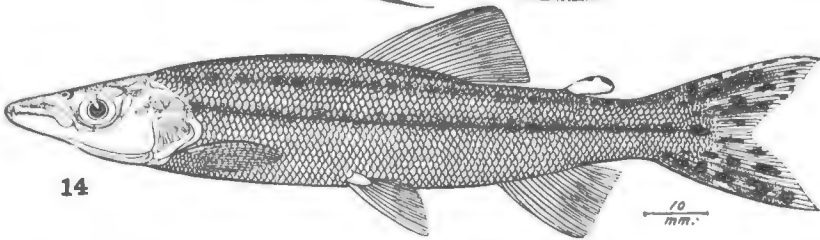
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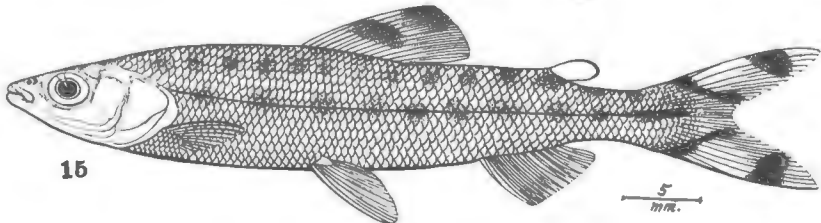
12

8
mm.

13

5
mm.

14

10
mm.

15

5
mm.

12. *Micralestes hilgendorfi*.
14. *Ichthyoborus besse*.

13. *Micralestes grandis*.
15. *Microstomatichthyoborus bashforddeani*.

Microstomatichthyoborus bashforddeani Nichols and Griscom. Figure 15.

Depth 5; head $3\frac{2}{3}$, width $2\frac{2}{3}$. Snout 4 in head; eye 4, subequal with snout, little greater than interorbital; maxillary reaches $\frac{3}{4}$ to eye, length $5\frac{2}{3}$ in head; teeth minute, uniserial in jaws; lips broad, fleshy; interorbital $4\frac{2}{3}$, low, nearly level; suborbitals broad, cover cheek; broad occipital fontanel extends from behind eye back into front of occipital extension. Gill rakers 5 + 9, short, lanceolate, $\frac{1}{2}$ of gill filaments, which $2\frac{1}{3}$ in eye.

Scales 63 + 4 in lateral line; 10 above, 7 below to ventral, 7 below to anal; 23 predorsal. Scales on breast and belly little smaller than on body. Caudal basally with small scales. Ventral with short axillary point. Scales without basal radiating striae; 17 or 18 apical denticles, little smaller laterally, slender, in single row; circuli fine, basally little undulate, become coarse and horizontal apically.

D. III, 10, I, inserted little before ventral origin, first branched ray $1\frac{1}{3}$ in head; adipose fin $3\frac{1}{3}$; A. II, 10, I, first branched ray $2\frac{1}{2}$; caudal 1, deeply forked, lobes sharply pointed; least depth of caudal peduncle 4; pectoral $2\frac{1}{3}$, rays I, 11; ventral I, 8, fin $1\frac{4}{5}$ in head.

Pale brown, apparently light to whitish below. Row of dark obscure blotches along upper side of back and another larger and fewer ones along axial line of head. Iris gray. Fins all pale, with grayish apical blotch and another at front of dorsal. Caudal with narrow blackish band toward base and blackish blotch terminally. Small blackish blotch at middle of caudal base.

One 60 mm. Fort Sibut, Ubangi-Shari.

Tristichodus Boulenger 1920 (type *T. christyi* Boulenger) is a synonym of the present genus and species.

NANNAETHIOPS GüntherSubgenus **NANNAETHIOPS** Günther

Caudal base with rather small scales, not invading over $\frac{1}{4}$ of fin at most. Dorsal origin before ventral.

Nannaethiops unitaeniatus Günther. Figure 17.

Depth 3 to $3\frac{3}{4}$; head $3\frac{1}{5}$ to $3\frac{1}{3}$, width 2 to $2\frac{2}{5}$. Snout $4\frac{2}{5}$ to $4\frac{1}{2}$ in head; eye $3\frac{1}{8}$ to $3\frac{1}{4}$, greatly exceeds snout or interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{3}{4}$ to eye, length $4\frac{1}{5}$ to $4\frac{2}{3}$ in head; jaws about even; interorbital $3\frac{1}{5}$ to $3\frac{2}{5}$, low, broadly convex; suborbitals broad, largely cover cheek or only leave very narrow naked strip in arch of preopercle ridge; occipital fontanel large, broad, extends from opposite front of pupil back into occipital extension. Gill rakers 4 + 9 or 10, lanceolate, 2 in gill filaments, which 2 in eye.

Scales 32 + 2 in lateral series; 12 transversely; 14 predorsal; lateral line of but 6 or 7 tubular scales back from suprascapula. Scales little smaller on breast and belly than on sides of body. Small scale in axil of ventral. Scales without radiating striae; 19 or 20 apical denticles, slender, little smaller toward each side of scale; circuli fine, little undulated basally and coarser apically.

D. III, 11, I, one by atrophy II, 3, origin little before ventral origin, first branched ray $1\frac{1}{3}$ in head; adipose fin $4\frac{1}{3}$ to $4\frac{2}{3}$; A. III, 7, first branched ray $1\frac{4}{5}$ to 2; caudal $2\frac{2}{5}$ to $3\frac{1}{10}$ in rest of fish, deeply forked; least depth of caudal

peduncle $2\frac{2}{5}$ to 3; pectoral $1\frac{7}{8}$ to 2, rays 1, 10; ventral rays I, 7, fin $1\frac{3}{8}$ to $1\frac{1}{2}$ in head.

Dull brown, little paler below, where evidently whitish in life. Iris gray. Black medial or axial lateral band from snout, over postocular to caudal base, where ending in small but more or less distinct black spot, not continued back over median caudal rays. Fins pale, except dark front edge of dorsal.

Two 35 to 37 mm., Batangafo, Ubangi-Shari; twenty-nine 24 to 35 mm., thirty kilometers east of Kribi, Cameroons.

RHABDAETHIOPS new subgenus

Caudal with basal half scaly. Dorsal and anal origins opposite. Five dark lateral longitudinal bands, of which 3 lower ones most distinct and contrasted and extending on head and caudal base.

Type *Nannaethiops tritaeniatus* Boulenger.

(*παβδος* streak + *aethiops*; with reference to the dark bands.)

Nannaethiops tritaeniatus Boulenger. Figure 16.

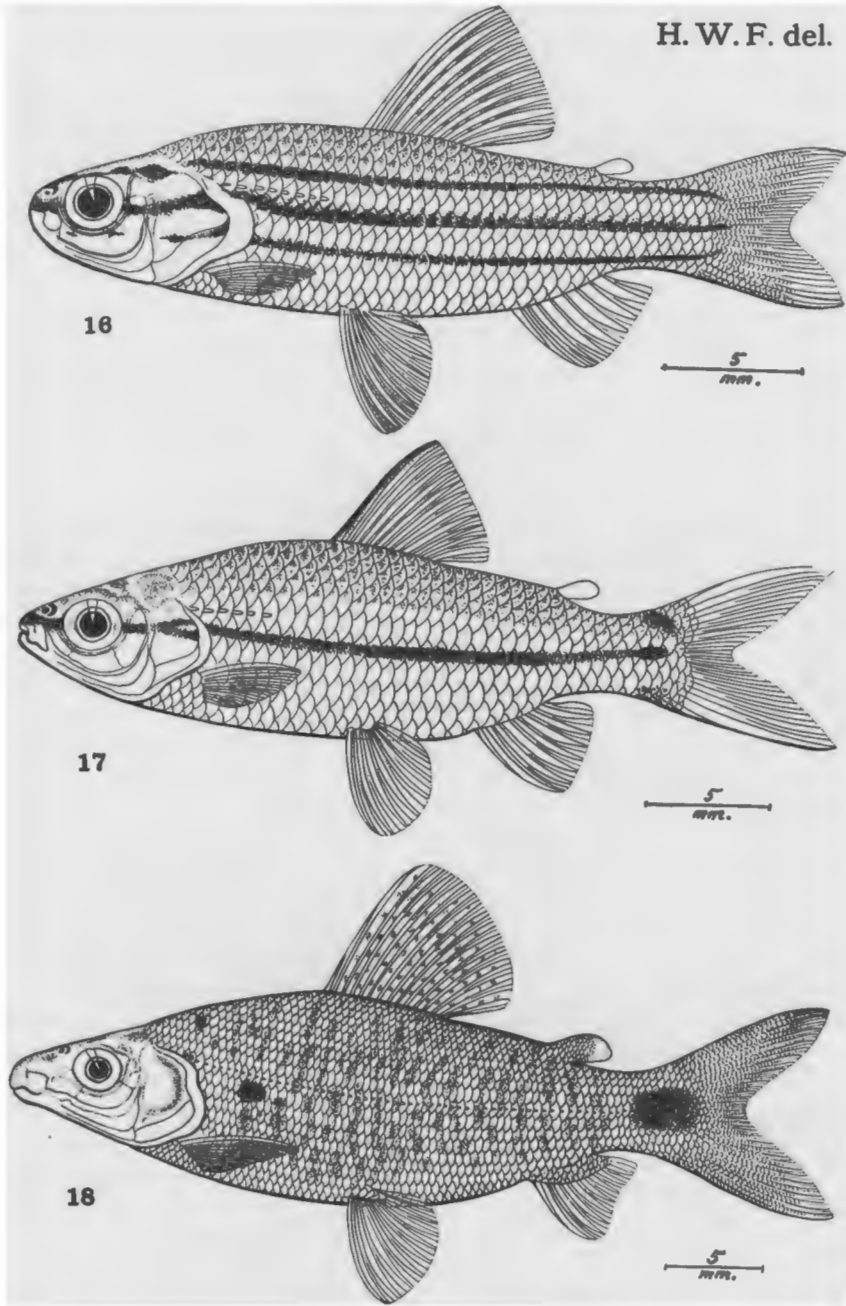
Dorsal $3\frac{3}{8}$; head 3, width $2\frac{1}{8}$. Snout 5 in head; eye $3\frac{2}{3}$, greater than snout, equals interorbital; maxillary reaches opposite front of eye, length 5 in head; interorbital $3\frac{3}{8}$, low, broadly and slightly convex; suborbitals broad, cover cheek; occipital fontanel wide, large, begins opposite front pupil edge and extends into front of occipital extension. Gill rakers 4 + 9, short points, $\frac{1}{3}$ of gill filaments, which $\frac{1}{3}$ of eye.

Scales 32 in lateral series medially to caudal base; lateral line as 8 tubular scales extending from behind suprascapula; 11 scales transversely at dorsal and ventral origins; 14 predorsal. Scales moderately large on breast and belly, though smaller than lateral body scales. Caudal with at least basal half of fin distinctly scaly. Pectoral with small scale in axil. Scales without basal radiating striae; row of 35 or 36 slender apical denticles, slightly larger medially; circuli fine, undulated basally, fewer or coarser apically.

D. II, 10, I, origin opposite ventral origin, first branched ray $1\frac{1}{4}$ in head; adipose fin $5\frac{3}{4}$; A. II, 7, I, first branched ray $2\frac{1}{5}$; caudal $1\frac{1}{4}$, moderately emarginate behind; least depth of caudal peduncle $2\frac{2}{3}$; pectoral 2, rays 1, 10; ventral rays I, 8, fin $1\frac{3}{8}$ in head.

Pale or light brown, sides and under surface pale to whitish, with silvery white reflections. Each scale on back with brownish mark. Blackish brown band from over nostrils and eye back to base of upper lobe of caudal. Median blackish brown band from snout end, over postocular to caudal base. Third or lower blackish brown band from lower eye edge back to base of lower caudal lobe, though more or less imperfect on lower side of head. Fins all pale or light, lower ones whitish.

One 37 mm. Fort Sibut, Ubangi-Shari. Apparently the present species, though Boulenger shows the median of the 3 dark longitudinal black bands equally broad its entire length and not ending in a distinct black spot at the caudal base, as shown by Nichols and Griscom in 1917. Their figure differs as the median and lower black bands are much closer on the caudal



16. *Nannaethiops tritaeniatus*. 17. *Nannaethiops unitaeniatus*.
18. *Distichodus maculatus*.

peduncle. Both these figures differ further as the squamation at the base of the caudal is not shown as very extensive, therefore likely the fault of the illustrators. In my example all the dark bands extend on the head, and the 2 upper ones on the snout.

DISTICHODUS Müller and Troschel

DISTICHODURA new subgenus

Scales finely ctenoid, large or 40 or less in lateral line. Caudal and anal largely covered with small scales, extensive over latter fin. Anal rays numerous, with 3 rudimentary or simple and 16 to 20 branched.

Type *Distichodus affinis* Günther.

(*Distichodus* + οὐρά tail; with reference to the rather large anal fin.)

Distichodus affinis Günther.

Depth 2; head $3\frac{1}{5}$ to $3\frac{2}{5}$, width $2\frac{1}{5}$ to $2\frac{1}{8}$. Snout 3 in head; eye $3\frac{2}{5}$, $1\frac{1}{5}$ to $1\frac{1}{4}$ in snout, $1\frac{1}{2}$ to $1\frac{2}{3}$ in interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{2}{3}$ in snout, length 4 to $4\frac{1}{2}$ in head; lips rather thin, fleshy; teeth biserial, with 18 to 20 in outer row; interorbital $2\frac{1}{3}$ to $2\frac{2}{3}$, moderately high, convex; suborbitals cover $\frac{3}{4}$ of cheek; occipital fontanel broad, extends from middle of eye back into front of occipital extension. Gill rakers 10 + 12, short points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{2}$ in eye.

Scales 32 to 35 + 3 in lateral line; 8 above, 8 below to ventral origin, 8 below to anal origin; 18 or 19 predorsal. Scales on breast and belly little smaller than those on sides of body. Adipose fin anteriorly, most all of caudal, and greater part of anal basally, covered with small, densely-set scales. Ventral with pointed axillary scale $\frac{1}{3}$ of fin. Scales with 6 to 8 basal marginal undulations, but without striae; 40 to 44 uniserial apical denticles, median little larger; circuli basally undulate, fine.

D. II, 13, I, first branched ray $1\frac{1}{4}$ to $1\frac{3}{4}$ in head; adipose fin $3\frac{2}{5}$ to $3\frac{1}{2}$; A. III, 16, I or III, 17, I, first branched ray $2\frac{1}{2}$ to $2\frac{2}{3}$; caudal $1\frac{2}{5}$ to $1\frac{1}{4}$, rather deeply emarginate and lobes well rounded; least depth of caudal peduncle $2\frac{1}{8}$ to $2\frac{1}{2}$; pectoral $1\frac{2}{3}$ to $1\frac{3}{4}$, rays I, 14; ventral I, 8, fin $1\frac{1}{5}$ to $1\frac{1}{4}$ in head.

Pale brownish, evidently largely whitish on sides and below. Iris gray. Brown to dark gray shade on dorsal anteriorly and basally.

Two, 70 to 88 mm. Fort Sibut, Ubangi-Shari. October.

DISTICHODOMICRURA new subgenus

Characterized chiefly by its small anal fin, with 3 rudimentary or simple rays and but 8 or 9 branched.

Type *Distichodus maculatus* Boulenger.

(*Distichodus* + μικρός small + οὐρά tail; with reference to the small anal fin.)

Distichodus maculatus Boulenger. Figure 18.

Depth 3 to $3\frac{1}{3}$; head 3 to $3\frac{1}{3}$, width $2\frac{1}{4}$ to 3. Snout $3\frac{1}{5}$ to $4\frac{1}{2}$ in head; eye $3\frac{1}{4}$ to $4\frac{1}{10}$, 1 to $1\frac{1}{2}$ in snout; maxillary reaches $\frac{2}{3}$ to eye, length 4 to $5\frac{1}{4}$ in head; lips rather broad and fleshy; teeth biserial in jaws; interorbital 3,

low, broadly convex; suborbitals broad, cover $\frac{2}{3}$ of cheek; occipital fontanel long, broad, extends from opposite front eye edge back into occipital extension. Gill rakers 10 + 16, short points, about $\frac{1}{4}$ of gill filaments, which $1\frac{2}{3}$ in eye.

Scales 57 to 62 + 6 to 8 in lateral line; 11 above, 8 below to ventral, 7 or 8 below to anal; 29 predorsal. Scales small on middle of belly and much smaller on breast. Caudal covered with small or fine scales, except hind edge which rather narrowly naked. Adipose fin scaly. Anal with low, basal scaly sheath. Axillary scale of ventral $3\frac{1}{2}$ in fin. Scales without radiating striae, basally with notch; 27 or 28 uniserial apical denticles, slender, median slightly larger; circuli fine, little undulate basally.

D. III, 13, 1 or III, 14, 1, first branched ray $1\frac{1}{4}$ to $1\frac{1}{3}$ in head; adipose fin 3 to $3\frac{2}{5}$; A. III, 8, 1, first branched ray $2\frac{1}{8}$ to $2\frac{3}{8}$; caudal $1\frac{1}{10}$ to $1\frac{1}{8}$, well forked; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{3}{4}$; pectoral $1\frac{2}{3}$ to $1\frac{3}{4}$, rays 1, 15; ventral rays I, 8 or I, 9, fin $1\frac{2}{3}$ to 2 in head.

Pale brown, scarcely lighter below. Sides with numerous dark vertical bars, more as vermiculations and broken as bars and spots. Blackish blotch size of pupil level with eye and 5 or 6 scales from head. Large black blotch about twice size of eye at caudal base and on adjacent region of caudal peduncle. Fins pale. Dorsal and caudal grayish terminally. Dorsal with 6 or 7 rows of small dark gray spots on each membrane.

Seventy-four 48 to 80 mm. Fort Sibut, Ubangi-Shari. I have identified these examples with the present species as in accord with Steindachner's account of a Cameroons specimen 145.5 mm. in 1913. He mentions 6 longitudinal rows of leaden spots in median third of body and 3 or 4 rows at caudal peduncle. Spots in detached rows alternating as a rule with median and those of the 2 upper rows forming to the front ones as short cross bars. Leaden gray humeral spot nearly as large as eye and large blackish caudal spot double size of eye.

Subgenus *DISTICHODUS* Müller and Troschel

Scales in lateral line usually small, or over 60 (to 110). Anal fin more or less naked or scales confined to very narrow basal strip. Anal rays rather few, 3 or 4 rudimentary or simple and 11 to 16 branched.

Type *Salmo niloticus* Hasselquist.

Distichodus antonii (Schilthius).

Depth $2\frac{4}{5}$; head $4\frac{2}{3}$, width $1\frac{2}{3}$. Snout $2\frac{1}{3}$ in head; eye 6, $2\frac{1}{4}$ in snout, $2\frac{1}{2}$ in interorbital; maxillary reaches half way to eye, length $3\frac{1}{2}$ in head; teeth bicuspid, biserial in jaws, upper outer series 18; interorbital $2\frac{2}{3}$, well convex; suborbitals broad, cover $\frac{2}{3}$ of cheek, preorbital little longer than eye; occipital fontanel as broad and rather deep groove from opposite front of eye to front of occipital extension. Gill rakers 12 + 14, short points, $\frac{1}{2}$ of gill filaments, which long as eye.

Scales 60 + 10 in lateral line; 14 above, 10 below to ventral origin, 11 below to anal origin; 26 predorsal. Scales small on breast and belly. Caudal densely covered with fine, close-set small scales. Anal with basal sheath of small scales for about basal fourth of fin, little higher posteriorly. Ventral axillary scale $2\frac{1}{2}$ in fin. Scales with single notch on basal edge;

117 to 136 apical denticles, slender, close set, slightly shorter marginally on scale; circuli fine, basal, obsolete to absent apically.

D. III, 19, 1, second branched ray $1\frac{1}{2}$ in head; adipose fin $2\frac{2}{5}$; A. IV, 11, 1, first ray $2\frac{1}{2}$; caudal 3 in rest of fish; least depth of caudal peduncle $1\frac{1}{8}$ in head; pectoral $1\frac{1}{4}$, rays 1, 18; ventral I, 9, fin $1\frac{1}{4}$ in head.

Brown, scarcely paler below. Iris gray. On body 15 or 16 transverse dark gray bands, each little narrower than pale interspace. Dorsal with 6 to 8 transverse series of dark gray bands on membranes. Other fins all uniformly dull or light brown.

One 364 mm. Ekibondo's Village, Uele, Belgian Congo.

Distichodus fasciolatus (Boulenger).

Depth $3\frac{1}{3}$; head $3\frac{3}{5}$, width 2. Snout $3\frac{1}{4}$ in head; eye $4\frac{1}{5}$, $1\frac{1}{4}$ in snout, $1\frac{1}{2}$ in interorbital; teeth bifid, biserial in jaws, 20 in upper outer series; maxillary reaches $\frac{3}{4}$ to snout, length 4 in head; interorbital $2\frac{3}{4}$, low, broadly convex; suborbitals cover $\frac{1}{2}$ of cheek; preorbital $\frac{1}{2}$ of eye; occipital fontanel long, broad, begins opposite front of eye and extends back into front of occipital extension. Gill rakers 16 + 14, slender, lanceolate, 3 in gill filaments, which $1\frac{1}{2}$ in eye.

Scales 76 + 7 in lateral line; 17 above, 15 below to ventral, 14 below to anal; 36 predorsal. Scales small on breast and belly, also on inner bases of ventrals. Caudal entirely covered with small, fine scales. Adipose fin half scaled in front. Anal with low, basal scaly strip. Ventral with scaly axillary flap $2\frac{2}{5}$ in fin. Scales with basal notch, but no striae; 27 to 31 uniserial apical denticles, little smaller laterally; circuli fine, undulate basally.

D. III, 19, 1, third branched ray $1\frac{1}{4}$ in head; adipose fin 3; A. III, 11, 1, first branched ray $1\frac{1}{2}$; caudal $3\frac{1}{8}$ in rest of fish, well forked, lobes pointed; least depth of caudal peduncle $2\frac{1}{8}$ in head; pectoral $1\frac{1}{2}$, rays 1, 16; ventral I, 9, fin $1\frac{1}{4}$ in head.

Back brown, sides and below paler to whitish, with 5 dark gray vertical bands, little paler below. Iris gray. Fins pale brownish. Dorsal with several dark, variable, basal or subbasal blotches. Membrane of anal gray.

One 155 mm. Batangafo, Ubangi-Shari.

To *Hemigrammocharax* Pellegrin 1923 should be added the synonyms *Microdistichodus* Pellegrin 1925 = *Thrissocharax* Myers 1926 = *Hemigrammonannocharax* Holly 1930 = *Distichodina* Fowler 1935. *Hemigrammocharax uniozellatus* (Pellegrin) 1926 = *H. wittei* Poll 1933 = *Distichodina stigmaturus* Fowler 1935.

NANNOCHARAX Günther

Nannocharax micros new species. Figure 19.

Depth $4\frac{2}{3}$ to 5; head 3 to $3\frac{1}{5}$, width $2\frac{1}{3}$. Snout $3\frac{1}{4}$ in head; eye $3\frac{1}{2}$ to 4, 1 to $1\frac{1}{8}$ in snout, greatly exceeds interorbital; maxillary reaches $\frac{3}{8}$ to eye; mouth very small, terminal; interorbital $3\frac{1}{3}$ in head, low, broadly convex.

Scales 36 or 37 + 2 in lateral line, which complete; 5 above, 5 below to ventral, 5 or 6 below to anal; 13 or 14 predorsal. Scales of moderate size on chest, breast, belly and caudal base. Scales without radiating striae; 6 or 7 rather large apical denticles, laterals slightly shorter; 7 to 9 complete rather coarse circuli.

D. II, 9, 1, first branched ray $1\frac{2}{5}$ to $1\frac{1}{2}$ in head; adipose fin $5\frac{1}{4}$ to $5\frac{3}{8}$; A. II, 7, 1, first branched ray 2 to $2\frac{1}{4}$; caudal $1\frac{1}{4}$, well forked, lobes sharply pointed; least depth of caudal peduncle $3\frac{1}{4}$; pectoral $2\frac{2}{5}$, rays 1, 10; ventral rays 1, 7, fin $1\frac{1}{2}$ in head.

Light brown. Row of about a dozen small, slightly darker and inconspicuous saddles on back. Similar row along middle of side of body, including lateral line. Narrow dark band on side of snout and head. Dark lateral axial streak, ends in small round black spot at caudal base, much less than pupil in size, and reflected out on middle caudal rays as dark streak. Fins uniformly pale.

A. N. S. P., No. 65556. Thirty kilometers east of Kribi, Cameroons. November 24 and 25. Length 27 mm. Type.

Also No. 65557, same data, paratype. Length 26 mm.

Suggestive of *Nannocharax fasciatus* Günther, with which it may eventually be found synonymous. *N. micros* differs in its very short pectoral not nearly reaching to the ventral and the latter inserted well behind the dorsal origin. Although Boulenger 1909 describes the "Pectoral long as head, extending beyond root of ventral," his figure of Günther's type shows it $1\frac{1}{4}$ in the head. *Nannocharax parvus* Pellegrin differs in a complete, conspicuous, dark lateral band, different proportions and its greatly larger eye 3 in the head.

(*μικρός* small.)

Nannocharax taenia Boulenger. Figure 20.

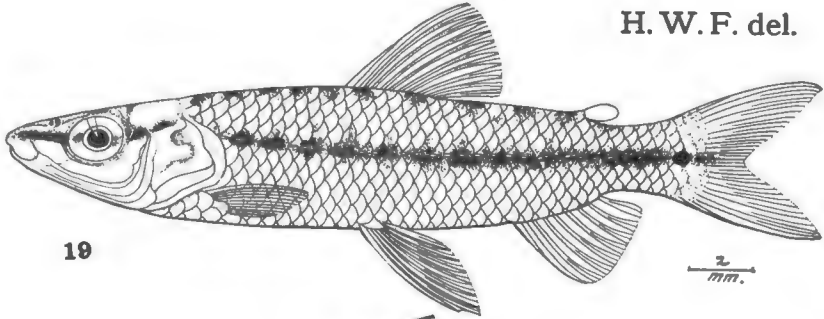
Depth 5 to $5\frac{1}{5}$; head 3 to $3\frac{1}{4}$, width $2\frac{1}{5}$ to $2\frac{1}{2}$. Snout $3\frac{1}{5}$ to $3\frac{2}{5}$ in head; eye $3\frac{3}{4}$ to 4, $1\frac{1}{8}$ to $1\frac{1}{2}$ in snout, subequal with interorbital; maxillary reaches $\frac{2}{5}$ to $\frac{1}{2}$ in snout, length $4\frac{1}{2}$ to $4\frac{4}{5}$ in head; mouth small, with short gape, width 6; lower jaw slightly inferior; interorbital $4\frac{1}{5}$ to $4\frac{1}{4}$ in head, low, nearly level; suborbitals broad, nearly entirely covering cheek. Gill rakers 3 + 6, short rudimentary points, about $\frac{1}{4}$ of gill filaments, which $1\frac{1}{2}$ in eye.

Scales 44 or 45 + 4 or 5 in lateral line; 5 above, 5 below to ventral, 5 below to anal; 12 predorsal. Scales little smaller on breast, belly and caudal base. Scales without basal radiating striae; 18 to 33 slender apical denticles, little shorter marginally; circuli 11 to 22 basally, greatly fewer above, below and apically.

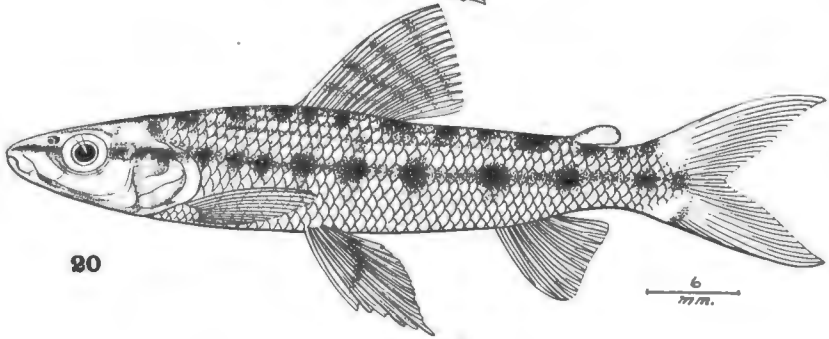
D. III, 11, 1 or III, 12, 1, first branched ray $1\frac{1}{2}$ to $1\frac{1}{4}$ in head; adipose fin $4\frac{1}{4}$ to $4\frac{1}{2}$; A. III, 8, 1, first branched ray $1\frac{7}{8}$ to 2; caudal $1\frac{1}{8}$ to $1\frac{1}{5}$, well forked and lobes sharply pointed; least depth of caudal peduncle $3\frac{1}{8}$ to $3\frac{1}{4}$; pectoral $1\frac{1}{3}$ to $1\frac{1}{2}$, rays 1, 12 or 1, 13; ventral I, 8, fin inserted below base of second or third dorsal ray, length $1\frac{1}{3}$ to $1\frac{1}{5}$ in head.

Pale or light brown, scales on back edged with little darker, mostly to form dark longitudinal bands at scale junctures. In some examples these dark edges to scales are darkened or emphasized to form 8 to 12 indistinct saddle-like rings or blotches on back. Along side of body 8 to 11 dark brown blotches, variable, disposed along lateral line and last at caudal base usually smaller. Iris gray. Fins pale or whitish. Dorsal with 4 slightly darker gray transverse bands. Inconspicuous dark gray bar across ventral fin. Dark spot on tail sometimes close above bases of front anal rays. Slightly paler or less distinct brownish lateral band along side of snout and backward, connecting dark lateral blotches.

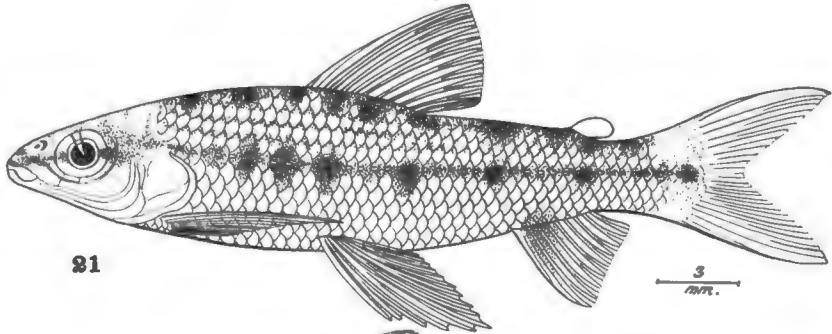
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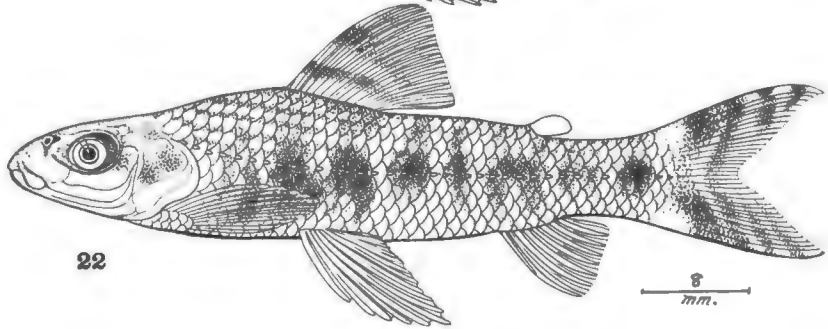
19



20



21



22

19. *Nannocharax micros*.
21. *Nannocharax hollyi*.

20. *Nannocharax taenia*.
22. *Nannocharax pteron*.

Seven 31 to 52 mm. Fort Sibut, Ubangi-Shari. I identify these specimens with *Nannocharax taenia*, as they approach it closer than any other species. Though Boulenger in 1909 says "snout as long as eye, which is $3\frac{1}{2}$ times in length of head," none of my specimens show it so large. The pectoral also reaches to or a little beyond the ventral origin. *N. macrop-terus* Pellegrin is surely closely related, though originally compared and found with the longer pectoral, which extends to or beyond the ventral base. Its snout is said to be shorter than the eye and its broad interorbital $2\frac{1}{2}$ to $2\frac{2}{5}$ in the head.

Nannocharax hollyi new species. Figure 21.

Depth 4; head $3\frac{1}{2}$, width $2\frac{2}{5}$. Snout 4 in head; eye $3\frac{3}{4}$, subequal with snout and greatly exceeds interorbital; maxillary reaches $\frac{2}{3}$ to eye, length $5\frac{2}{5}$ in head; mouth small, with very short gape and terminal; interorbital $4\frac{1}{3}$ in head, low, broadly convex; suborbitals largely cover cheeks. Gill rakers 4 + 6, short rudimentary points, $\frac{1}{3}$ of gill filaments, which $\frac{1}{2}$ of eye.

Scales 40 + 2 in lateral line, which complete; 5 above, 5 below to ventral, 4 below to anal, 14 predorsal. Scales little smaller on chest, breast and caudal base. Scales without basal radiating striae; 18 apical denticles, uniserial, laterals slightly shorter; mostly complete circuli.

D. III, 9, 1, first branched ray $1\frac{1}{3}$ in head; adipose fin $4\frac{3}{4}$; A. II, 8, 1, first branched ray $1\frac{1}{3}$; caudal $1\frac{1}{10}$, well forked, lobes sharply pointed; least depth of caudal peduncle $2\frac{2}{5}$; pectoral $1\frac{1}{3}$, rays 1, 12?; ventral I, 8, inserted opposite origin of first branched ray, fin subequal with head.

Body pale or light brown, each row of scales on back with dark edges, though mostly distinct as dark longitudinal bands or lines. On back series of 10 dark saddles, formed mostly as dark edges to scales. Dull brown lateral band along side of snout and on body connects row of about 9 larger slightly darker blotches, also another smaller and little detached one at caudal base. Dark blotch on tail above front of anal fin base reflected on front of fin.

A.N.S.P., No. 65558. Fort Sibut, Ubangi-Shari. Length 32 mm. Type.

Resembles *Nannocharax altus* Pellegrin but with slightly deeper body, smaller scales (42 compared with 36 to 38), fewer branched dorsal rays (9 in place of 10 to 13), the pectoral but slightly shorter than the head and reaching little beyond the ventral origin, besides a different coloration. *N. altus* is described with traces of 12 darker bands on the sides of its body. *N. minutus* Worthington has a much shorter pectoral and a still different coloration.

(For Dr. Maximilian Holly, of Vienna, for his valuable work on the fresh-water fishes of the Cameroons in 1930.)

LEPINANNOCHARAX new subgenus

Characterized chiefly by its scaly caudal, the squamous area covering at least $\frac{1}{3}$ of the fin basally. Dorsal origin well before ventral origin. Paired fins long, well developed, median rays longest and fins pointed.

Type *Nannocharax pteron* new species.

(*λεπίς* scale + *Nannocharax*; with reference to the broadly scaled basal region of the caudal.)

Nannocharax pteron new species. Figure 22.

Depth 4; head $3\frac{3}{8}$, width 2. Snout $3\frac{1}{8}$ in head; eye 6, $1\frac{1}{2}$ in snout, equals interorbital; orbit 4 in head, $1\frac{1}{3}$ in snout; maxillary reaches $\frac{1}{2}$ in snout, length $4\frac{1}{4}$ in head; mouth small, subterminal, width $5\frac{1}{2}$; interorbital $4\frac{1}{2}$, low. Gill rakers 5 + 11, short, $\frac{1}{5}$ of gill filaments, which $\frac{1}{2}$ of orbit.

Scales 35 + 3 in lateral line, which complete; 5 above, 4 below to ventral, 4 below to anal; 12 predorsal. Chest naked, though small scales on breast and belly. Caudal scaly at least $\frac{1}{3}$ its extent basally, many of scales much smaller than on body. Scales with single basal radiating stria and 4 or 5 basal marginal undulations; 33 or 34 slender and rather long apical denticles, uniserial; circuli fine basally, follow marginal undulations and coarse above and below.

D. III, 11, 1, first branched ray $1\frac{1}{4}$ in head; adipose fin 4; A. II, 7, 1, first branched ray 2; caudal 1, deeply forked, lobes pointed; pectoral $1\frac{1}{5}$, rays 1, 14, reaches beyond ventral base; ventral inserted opposite base of second dorsal ray, fin $1\frac{1}{10}$ in head, rays I, 8.

Pale brown, each scale on back with darker edge, though mostly forming even longitudinal bands. Along side 8 rather large and variable dark blotches, several bisected. Iris gray. Fins all pale to whitish, with 3 dark transverse bars across dorsal and 4 across each caudal lobe, though only 2 basal extending entirely across caudal fin. Paired fins immaculate.

A.N.S.P., No. 65560. Fort Sibut, Ubangi-Shari. Length 58 mm. Type.

Seems to approach *Nannocharax minutus* Worthington from the Luombo, Luapula Basin of the Congo, but that species is with greatly shorter pectorals and very different coloration. *N. macropterus* Pellegrin, from the Belgian Congo, is described with long pectorals similar in proportion though with smaller scales (45 to 48), more anal rays (8 or 9 branched) and 12 large dark blotches or bars on back and side.

(*πτερον* fin; with reference to the well developed paired fins.)

CYPRINIDAE

CYPRININAE

BARBUS Cuvier

CLYPEOBARBUS new subgenus

Scales of lateral line very deeply exposed, greatest depth of those in median part of its course but little less than half of greatest body depth.

Type *Barbus kemoensis* new species.

(*Clypeus* shield + *Barbus*.)

Barbus kemoensis new species. Figure 52.

Depth 3 to $3\frac{3}{8}$; head 3 to $3\frac{3}{8}$, width $1\frac{1}{8}$ to $2\frac{1}{8}$. Snout $3\frac{1}{2}$ to $3\frac{4}{5}$ in head; eye 3 to $3\frac{1}{4}$, greater than snout or interorbital; maxillary reaches $\frac{4}{5}$ in snout, length $3\frac{1}{2}$ to 4 in head; lips rather narrow, fleshy, smooth, entire, lower not forming free fold or edge across symphysis; barbels well developed, both

pairs present in the young as well as the adult, though in young the maxillary pair little shorter; rostral barbel $1\frac{1}{2}$ to 2 in eye, maxillary barbel 1 to $1\frac{1}{2}$; interorbital $3\frac{1}{4}$, low, broadly convex; narrow suborbital chain invades about $\frac{1}{3}$ of cheek to preopercle ridge. Gill rakers 2 + 7, short weak points, about $\frac{1}{4}$ of gill filaments, which $1\frac{1}{3}$ in eye. Pharyngeal teeth 5, 3, 2—2, 3, 5, little hooked, larger with grinding surfaces.

Scales 20 + 2 in lateral line, which little decurved, ascends above anal until midway along side of caudal peduncle and tubes long, slender and simple; greatest depth of scale exposures $2\frac{1}{8}$ in greatest body depth or twice depth of most other scale exposures. Scales large on breast and belly, though much smaller than other scales of body. Caudal with 2 or 3 rows of small basal scales. Scales with 5 to 8 basal radiating striae reaching scale center, and 6 to 8 apical; 0 to 8 basal auxiliary, marginal, incomplete striae and 8 to 17 apical.

D. III, 8, 1, third simple ray flexible for greater terminal portion, entire, smooth, length 1 to $1\frac{1}{10}$ in head; A. III, 5, 1, third simple ray flexible most its extent, entire, smooth, length $1\frac{2}{3}$ to 2; caudal $2\frac{1}{3}$ to $3\frac{1}{3}$ in rest of fish, deeply forked; least depth of caudal peduncle 2 to $2\frac{1}{8}$ in head; pectoral $1\frac{1}{3}$ to $1\frac{2}{3}$, rays I, 13 or 1, 14; ventral I, 8, fin $1\frac{1}{3}$ to $1\frac{2}{3}$ in head.

Pale or light brown, with lower surfaces uniform to whitish. Edge of each scale on back and sides narrowly brownish. Upper surface of head brown, pale or whitish below. Iris gray, evidently white in life. Barbels pale or whitish. Lips pale. Dorsal and caudal grayish, former with outer $\frac{2}{3}$ pale to whitish, while greater part of rest of fin basally dark gray. Some specimens show lower fins also more or less grayish.

A.N.S.P., No. 65560. Fort Sibut, Ubangi-Shari. October 1934. Length 54 mm. Type.

A.N.S.P., No. 65562 to 65576, same data, paratypes. Length 22 to 48 mm. Also 86 others, same data but not included as paratypes.

Two 33 to 38 mm. from 30 kilometers east of Kribi, Cameroons, November 24 and 25.

Apparently close to *Barbus rubripinnis* Nichols and Griscom 1917, re-named *Barbus bomokandi* Myers 1924. This was described from a single example 42 mm. long, without caudal fin, obtained at Poko, Belgian Congo. Its body-depth is given as 4 and only a single pair of barbels, maxillary, shown on the figure, but half as long as the eye.

Barbus pseudognathodon Boulenger 1917 is described with very deep scales in the lateral line, the exposed parts of scales 3 times deeper than long, though the scale count 26 to 29. Its rostral barbel is given as minute and the maxillary barbel as $\frac{1}{4}$ to $\frac{1}{3}$ of eye.

(For Kemo District, wherein is located Fort Sibut, the type locality.)

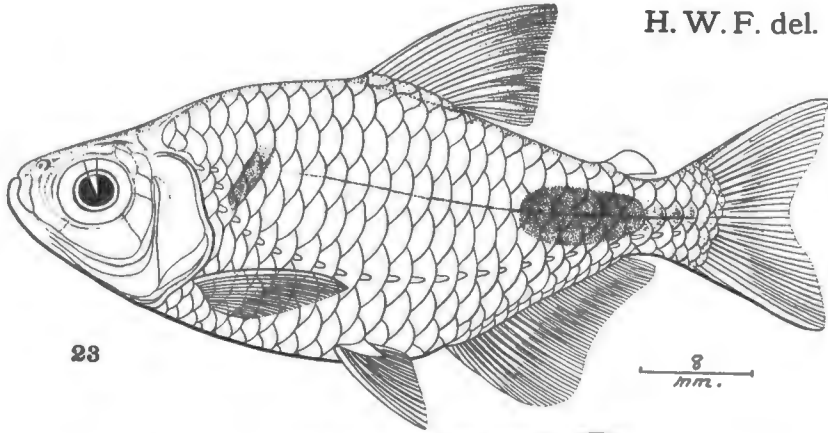
VANDERBILTELLA new subgenus

Greatly like certain small species of *Barbus*, but with the caudal largely covered with scales. Species all of small size and contrasted color pattern.

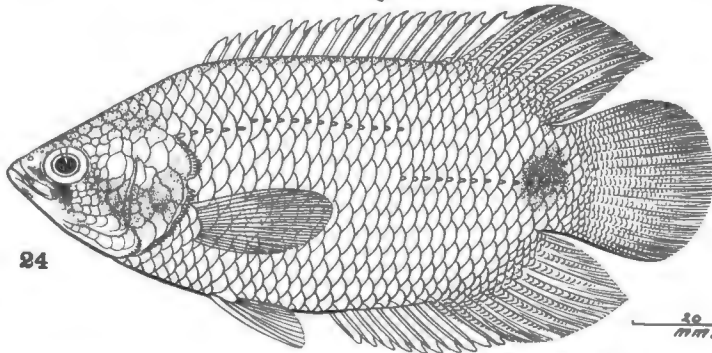
Type *Barbus lepidura* new species.

(For Mr. George Vanderbilt.)

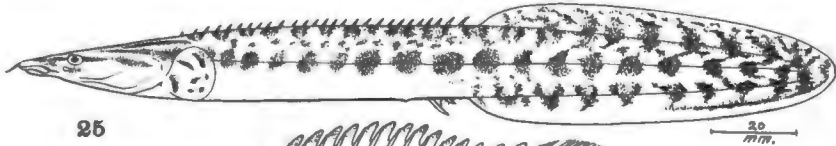
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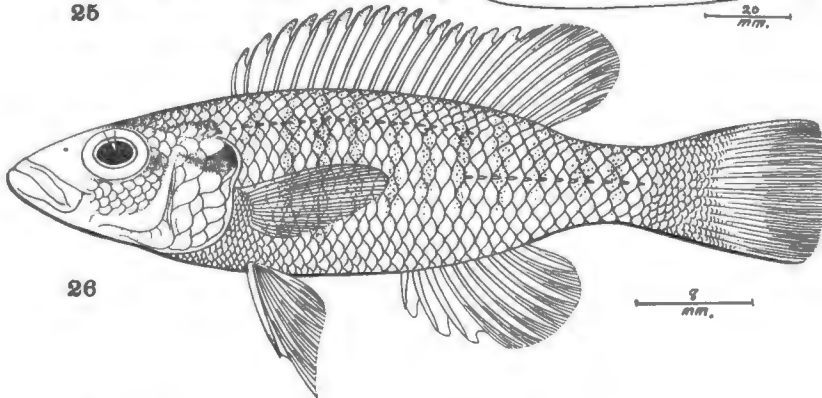
23

8
mm.

24

20
mm.

25

20
mm.

26

8
mm.

23. *Micralestes rochefoucauldi*.
25. *Mastacembelus catchpolei*.

24. *Anabas petherici chadensis*.
26. *Haplochromis pitmani*.

Barbus lepidura new species. Figures 29 (lateral view) and 30 to 45 (variation).

Depth 4 to $4\frac{1}{3}$; head $2\frac{7}{8}$ to $3\frac{3}{4}$, width $1\frac{3}{4}$ to $1\frac{7}{8}$. Snout $3\frac{1}{3}$ to 4 in head; eye 3 to $3\frac{2}{5}$, greater than snout in young to subequal with age, greater than interorbital in young to $1\frac{2}{5}$ in interorbital with age; maxillary reaches $\frac{3}{4}$ to $\frac{7}{8}$ to eye, length $3\frac{1}{4}$ to $3\frac{2}{5}$ in head; rostral barbel $2\frac{4}{5}$, maxillary $1\frac{7}{8}$, in young rostral barbel $\frac{3}{5}$ of eye, maxillary $\frac{3}{4}$; interorbital $2\frac{3}{5}$ to $3\frac{1}{2}$ in head, broadly convex; suborbitals rather narrow, invade $\frac{1}{4}$ to $\frac{1}{3}$ of cheek to preopercle ridge. Gill rakers 2 + 6 or 7, short points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{4}$ in eye. Pharyngeal teeth 5, 3, 2—2, 3, 5, little hooked, with moderate, entire grinding surfaces.

Scales 25 or 26 + 2 in lateral line, though only first 7 or 8 tube-bearing in young, complete with age; 5 scales above, 3 below to ventral origin, 3 below to anal origin; 10 predorsal. Scales on chest, breast and belly large. Caudal largely scaled, only few basal scales large and others extend out over most of fin except outer fifth marginally. Axil of ventral with small pointed scale. Scales with 6 to 9 striae radiating completely from center, with 10 or 11 short marginals incomplete apically; circuli fine, concentric, complete.

D. III, 8, 1, third simple ray slender, terminal half flexible, entire, length 1 to $1\frac{1}{5}$ in head; A. III, 5, 1, third simple ray slender, entire, terminally flexible, length $1\frac{1}{2}$ to 2; caudal 3 to $3\frac{1}{4}$ in rest of fish, rather broad and moderately emarginate behind; least depth of caudal peduncle 2 to $2\frac{2}{3}$ in head; pectoral $1\frac{1}{4}$ to $1\frac{1}{2}$, rays 1, 12 or 1, 13; ventral rays I, 7, fin $1\frac{1}{3}$ to $1\frac{7}{8}$ in head.

Back dull olivaceous brown, each scale with slightly darker margin. Gray brown diffuse narrow band, including dark upper lip, through eye, over postorbital to middle of caudal base; in its course on trunk and tail 6 black, greatly contrasted spots, which variable and may have several additional ones or they may be more or less reduced to 5, as in the smallest specimens; usually 2 spots above anal, more closely spaced than others. Dark axial line described bounds the lower pale or whitish color of the entire fish, except as the dark pocket of each scale in the lateral line shows through as a series of contrasted dark crescents. Besides the black spots described an additional black spot on the tail opposite the front of the anal fin, and another, smaller, at origin of dorsal fin. Iris apparently largely whitish in life, in formaline specimens dark gray. Fins pale, dorsal and caudal with grayish, others more whitish.

A.N.S.P., No. 65577. Fort Sibut, Ubangi-Shari. September. Length 67 mm. Type.

Also Nos. 65578 to 65592, and 65677 to 65714, same data, paratypes. Length 22 to 68 mm. Besides 732 others, same locality, not considered paratypes.

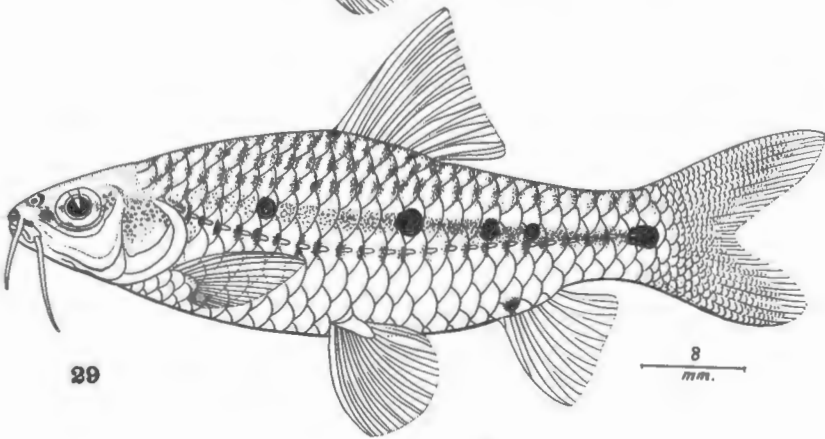
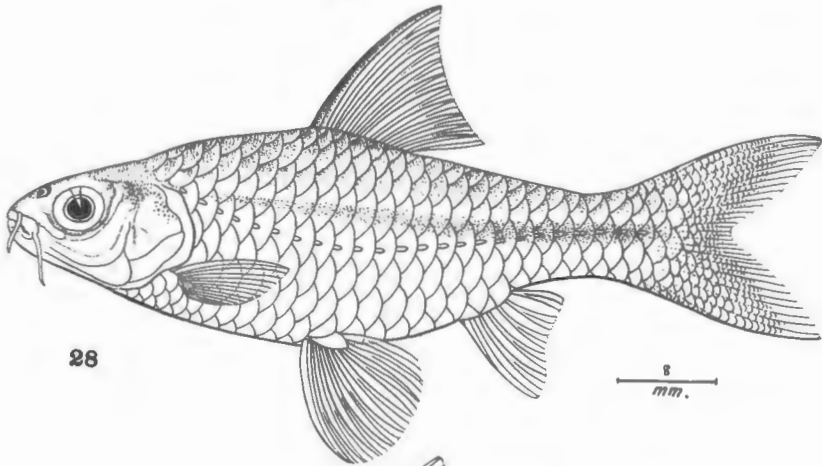
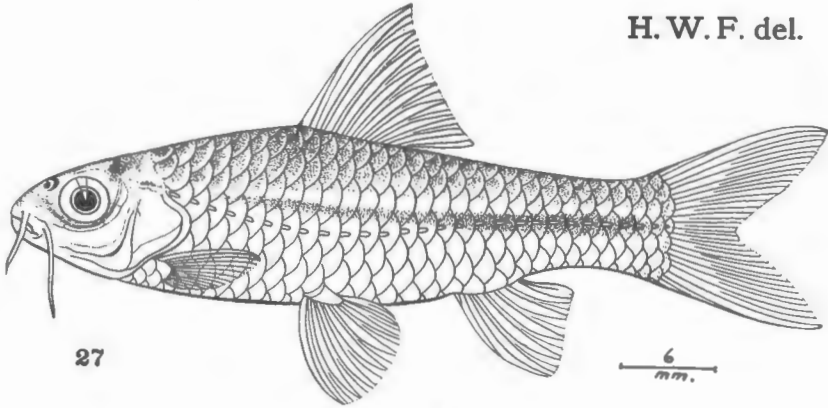
Known by its very distinctive and variable color pattern.

(λευκὸς scale + οὐρά tail.)

Barbus tomiensis new species. Figure 28.

Depth 3 to $3\frac{1}{4}$; head $3\frac{1}{4}$ to $3\frac{2}{5}$, width $1\frac{1}{8}$ to 2. Snout $3\frac{1}{3}$ to 4 in head; eye $3\frac{1}{4}$ to 4, slightly longer than snout in young to $1\frac{1}{3}$ in snout with age, diameter $1\frac{2}{3}$ in interorbital in young to $1\frac{1}{3}$ in interorbital with age; maxillary reaches $\frac{3}{5}$ to $\frac{7}{8}$ in snout, length $3\frac{1}{2}$ to 5 in head; rostral barbel $1\frac{1}{4}$ to 2

H. W. F. del.



27. *Barbus castra-sibutum*. 28. *Barbus tomiensis*.
29. *Barbus lepidura*.

in eye, maxillary 1 in eye to $1\frac{1}{5}$ times eye, not evident in young; lips rather narrow, entire, smooth, fleshy, lower not forming free edge across mandibular symphysis; interorbital $2\frac{3}{4}$ to $3\frac{7}{8}$ in head, broadly convex; suborbitals form narrow chain, invade $\frac{1}{3}$ to $\frac{2}{5}$ of cheek to preopercular ridge. Gill rakers 3 + 7, short points, $\frac{1}{3}$ of gill filaments, which $1\frac{3}{8}$ in eye. Pharyngeal teeth 5, 3, 2—2, 3, 5, hooked and with rather narrow, smooth grinding surfaces.

Scales 25 + 1 or 2 in lateral line, only first 8 tube bearing in young, complete with age and slopes up along side of caudal peduncle until median at caudal base; 5 above, 3 below to ventral origin, 3 below to anal origin; 9 predorsal. Scales on chest and belly large. Caudal largely scaled, and though less so in young with age scales cover at least basal $\frac{2}{3}$ of fin, which for most part small and crowded out along upper and lower edges of fin. Axil of ventral with small pointed scale. Scales with 6 striae radiating from center, with 3 or 4 short marginals incomplete apically; circuli moderate, concentric and complete.

D. III, 8, 1, third simple ray slender, terminal half flexible, entire, length 1 to $1\frac{1}{2}$ in head; A. III, 5, 1, third simple ray slender, entire, terminally flexible, length $1\frac{3}{8}$ to $1\frac{1}{2}$; caudal $2\frac{3}{8}$ to $3\frac{1}{8}$ in rest of fish, emarginate behind; least depth of caudal peduncle 2 to $2\frac{1}{4}$; pectoral $1\frac{2}{5}$ to $1\frac{3}{5}$, rays 1, 12; ventral I, 8, fin $1\frac{1}{4}$ to $1\frac{1}{2}$ in head.

Body pale brown, inclining to whitish below. Each scale on back with greater median portion darker than edges. Top of head dark brown, with dark dots on postocular and around suborbital edge of eye. Each scale of lateral line with dark basal pocket showing through succeeding scale as narrow dark crescent. On side of body dark brown or blackish line, beginning in round dark spot little before dorsal and extent nearly to caudal base, and with small detached dark spot at latter. Iris dark gray, evidently silvery white in life. Fins all pale, with outer front dorsal edge dusky to slate black.

A.N.S.P., No. 65715. Tomi River at Fort Sibut, Ubangi-Shari. September. Length 60 mm.

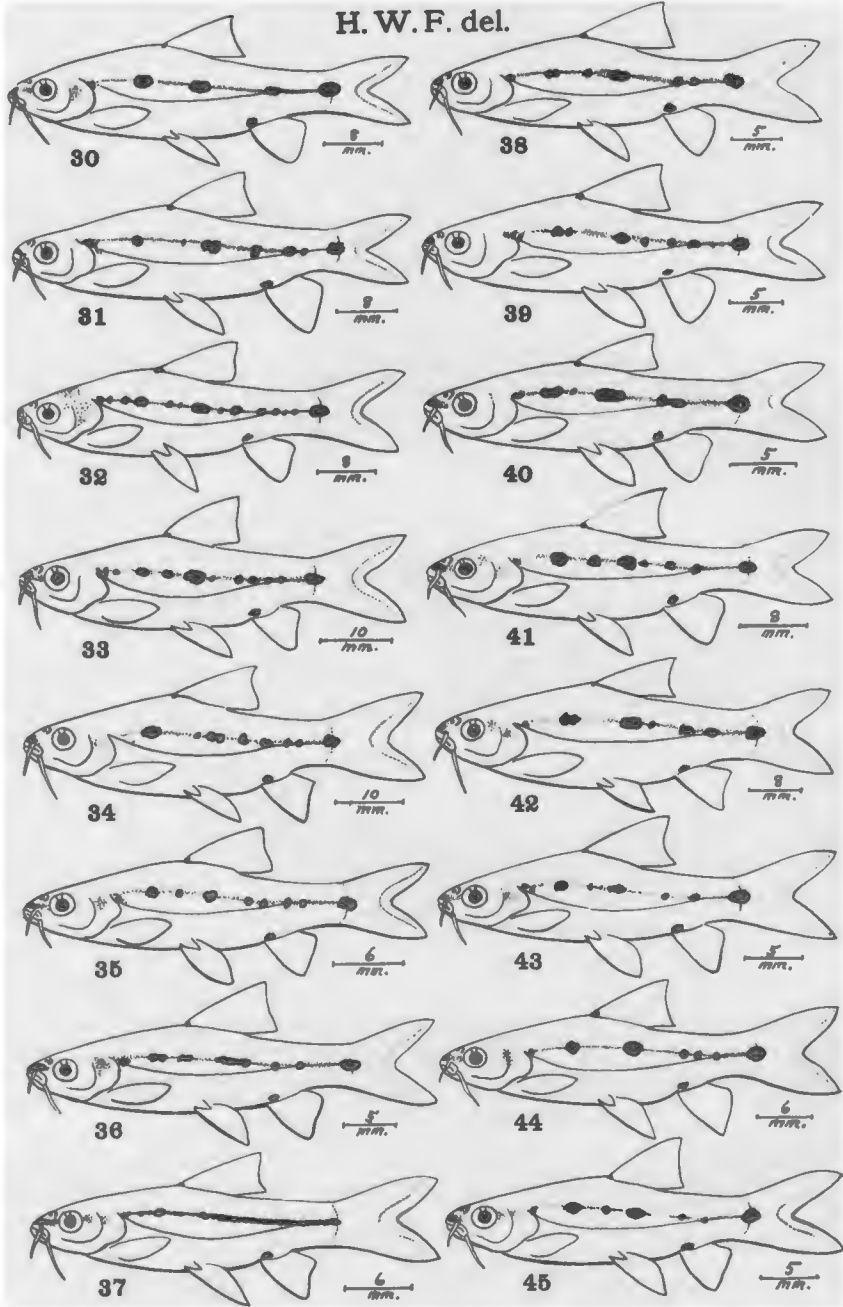
Also Nos. 65716 to 65754, same data, paratypes. Length 25 to 60 mm.

An interesting species, evidently closely allied with *Barbus lepidura*, though without the greatly contrasted black lateral spots, shorter barbels and the presence of the blackish front edge to the dorsal. In the young the dark lateral band is more distinct and extends around the front edge of the upper jaw, also along the postorbital and anterior costal region.

(Named for the Tomi River.)

Barbus holotaenia Boulenger.

Depth $2\frac{1}{3}$ to 3; head 3 to $3\frac{2}{5}$, width $1\frac{1}{2}$ to 2. Snout $3\frac{1}{3}$ to $3\frac{1}{2}$ in head; eye $3\frac{1}{8}$ and $4\frac{1}{2}$, $1\frac{1}{4}$ to $1\frac{2}{5}$ in snout, $1\frac{1}{2}$ to $1\frac{3}{5}$ in interorbital; maxillary reaches $\frac{4}{5}$ to $\frac{7}{8}$ in snout, length 3 in head; lips narrow, fleshy, smooth, entire, lower extend well forward to leave only narrow symphyseal frenum; rostral barbel $3\frac{1}{2}$ to 4 in head, maxillary $2\frac{1}{2}$ to $3\frac{1}{5}$; interorbital 3 to $3\frac{1}{4}$, low, broad, slightly convex; suborbital chain invades $\frac{1}{3}$ of cheek to preopercular ridge. Gill rakers 1 + 7, short points $\frac{1}{4}$ of gill filaments, which 2 in eye. Pharyngeal teeth 5, 3, 2—2, 3, 5, compressed, hooked, with well developed, entire, grinding surfaces.



30 to 45. *Barbus lepidura* (variation).

Scales 21 + 2 in lateral line; 5 above, 3 below to ventral origin, 3 below to anal origin; 7 predorsal. Scales moderate on chest, breast and belly, only half size of those on middle of sides of body. Ventral with pointed axillary scale. Caudal with small scales on basal part of fin. Lateral line but slightly decurved from axis of body, complete; tubes slender, simple, extend over $\frac{3}{4}$ of scale exposure.

D. III, 8, 1, third spine $1\frac{1}{8}$ to $1\frac{1}{2}$ in head, osseous, hind edge serrated with 25 antrorse serrae; A. III, 5, 1, third simple ray terminally flexible, slender, entire, $1\frac{3}{4}$ in head; caudal $3\frac{3}{8}$ to $3\frac{7}{8}$ in rest of fish, emarginate behind; least depth of caudal peduncle 2 to $2\frac{1}{2}$; pectoral $1\frac{1}{4}$ to $1\frac{1}{2}$, rays 1, 15; ventral I, 8, fin $1\frac{1}{2}$ to $1\frac{3}{8}$ in head.

Back brown, sides below and lower surfaces paler to whitish. Back with diffuse darker median area on ridge. On sides of body medianly each scale with dark pocket showing through successive overlapping scale as dark brown crescent. From front side of snout, blackish-brown band, not wider than pupil, extends back to middle of caudal base, and less distinctly reflected on median caudal rays; its course axial along side of body, horizontal and close above very slightly decurved lateral line. Head brown above, lower sides and under surfaces whitish. Iris gray, evidently pale in life. Upper lip brownish, lower pale. Barbels pale. Dorsal and caudal pale brownish or with gray, lower fins whitish. In young dark lateral band continuous and contrasted, as in adult.

Eleven 62 to 113 mm. near Saidi's Village, Belgian Congo; one 79 mm. Vube, Belgian Congo; seven 35 to 58 mm. Fort Sibut, Ubangi-Shari; 315 examples 35 to 105 mm. Ekibondo's Village, Belgian Congo. Boulenger describes "distal half of dorsal black or blackish, or with at least traces of a blackish spot," not shown in my specimens. He also does not mention or show the dark crescents on the side of the body. Seven 52 to 86 mm. from Equatorial Africa received in 1935. Dorsal and caudal deep red, even in small ones, and most brilliant marginally. I also include one 100 mm. long from 30 kilometers east of Kribi, Cameroons.

The very poorly defined colored plate of *Barbus holotaenia* Nichols and Griscom 1917 (identified with *B. holotaenia* Boulenger 1904), has been largely the basis for *B. tredwellii* Pellegrin 1933. Vinciguerra had, however, renamed the species *B. nicholsi* in 1928, a name precluded by Myers in 1924. Boulenger's *B. holotaenia* is figured without any caudal scales, unless 1 or 2 rows basally may be considered so, the dorsal tip black and a very narrow black longitudinal line from the snout through the eye and along the side.

Subgenus ENTEROMIUS Cope

Depth $2\frac{3}{4}$ to 4. Head $2\frac{1}{2}$ to 4. Eye 3 to 7 in head. Barbels 4. Gill rakers 1 to 3 + 4 to 10, lanceolate. Scales 20 to 33 in lateral line, 4 or 5 above, 2 or 3 below to ventral fin. Caudal base scaly, though most of fin naked. Dorsal with 3 simple and 7 to 9 branched rays; third simple ray moderate, terminally flexible and entire. Anal with 3 simple and 5 branched rays. Usually a dark lateral band.

Type *Enteromius potamogalis* Cope = *Puntius (Barbodes) ablables* Bleeker.

Barbus castra-sibutum new species. Figure 27.

Depth $3\frac{2}{3}$ to 4; head 3 to $3\frac{3}{5}$, width $1\frac{1}{5}$ to $2\frac{1}{10}$. Snout $3\frac{1}{10}$ to $3\frac{1}{2}$ in head; eye $3\frac{1}{4}$ to $3\frac{3}{4}$, $1\frac{1}{10}$ to $1\frac{1}{5}$ in snout, $1\frac{1}{8}$ to $1\frac{1}{5}$ in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{5}{8}$ in snout, length $3\frac{1}{5}$ to $3\frac{3}{4}$ in head; lips rather narrow, fleshy, entire, lower not forming free fold across interorbital; rostral barbel $1\frac{1}{5}$ to $1\frac{1}{2}$ times eye, maxillary $1\frac{3}{4}$ to 2 times eye; interorbital $2\frac{1}{8}$ to 3 in head, low, but slightly convex or with depressed appearance; narrow suborbitals invade only $\frac{1}{4}$ of cheek to preopercle ridge. Gill rakers 3 + 6, short points, $\frac{1}{4}$ of gill filaments, which 2 in eye. Pharyngeal teeth 5, 3, 1?—2, 3, 5, hooked, with moderate grinding surfaces and several little enlarged or robust.

Scales 26 + 2 in lateral line; 5 above, 3 below to ventral origin, 4 below to anal origin; 10 predorsal. Caudal with 2 rows of rather large basal scales. Ventral with moderate pointed axillary scale. Lateral line decurved moderately on tail above anal when continuous to caudal base; tubes all simple, large, slender and well exposed. Scales with 9 to 16 basal radiating striae, of which 4 radiate to center of scales; 4 to 12 apical radiating striae of which 4 or 5 radiate to center of scale; circuli moderate, more or less concentric, with apical somewhat obsolete.

D. III, 8, 1, third simple ray slender, entire, greater portion terminally flexible, length $1\frac{1}{8}$ to $1\frac{1}{4}$ in head; A. III, 5, 1, third simple ray slender, entire, terminally flexible, length $1\frac{3}{4}$ to $1\frac{4}{5}$; caudal $3\frac{1}{10}$ to $3\frac{1}{4}$ in rest of fish, well forked, lobes sharply pointed; least depth of caudal peduncle $1\frac{1}{5}$ to $2\frac{1}{3}$ in head; pectoral $1\frac{2}{3}$ to $1\frac{1}{2}$, rays 1, 13; ventral rays I, 8, fin $1\frac{2}{3}$ to $1\frac{2}{3}$ in head.

Pale brown generally, sides and below whitish. Each scale on back with slightly darker median blotch. Upper surface of head brownish. Iris gray, evidently silvery white in life. On body dark gray axial line or streak, below which lateral line bends at first part of its course, darker or more nearly black along side of tail. At caudal base end of lateral line forms an indistinct dark spot. Scales in course of lateral line with dark pockets slightly grayish and show through overlapping successive scales indistinctly. Fins all light or pale, dorsal without dark edge.

A.N.S.P., No. 65755. Fort Sibut, Ubangi-Shari. October. Length 57 mm. Type.

Also Nos. 65756 to 65758, same data, paratypes. Length 40 to 48 mm.

Twenty-two from 30 kilometers east of Kribi, Cameroons. November 24 to 26. Length 23 to 50 mm. In largest dark axial lateral streak not very distinct and with 5 small black spots, first one over hind end of pectoral, second and third as pair below last half of depressed pectoral and fourth little before and fifth at caudal base. Like the types they show a dark spot on the body near and a little behind origin of anal fin.

Somewhat like *Barbus doggetti* Boulenger from Lake Victoria, though that species has a longer pectoral which nearly reaches the ventral, minute barbels and a longer caudal peduncle.

(Named for Fort Sibut.)

Barbus caudovittatus Boulenger. Figure 51.

Depth $3\frac{2}{3}$ to $3\frac{1}{2}$; head 3 to $3\frac{1}{4}$, width $1\frac{3}{4}$ to $1\frac{7}{8}$. Snout $2\frac{1}{4}$ to 3 in head; eye $4\frac{1}{2}$ to 5, $1\frac{1}{2}$ to $1\frac{3}{4}$ in snout, $1\frac{2}{3}$ to $1\frac{3}{4}$ in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{5}{8}$ in snout, length $3\frac{1}{3}$ to $3\frac{3}{4}$ in head; lips rather fleshy, smooth, entire,

upper narrow, lower broader and extend well forward to form rather broad free fold across mandibular symphysis; rostral barbel $1\frac{1}{2}$ to 2 in eye, maxillary 1 to $1\frac{1}{3}$; interorbital $3\frac{1}{10}$ to $3\frac{1}{3}$, low, broadly convex; suborbital width $\frac{1}{3}$ to $\frac{2}{5}$ of cheek to preopercular ridge. Gill rakers 3 + 10, short points, $3\frac{1}{2}$ in gill filaments, which $1\frac{1}{3}$ in eye. Pharyngeal teeth 5, 4, 2—2, 4, 5, hooked, with entire grinding surfaces.

Scales 24 or 25 + 3 in lateral line; 5 above, 3 below to ventral, 4 below to anal; 9 predorsal. Small scales on breast and chest, little larger ones on belly; 3 rows of moderate ones on caudal base; ventral with pointed axillary scale $\frac{2}{7}$ length of fin. Lateral line complete, little decurved; tubes simple, small, each with short exposure. Scales with 6 to 18 basal radiating striae; 18 to 49 apical radiating striae; circuli fine, obsolete apically. Preorbital, front side of snout, cheek, interorbital and occipital region covered with numerous, minute or fine pearl organs.

D. III, 8, 1, third simple ray entire, its terminal half flexible, first branched ray $1\frac{1}{2}$ in head; A. III, 5, 1, third simple ray entire, its terminal half flexible, first branched ray $1\frac{3}{4}$ to $1\frac{5}{8}$; caudal $2\frac{2}{5}$ to $3\frac{1}{3}$ in rest of fish, deeply forked; least depth of caudal peduncle $2\frac{2}{5}$ to $2\frac{1}{2}$ in head; pectoral $1\frac{1}{2}$ to $1\frac{3}{5}$, rays 1, 15; ventral rays 1, 8, fin $1\frac{1}{2}$ to $1\frac{2}{3}$ in head.

Brown, paler below, where largely whitish. Edge of each scale on back little darker than general color. Iris gray, apparently whitish in life. Barbels and lips pale. Dorsal pale brownish, gray terminally and front apex slate black. Caudal pale brown, each lobe with median longitudinal blackish band. Lower fins pale to whitish.

Thirteen 97 to 132 mm. Ekibondo's Village, Belgian Congo. September. Characterized by its coloration, though Boulenger says "dorsal fin blackish in front," his figure of the type does not show it so. All my specimens are blackish on the apical portion of the dorsal. Boulenger shows the caudal unlike my materials, which have both the upper and lower caudal edges narrowly pale.

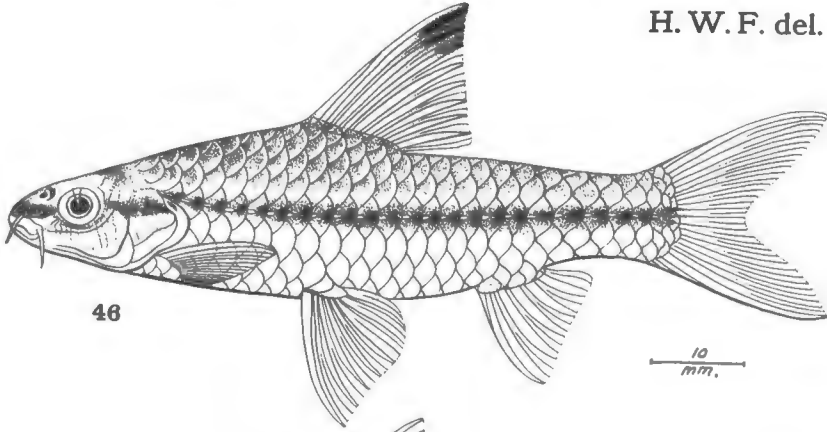
Barbus macroceps new species. Figure 48.

Depth $3\frac{2}{3}$; head $2\frac{1}{5}$, width $2\frac{1}{5}$. Snout $3\frac{1}{2}$ in head from snout tip; eye 7, 2 in snout, $1\frac{1}{5}$ in interorbital; maxillary reaches $\frac{1}{5}$ in eye, ensheathed above for first half by preorbital and posteriorly by groove on cheek, expansion $\frac{4}{5}$ of eye, length 3 in head from snout tip; upper lip moderate, lower equally wide and extends well forward to leave moderately broad symphyseal frenum; rostral barbel $1\frac{1}{3}$ in snout, maxillary $1\frac{1}{4}$; jaw edges rather firm, obtuse, coriaceous, lower jaw well protruded in front; interorbital 4 in head, low, broadly convex; suborbital width rather narrow, extends $\frac{1}{4}$ over cheek. Gill rakers 2 + 6, short, lanceolate, length $2\frac{2}{3}$ in gill filaments, which $1\frac{1}{4}$ in eye.

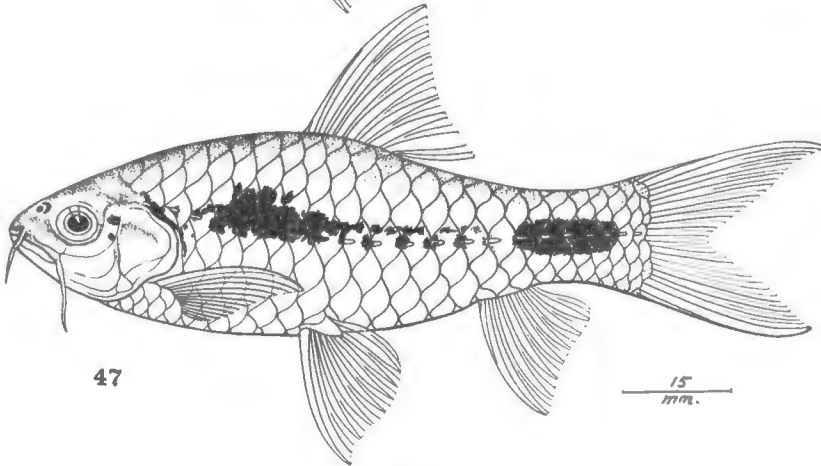
Scales 31 + 2 in lateral line; 6 above, 3 below to ventral, 4 below to anal; 12 predorsal. Scales on chest and breast small, larger on belly though still smaller than lateral scales; 3 rows of moderately large scales on caudal base; axillary ventral scale $\frac{1}{3}$ of fin. Lateral line complete, inconspicuous, slightly decurved; tubes slender, simple, well exposed. Scales with 38 basal radiating striae, 70 apical; circuli fine, basal, obsolete apically.

D. IV, 9, 1, third simple ray with terminal half flexible, entire, slender; first branched dorsal ray $1\frac{2}{3}$ in total head length; A. III, 5, 1, first simple rays all slender and entire, third terminally flexible, first branched anal ray

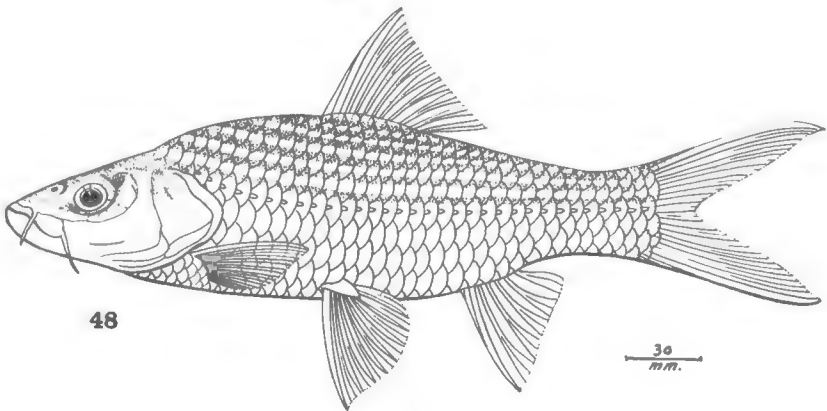
H. W. F. del.



46

10
mm.

47

15
mm.

48

30
mm.

46. *Barbus stigmatemion*. 47. *Barbus tegulifer*.
48. *Barbus macrocephalus*.

$2\frac{1}{10}$; caudal $1\frac{1}{5}$ in head, lobes long, slender, pointed; least depth of caudal peduncle $2\frac{3}{4}$; pectoral $1\frac{4}{5}$, reaches within 3 or 4 scales of ventral, rays 1, 16; ventral rays 1, 8, fin origin falling little behind dorsal origin, length 2 in total head length.

Color brown above, sides paler and lower surfaces whitish. Along each row of scales of back, at their junctures, an inconspicuous and slightly darker longitudinal band. Iris gray brown. Barbels pale. Lips pale. Dorsal and caudal gray brown, especially marginally. Lower fins all pale to whitish.

A.N.S.P., No. 65759. Epulu River Ferry, Belgian Congo. September 4. Length 320 mm. Type.

Known by its physiognomy, especially its long head. It is suggestive of *Barbus progenys* Boulenger from the Kribi River, which species is said to have the head $3\frac{1}{2}$ (shown on the figure about $3\frac{1}{4}$). Boulenger's figure does not show the maxillary reaching the eye and he says "dorsal blackish distally or with an ill-defined dark band across the middle, other fins whitish."

(μακρός long + κεφαλή head.)

Barbus tegulifer new species. Figure 47.

Depth 3 to $3\frac{2}{3}$; head $3\frac{1}{2}$ to $3\frac{3}{5}$, width $1\frac{2}{3}$ to $1\frac{3}{4}$. Snout $3\frac{1}{3}$ to 4 in head; eye 3 to $4\frac{1}{2}$, little greater than snout in young to $1\frac{1}{4}$ in snout with age, $1\frac{1}{5}$ to $1\frac{2}{3}$ in interorbital; maxillary reaches $\frac{1}{8}$ to $\frac{1}{5}$ in eye, length $2\frac{1}{2}$ to 3 in head; lips thin, narrow, lower extends well forward to leave broad symphyseal frenum; rostral barbel $2\frac{1}{5}$ to $3\frac{1}{10}$, maxillary $2\frac{1}{10}$ to $2\frac{2}{5}$; interorbital $2\frac{3}{4}$ to $2\frac{4}{5}$, low, broadly convex; suborbitals broad, cover half of cheek. Gill rakers 1 + 5, length $\frac{1}{5}$ of gill filaments which $1\frac{2}{3}$ in eye. Pharyngeal teeth 5, 3, 2—2, 3, 5, hooked, with rather narrow, smooth, grinding surfaces.

Scales 18 or 19 + 2 in lateral line; 4 above, 3 below to ventral, 3 below to anal; 7 predorsal. Small scales on chest and breast and those on belly little smaller than lateral or costal scales; 2 or 3 rows of rather large scales on caudal base; ventral with axillary scale $3\frac{3}{4}$ in fin. Lateral line slightly deurved, becomes median on tail above anal fin; tubes slender, simple, rather narrow and moderately exposed. Scales with 3 or 4 basal striae radiating to middle of scale, besides 1 to 5 additional incomplete ones; 5 apical striae radiating from scale center, besides 1 or 2 additional incomplete striae; circuli fine.

D. III, 7, 1 or III, 8, 1, third simple ray entire, flexible terminally, length $1\frac{1}{3}$ to $1\frac{1}{5}$ in total head length; A. III, 5, 1, third simple ray $1\frac{2}{3}$ to $1\frac{1}{2}$; caudal $2\frac{2}{3}$ to $2\frac{3}{5}$ in rest of fish, deeply forked, lobes pointed and upper often little longer; least depth of caudal peduncle $1\frac{4}{5}$ to $1\frac{7}{8}$; pectoral $1\frac{1}{10}$ to $1\frac{1}{5}$, rays 1, 12; ventral rays 1, 8, fin $1\frac{1}{4}$ to $1\frac{1}{3}$ in total head length.

Back brown, sides paler, below and under surfaces whitish. Each scale on back with broad median portion of exposure little more brownish or darker. Each scale in lateral line with more or less dark to blackish pocket, showing through overlapping scale. Grayish underlaid axial line along middle of side. Along first 8 or 9 scales of lateral line row of large black spots on scales immediately above; above latter on fifth to seventh scale from head blackish, also 3 scales immediately above these with black lower

basal spot. Large black blotch on last 4 scales on caudal peduncle and first of lateral line. Head rather dark brown above, sides below and under surfaces pale to whitish. Mandible whitish. Barbels pale, edge with brown above. Iris pale, with gray. Dorsal and caudal ochraceous basally, terminally gray. Lower fins pale to whitish.

A. N. S. P., No. 65760. Thirty kilometers east of Kribi, Cameroons. Length 110 mm. Type.

Also Nos. 65761 to 65768, same data, paratypes. Length 62 to 107 mm.

Bleeker's figure of *Puntius (Barbodes) camtacanthus* in 1862 is quite differently marked, as it shows 4 blackish longitudinal parallel bands at the scale junctures above the lateral line. The lowest of these bands is slightly darker over about first 8 scales, though there is no distinct anterior black blotch or arrangement as in my specimens. He also describes, and finally calls attention to "les bandelettes longitudinales qui ornent la moitié supérieure des flancs." Boulenger's figure of *B. camtacanthus* in 1911 is very much like my specimens, but without the characteristic coloration. *B. tegulifer* would therefore appear to differ only in its coloration.

Barbus lamani Lönnberg and Rendahl 1920 from Mukimbunga, lower Congo, differs in its elevated eye touching the upper profile line, shorter barbels, narrow interorbital $3\frac{1}{2}$ in head, $26 + 3$ lateral scales and a small round black spot at the caudal base.

(*Tegula* roofing tile + *fero* to bear; with reference to the dark spots appearing like tiles.)

Barbus stigmasemion new species. Figure 46.

Depth $3\frac{1}{2}$ to 4; head $3\frac{1}{4}$ to $3\frac{2}{5}$, width $1\frac{1}{5}$ to 2. Snout 3 to $3\frac{1}{2}$ in head; eye $2\frac{1}{5}$ to 4, greater than snout in young to $1\frac{1}{4}$ in snout with age, 1 to $1\frac{1}{2}$ in interorbital; maxillary reaches $\frac{1}{5}$ to $\frac{1}{8}$ to eye, length $3\frac{1}{2}$ to $3\frac{2}{5}$ in head; lips rather narrow, fleshy, smooth, lower extend well forward to leave rather narrow frenum at symphysis of mandible; rostral barbel $1\frac{1}{4}$ in eye, very short in young, maxillary $1\frac{1}{2}$ to 3; interorbital 3 to $3\frac{1}{8}$ in head, low, broadly convex; suborbitals narrow, encroach $\frac{1}{3}$ on cheek to preopercle ridge. Gill rakers $1 + 7$, short points, $\frac{1}{4}$ of gill filaments, which $1\frac{2}{5}$ in eye. Pharyngeal teeth 4, 3, 2—2, 4, 5, hooked, with entire, narrow grinding surfaces.

Scales 20 to $22 + 2$ in lateral line; 4 above, 3 below to ventral, 3 below to anal; 10 predorsal. Scales on chest and breast moderate, rather large on belly; 4 rows of rather large scales on caudal base; ventral with pointed axillary scale $2\frac{2}{3}$ in fin. Lateral line complete, scarcely deurved, axial or nearly median along side of body; tubes slender, simple, rather well exposed. Scales with 3 to 6 basal radiating striae to center of scale, besides 1 to 3 incomplete auxiliaries; 5 or 6 radiating apical striae to scale center, besides 1 or 2 incomplete auxiliaries; circuli fine, obsolete apically.

D. III, 8, 1, third simple ray slender, entire, terminally flexible, length $1\frac{1}{10}$ to $1\frac{1}{8}$ in head; A. III, 5, 1, third simple ray entire, terminally flexible, length $1\frac{2}{3}$ to $1\frac{3}{8}$; caudal $2\frac{2}{3}$ to $2\frac{3}{8}$ in rest of fish, deeply forked, slender lobes pointed; least depth of caudal peduncle 2 in head; pectoral $1\frac{1}{3}$ to $1\frac{2}{3}$, rays 1, 15; ventral rays 1, 8. fin $1\frac{2}{5}$ in head.

Back and upper surfaces brown, edge of each scale on back narrowly paler. Narrow dark line around end of snout, broadening on preorbital to black band, then over postocular and axial on side of body to caudal base, at no place with its width more than pupil diameter. Black pocket of each scale in dark lateral band distinct. Iris dark gray, evidently pale in life. Barbels and mandible pale. Dorsal pale brownish basally, gray terminally and apex with contrasted black blotch large as eye. Front edge of dorsal with nearly basal half narrowly blackish and rest white to apex, before black terminal blotch. Caudal pale brown basally, grayish marginally. Lower fins whitish.

A.N.S.P., No. 65865. Batangafo, Ubangi-Shari. Length 85 mm. Type.

Also Nos. 65769 to 65780, same data, paratypes. Length 68 to 80 mm. Series of 113 examples 33 to 60 mm., from 30 kilometers east of Kribi, Cameroons. November 24 to 26.

Apparently differs from *Barbus macrops* Boulenger, from Spanish Guinea, chiefly in well marked or distinctive coloring of its dorsal fin.

(στίγμα spot + σημεῖον banner; with reference to the dorsal fin.)

Barbus trinotatus new species. Figure 49.

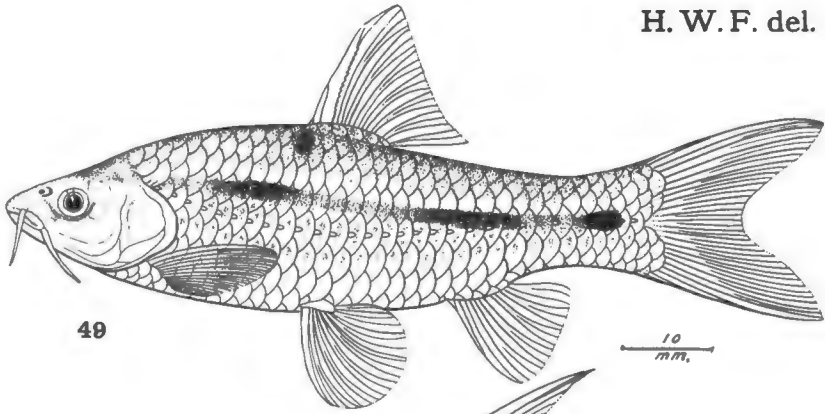
Depth $3\frac{1}{3}$ to $3\frac{2}{3}$; head $3\frac{1}{2}$ to $3\frac{2}{3}$, width $1\frac{3}{8}$ to $1\frac{1}{4}$. Snout $3\frac{1}{4}$ to $3\frac{2}{3}$ in head; eye $3\frac{2}{3}$ to $4\frac{1}{4}$, 1 to $1\frac{1}{8}$ in snout, $1\frac{1}{2}$ to $1\frac{3}{8}$ in head; lips rather narrow, entire, smooth, fleshy, lower extend well forward to leave rather narrow entire symphyseal region; rostral barbel 3 to 4 in head, maxillary $2\frac{1}{2}$ to $2\frac{3}{8}$; inter-orbital $2\frac{7}{8}$ to 3, rather low and broadly convex; suborbitals invade cheek $\frac{2}{3}$ of space to preopercle ridge. Gill rakers 1 + 4, short rudimentary points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{2}$ in eye. Pharyngeal teeth 5, 3, 2—2, 3, 5, pointed and slightly hooked, with moderate, entire grinding surfaces. Pseudobranchiae well developed.

Scales 25 or 26 + 2 in lateral line; 5 above, 3 or 4 below to ventral, 4 or 5 below to anal; 11 predorsal. Scales on chest, breast and belly little smaller than on sides of body. Caudal base with rather small scales. Ventral with small, inconspicuous axillary scale. Lateral line slightly decurved, becomes median along side of caudal peduncle; tubes slender, simple, well exposed. Scales with 5 to 8 basal and 5 to 7 apical striae radiating from scale center, also 2 basal marginals and 2 to 5 incomplete apical auxiliaries; circuli moderately fine, concentric.

D. III, 7, 1, third simple ray osseous, firm, with 17 antrorse serrae along hind edge for all but basal fourth, length to end of flexible point $1\frac{1}{8}$ to $1\frac{1}{4}$ in head; A. III, 5, 1, third simple ray with terminal half flexible, its length $1\frac{1}{2}$; caudal 3 to $3\frac{1}{4}$ in rest of fish, deeply emarginate; least depth of caudal peduncle 2 in head; pectoral $1\frac{2}{3}$ to $1\frac{1}{2}$, rays 1, 13; ventral rays I, 7, fin $1\frac{1}{2}$ to $1\frac{3}{8}$ in head.

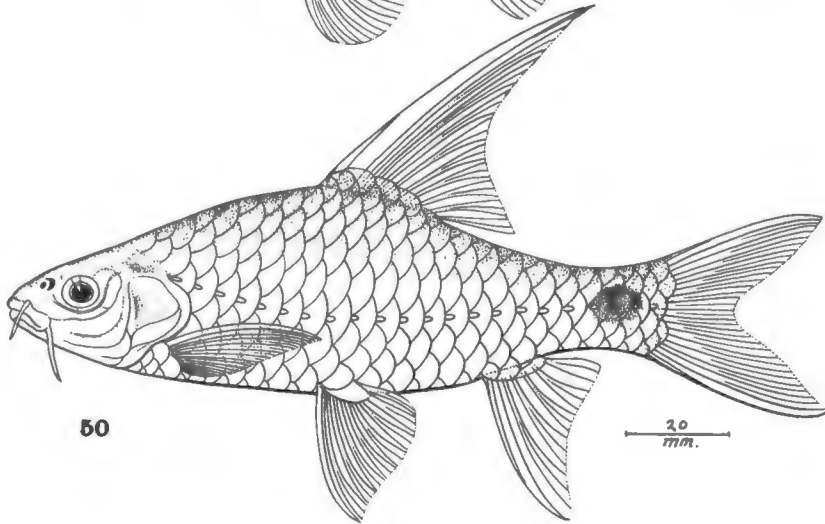
Back brown, well down on sides, lower and under surfaces paler to whitish. From above beginning of lateral line dark or black horizontal bar over 2 scales, then axially another similar bar appears over end of pectoral, a third one over front of anal and finally a rounded black spot at middle of caudal base little smaller than eye. With age these blackish spots are variably extended to form a more or less continuous black lateral band. Iris brownish. Barbels pale. Dorsal and caudal grayish, other fins whitish.

H. W. F. del.



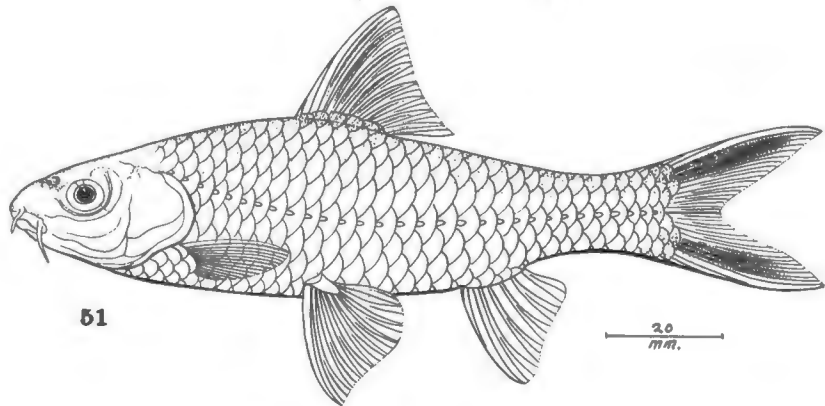
49

10
mm.



50

20
mm.



51

20
mm.

49. *Barbus trinotatus*. 50. *Barbus tanensis*.
51. *Barbus caudovittatus*.

A.N.S.P., No. 65866. Saidi's Village, Belgian Congo. Length 86 mm. Type.

Also Nos. 65867 to 65878, same data, paratypes. Length 29 to 84 mm.

Known by its striking color pattern. Perhaps related to *Barbus kni-luensis* Pellegrin 1930 from Kouilou, in its depth $2\frac{2}{3}$ to $3\frac{1}{4}$, shorter barbels, sides with 3 to 5 small black spots on flanks, rounded and disposed longitudinally in same line.

(*Trinotatus* three-spotted.)

LANCEABARBUS new subgenus

Barbels 4, all long. Lower lip forms broad flap of symphysis of mandible and its hind edge free. Row of scales above lateral line enlarged over costal region. Two rows of scales below lateral line.

Type *Barbus tanensis* Günther.

Distinguished chiefly by the very long, straight, smooth spinous third simple dorsal ray, which when depressed with its tip reaching the caudal base.

(*Lancea* lance or pike + *Barbus*.)

Barbus tanensis Günther. Figure 50.

Depth $2\frac{1}{3}$ to $3\frac{1}{4}$; head 3 to $3\frac{2}{3}$, width $1\frac{1}{3}$ to $2\frac{1}{8}$. Snout 3 to $3\frac{2}{3}$ in head; eye $3\frac{1}{2}$ to 5, 1 to $1\frac{2}{3}$ in snout, 1 to $1\frac{2}{3}$ in interorbital; maxillary reaches $\frac{1}{3}$ to eye, length 3 to $3\frac{1}{2}$ in head; rostral barbel $1\frac{1}{2}$ in snout, maxillary $1\frac{1}{8}$; barbels very short in young, rostral absent or only very small rudiment and maxillary about $\frac{1}{3}$ of eye; lips fleshy, smooth, moderate, lower extending forward and forming broad flap over symphysis of mandible, its hind edge free; interorbital $2\frac{2}{3}$ in head, low, broadly convex; suborbitals narrow, invade $\frac{1}{3}$ to $\frac{2}{3}$ of cheek to preopercular ridge. Gill rakers 2 + 15, short points, $\frac{1}{4}$ of gill filaments, which $1\frac{2}{3}$ in eye. Pharyngeal teeth 5, 4, 2—2, 3, 5, largest hooked, with smooth grinding surfaces.

Scales 24 or 25 + 3 in lateral line; 5 above, 3 below to ventral, 3 or 4 below to anal; 9 predorsal. Scales on chest and breast small, little larger on belly though not so large as lateral body scales; 3 rows of rather large scales on caudal base; ventral with pointed axillary scale $\frac{2}{3}$ length of fin. Lateral line complete, little decurved; tubes simple, small, little exposed or short. Scales with 5 to 18 radiating marginal basal striae; 20 to 48 radiating apical striae; circuli fine, obsolete apically. Preorbital region with 4 or 5 very irregular rows of minute pearl organs; upper surface of head studded with minute pearl organs.

D. IV, 9, 1, simple rays osseous, fourth enlarged, straight, strong, entire, smooth, and when depressed its cutaneous tip reaching opposite caudal base, last ray $2\frac{1}{2}$ to 3 in first branched ray; A. III, 5, 1, simple rays slender, third with terminal half flexible, entire, length $1\frac{1}{4}$ to $1\frac{2}{3}$ in head; caudal $2\frac{2}{3}$ to $2\frac{1}{2}$ in rest of fish, deeply forked; least depth of caudal peduncle $2\frac{1}{8}$ to 3 in head; pectoral $1\frac{1}{8}$ to $1\frac{1}{2}$, rays 1, 16; ventral I, 8, fin $1\frac{1}{3}$ to $1\frac{2}{3}$ in head.

Back brown, sides paler and lower surfaces apparently whitish. On back dark scale pocket of each scale shows through as a rather large ill-defined darker blotch. Iris gray, apparently whitish in life. Barbels pale.

Dorsals light brownish, little gray on basal half of each dorsal membrane. Lower fins whitish.

Series of 55 examples 36 to 165 mm. Athi River Crossing, near Kibwezi, Kenya Colony, July 19 to 26.

There is certainly nothing in Boulenger's description or figure of his *Barbus hindii* to retain it as a distinct species. The long, smooth, osseous third simple ray or spine is more greatly developed than he shows. The figure of the type of *B. tanensis* is based on a deep-bodied specimen with long barbels and short, simple, osseous third ray, and may be a female. I have similar small specimens. Boulenger uses as a fundamental distinctive character for his *B. mathoiae*, based on an upper Tana River specimen 220 mm. long, the lower lip interrupted on the chin, whereas in the foregoing species it is said to be continuous across the chin. My specimens seem very variable in this character.

Labeo lukulae Boulenger.

Depth $3\frac{1}{2}$; head $3\frac{2}{5}$, width $1\frac{1}{2}$. Snout $1\frac{1}{8}$ in head; eye $5\frac{1}{3}$, 3 in snout, $2\frac{2}{5}$ in interorbital; maxillary reaches $\frac{2}{3}$ to eye, length 2 in head; mouth width $2\frac{2}{5}$; rostral fold broad, its hind edge rather coarsely crenulated medially; lips fleshy, upper little narrower than lower, entire; lower lip with front and hind edge papillate; barbel not evident; interorbital $2\frac{1}{10}$, low, broadly and shallowly convex; suborbitals invade $\frac{1}{3}$ of cheek to preopercular ridge.

Scales 32 + 3 in lateral line; 5 above, 4 below to ventral, 4 below to anal; 11 predorsal. Chest and breast with small scales, and scales on belly smaller than lateral scales; 3 rows of rather large scales on caudal base; ventral with axillary scale $2\frac{2}{3}$ in fin. Lateral line rather obsolete, axial, complete; tubes small, short, inconspicuous. Scales with 22 basal radiating striae and 64 longer apical striae; circuli fine, basal, obsolete apically. End of snout with 6 irregular series of rather large close-set pearl organs, which scatter over side of rostral fold and lower preorbital to cheek; band of 4 or 5 transverse series of pearl organs connecting snout until close before eye.

D. III, 11, 1, third simple ray slender, entire, flexible, $1\frac{1}{10}$ in head; A. III, 5, 1, third simple ray slender, entire, flexible, length $1\frac{2}{5}$; caudal $2\frac{2}{5}$ in rest of fish; least depth of caudal peduncle $1\frac{1}{8}$ in head; pectoral $1\frac{1}{6}$, rays 1, 14; ventral rays I, 8, fin $1\frac{1}{8}$ in head.

Back dark olive brown, sides paler and under surfaces whitish. Iris grayish. Rostral fold gray, lips pale or whitish and maxillary sulcus gray black. Fins brownish, each membrane of dorsal with gray black median streak, other fins more or less gray black medially.

One 220 mm. Epulu River Ferry, Belgian Congo. September. Boulenger's figure does not show any lateral line or any pearl organs on the cheek.

Labeo intermedius Nichols and Griscom is described from an example 225 mm. from Stanleyville and another 115 mm. from Rungu. The figure, evidently of the former or type, shows 4 scales below the lateral line to the ventral origin, though the description says "Scales 35, 3 between lateral line and root of ventral." Although it is compared with *Labeo chariensis*

Pellegrin, from which it is said to differ in its slenderer body and greater interorbital width, I think the figure of *L. intermedius* more closely resembles *L. greeni*, also from the upper Congo and Ubangi. The dark blotch on the caudal base and one subterminally on each caudal lobe, shown in great contrast in Boulenger's figure, seem about the only apparent difference.

Labeo lukulae loangoensis new subspecies. Figure 53.

Depth 4; head 4, width $1\frac{1}{2}$. Snout 2 in head; eye 6, $2\frac{2}{3}$ in snout, $2\frac{3}{4}$ in interorbital; maxillary not quite reaching opposite eye, length from snout tip $2\frac{1}{4}$ in head; mouth width as measured from outer edges $2\frac{1}{10}$; preoral space as measured from middle of hind edge of rostral fold equals width of lips, its edge unevenly jagged or laciniate; upper lips entire, lower greatly papillate, with weak transverse plicae, and its hind edge slightly fringed, forms free fold across symphysis of mandible; concealed maxillary barbel $1\frac{3}{8}$ in eye; interorbital $2\frac{1}{4}$ in head, broad, slightly convex; suborbitals narrow, not quite invading half of cheek to preopercle ridge. Gill rakers $8 + 60?$, fine, slender, lanceolate, $3\frac{1}{2}$ in gill filaments, which equal eye. Pharyngeal teeth 5, 5, 2—2, 5, 5, without hooks, compressed, grinding surfaces moderate.

Scales $32 + 2$ in lateral line; 6 above, 4 below to ventral, 5 below to anal origin; 12 predorsal. Small scales on chest, breast and belly. Scales moderately large on caudal base; ventral axillary scale $2\frac{7}{8}$ in fin. Lateral line distinct though not conspicuous, slightly decurved along side of body; tubes small, short, simple, little exposed. Scales with 22 basal and 64 apical radiating striae; circuli fine.

D. III, 10, 1, simple slender rays entire, third with terminal half flexible, length 1 in head; A. III, 5, 1, first branched ray $1\frac{1}{3}$; least depth of caudal peduncle 2; pectoral 1, rays 1, 13; ventral rays I, 8, fin $1\frac{1}{2}$ in head; caudal $2\frac{7}{8}$ in rest of fish, forked, slender lobes pointed.

Back brown, each scale with darker margin, these also extended down on sides. Lower sides and under surfaces whitish. Iris grayish. Lips and under surface of head whitish. Dorsal and caudal brownish, on former membranes subbasally and median membranes of latter dark brown. Lower fins paler.

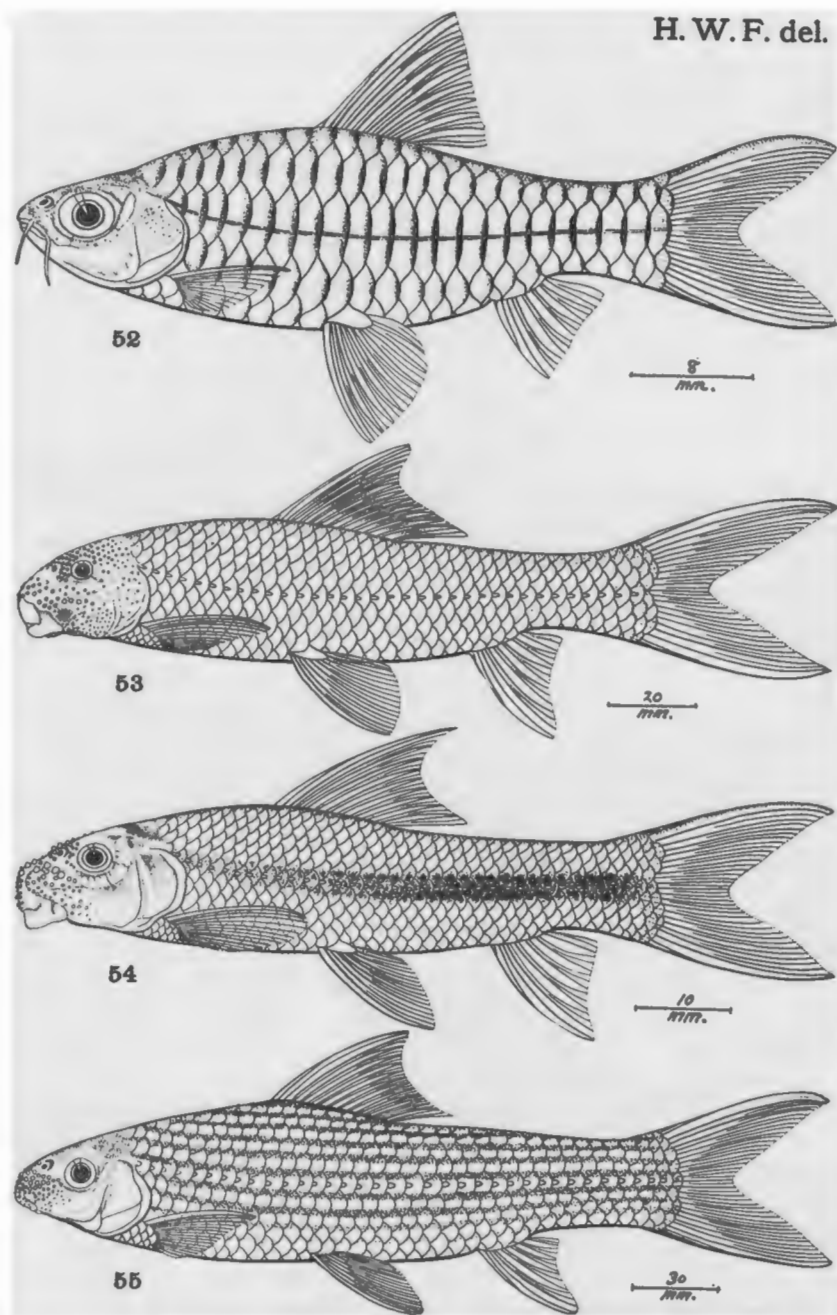
A.N.S.P., No. 38553. N'Kutu, Loango River, Chiloango, West Africa. Dr. W. J. Ansorge. Purchased. Length 178 mm. Type.

In 1930 I reported the above specimen as *Labeo lukulae*. It differs in the very different arrangement of its pearl organs. These are extensive on the snout, 4 or 5 transverse series of large ones around the tip with several series of smaller ones immediately below in front; band of large tubercles connect nostrils and patch on preorbital; cheek and lower side of head or branchiostegal region more or less completely studded with small, obsolete papillae; whole top of head with still smaller papillae, more numerous and crowded anteriorly or on interorbital.

(Named for the Loango River.)

Labeo parvus Boulenger.

Series of 190 examples 47 to 76 mm. Fort Sibut, Ubangi-Shari. The barbel is quite variable, sometimes nearly as long as the eye or it may be



52. *Barbus kemoensis*.
54. *Labeo cylindricus*.

53. *Labeo lukulae loangoensis*.
55. *Labeo weeksii*.

very short so that only its tip appears exposed. This condition is like *Labeo luluae* Fowler, which may be synonymous. Likewise the eye is also quite variable in size, as in some of the larger specimens it is quite large, in others small.

Labeo cylindricus Peters. Figure 54.

Depth $4\frac{1}{8}$ to $4\frac{1}{3}$; head $3\frac{1}{2}$ to $3\frac{3}{8}$, width $1\frac{3}{8}$ to $1\frac{1}{5}$. Snout $2\frac{2}{5}$ to 3 in head; eye $3\frac{1}{2}$ to 5, $1\frac{1}{2}$ to 2 in snout, $1\frac{3}{4}$ to 2 in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{2}{5}$ to eye, length $2\frac{1}{4}$ to $3\frac{2}{5}$ in head; mouth width $2\frac{1}{10}$ to $2\frac{1}{2}$; rostral fold with hind edge entire; lips thick, fleshy, equally broad, edges entire, or face of lower with 2 rows of large papillae; rostral barbel absent in young, minute and very inconspicuous with age, maxillary barbel moderate or $1\frac{1}{4}$ to $1\frac{1}{5}$ in eye; interorbital $2\frac{1}{2}$ to $2\frac{2}{5}$ in head, slightly depressed or concave; suborbitals narrow, invade $\frac{1}{4}$ to $\frac{1}{3}$ of cheek to preopercle ridge. Gill rakers 3 + 20?, short, flexible points, $\frac{1}{4}$ of gill filaments or $1\frac{1}{3}$ in eye. Pharyngeal teeth 5, 3, 2—2, 4, 5, small, hooked, with grinding surfaces.

Scales 33 or 34 + 3 in lateral line; 6 above, 5 below to ventral, 5 below to anal; 9 predorsal. Small scales on chest, breast and belly; caudal with 3 basal rows of scales; ventral with axillary scale $2\frac{2}{5}$ in fin. Lateral line nearly straight, axial, scales with small, short simple tube. Scales with 16 or 17 short radiating basal striae, 24 to 33 apical; circuli fine basally, obsolete apically. On front edge of snout 4 or 5 irregular rows of large pearl organs, extend back over preorbital; on upper front edge of snout, crescentic row of 5 or 6 pearl organs before nostrils; interorbital and whole top of head with numerous, close-set, rather fine or minute pearl organs.

D. III, 9, 1, third simple ray slender, flexible terminally; first branched dorsal ray reaches beyond last dorsal ray tip, length $3\frac{1}{4}$ to $3\frac{3}{8}$ in fish without caudal; A. III, 5, 1, with third simple ray slender, flexible terminally, length $1\frac{2}{5}$ to $1\frac{1}{5}$ in head; caudal $2\frac{1}{4}$ to $2\frac{2}{5}$ in rest of fish, deeply forked; least depth of caudal peduncle $2\frac{1}{3}$ to $2\frac{3}{4}$ in head; pectoral $1\frac{1}{2}$ to $1\frac{2}{5}$, rays 1, 14; ventral I, 8, fin $1\frac{1}{4}$ to $1\frac{1}{2}$ in head.

Back brown, sides paler and under surfaces white. Dark band down middle of back, extends around dorsal base. Obscure underlaid dark gray lateral band, axial, ill-defined, from below suprascapula to middle of caudal base; also forward, obscure on postocular and preocular. Iris grayish. Lips pale or whitish, though rostral fold with whitish marginally, above with brownish. Barbels pale. Fins pale brownish, lower ones more whitish.

Thirty-eight 41 to 88 mm. Athi River Crossing, near Kibwezi, Kenya Colony. July 16 to 26.

Labeo weeksii Boulenger. Figure 55.

Depth $3\frac{1}{2}$ to $3\frac{2}{3}$; head $3\frac{1}{4}$ to $4\frac{1}{2}$, width $1\frac{1}{2}$ to $1\frac{1}{4}$. Snout $2\frac{1}{5}$ to 3 in head; eye $3\frac{3}{4}$ to $3\frac{2}{3}$, $1\frac{1}{4}$ to $1\frac{1}{2}$ in snout, $1\frac{1}{5}$ to 2 in interorbital; maxillary reaches $\frac{1}{2}$ to $\frac{2}{5}$ in snout, length $3\frac{2}{5}$ to 4 in head; mouth width $2\frac{2}{5}$ to 3; rostral fold rather broad, extends well over upper lip; both lips rather narrow, with 2 series transversely of rather conspicuous, small, conic fleshy tentacles, though those in upper jaw slightly larger; small, concealed, maxillary barbel about $\frac{1}{4}$ of eye; interorbital 2 to $2\frac{1}{4}$ in head, rather low, broadly convex; suborbitals narrow, invade $\frac{1}{3}$ of cheek to preopercle ridge. Gill rakers 15 + 68, short, flexible, close-set points, $3\frac{3}{4}$ in gill filaments, which $1\frac{1}{2}$ in eye. Pharyngeal teeth 5, 4, 2—2, 4, 5, largest well compressed, most all with broad, long, oblique, entire, grinding surfaces.

Scales 33 + 3 or 4 in lateral line; 6 above, 4 below to ventral, 5 or 6 below to anal, 11 or 12 predorsal. Small scales on chest and breast; smaller scales on belly than lateral scales; axillary ventral scale $2\frac{1}{4}$ in fin; 4 rows of rather large basal scales on caudal. Lateral line straight, complete, axial; tubes small, simple, slender, short. Scales with 11 or 12 short basal radiating striae, 22 to 60 longer radiating apically; circuli basal, fine, obsolete apically. Front end of snout with 4 or 5 series of close-set and rather small pearl organs, extend back to cover preorbital so that about 12 in series transversely below nostrils to hind end of maxillary; region between nostrils and interorbital, with numerous, close-set, obscure, fine pearl organs.

D. III, 12, I, third simple ray terminally but slightly pungent, entire, bends moderately, length $3\frac{1}{4}$ to $4\frac{2}{3}$ in fish without caudal; A. II, 5, I, second simple ray compressed, rather pungent, entire, length $1\frac{1}{4}$ to $1\frac{3}{8}$ in head; caudal $2\frac{1}{4}$ to $3\frac{3}{8}$ in rest of fish, large, deeply emarginate; least depth of caudal peduncle $1\frac{1}{2}$ to $2\frac{1}{3}$; pectoral 1 to $1\frac{1}{2}$, rays 1, 15; ventral rays I, 8, fin $1\frac{1}{10}$ to $1\frac{3}{8}$ in head.

Back brown, sides below little paler. Each row of scales on back and sides with a dark longitudinal line at scale junctures. Iris gray brown. Lips pale. Fins all pale or light brownish. Dorsal and caudal grayish terminally.

Three 59 to 62 mm., Fort Sibut, Ubangi-Shari, October; one 275 mm., Nola, Middle Congo, October-November.

Labeo victorianus Boulenger.

Depth $3\frac{3}{4}$ to $4\frac{2}{8}$; head $4\frac{1}{3}$ to $4\frac{2}{8}$, width $1\frac{2}{8}$ to $1\frac{3}{7}$. Snout $2\frac{1}{4}$ to $2\frac{1}{3}$ in head; eye $6\frac{1}{4}$ to $7\frac{1}{3}$, $1\frac{1}{3}$ to $2\frac{3}{4}$ in snout, $3\frac{1}{3}$ to $3\frac{3}{8}$ in interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{2}{3}$ in snout, length 3 to $3\frac{1}{3}$ in head; rostral fold rather broad, its hind edge uneven with short papillae, encroaching narrowly on upper lip; lips moderate, thick, fleshy, upper smooth or with feeble, irregular, transverse grooves; both edges of lower lip uneven, with small marginal papillae; minute, concealed maxillary barbel; mouth width $2\frac{1}{3}$ to $2\frac{1}{2}$; interorbital 2 to $2\frac{1}{8}$, moderately high, broadly convex; suborbital width narrow, invades $\frac{1}{3}$ of cheek to preopercular margin. Gill rakers 14 + 50, short, low, uniform, flexible points. Pharyngeal teeth 5, 4, 2—2, 4, 5, compressed, all with smooth, inclined or levelled edges.

Scales 33 to 35 + 3 in lateral line; 6 above, 5 below to ventral, 5 below to anal; 13 predorsal. Breast and chest with small scales, larger on belly though smaller than lateral scales; 3 or 4 rows of moderately large scales on caudal base; axillary ventral scale $\frac{2}{3}$ of fin. Lateral line complete, inconspicuous, axial; tubes small, simple, little exposed. Scales with 20 to 27 basal radiating striae, 73 or 74 longer ones apically; circuli fine, basal, obsolete apically. Pearl organs as 2 or 3 irregular series of tubercles on end of snout and preorbital; row of several tubercles forward from each nostril; top of head with very numerous close-set papillae.

D. III, 9, I or III, 10, I, third simple ray smooth, slender, terminal half flexible, length 1 to $1\frac{1}{10}$ in head; A. III, 5, I, third simple ray smooth, slender, terminal half flexible, length $1\frac{1}{2}$ to $1\frac{3}{8}$; caudal $3\frac{1}{3}$ to $3\frac{1}{2}$ in rest of fish, deeply forked, lobes broad and moderately pointed; least depth of caudal peduncle $1\frac{1}{3}$ to $1\frac{9}{10}$ in head; pectoral $1\frac{1}{8}$ to $1\frac{1}{4}$, rays 1, 15; ventral I, 8, length $1\frac{1}{4}$ to $1\frac{1}{3}$ in head.

Back brown, sides and below paler or soiled whitish. Iris gray. Lips pale. Dorsal and caudal brownish. Dorsal, caudal and anal with membranes more or less dark gray to gray black. Paired fins brownish.

Five 228 to 270 mm. Lake Victoria at Kitale, Uganda, August 9 to 16.

LEUCISCINAE

BARILIUS Buchanan-Hamilton

Subgenus OPSARIDION Peters

Barbels present or not. Type *Leuciscus zambesensis* Peters.

Barilius ubangensis Pellegrin. Figure 56.

One 83 mm. Saidi's Village, Belgian Congo; three 45 to 98 mm. Eki-bondo, September.

SAGITTABARILIUS new subgenus

Known by its long slender body and long maxillary, which reaches the middle or nearly opposite hind eye edge. Postocular bone of suborbital series very large and broad. Side with 7 or 8 dark transverse bars.

Type *Barilius salmolucius* Nichols and Griscom.

Barilius longirostris Boulenger is probably a member of this group, with similar profile, though without dark transverse bars.

(*Sagitta* arrow + *Barilius*.)

Barilius salmolucius Nichols and Griscom. Figure 57.

Depth 5; head $3\frac{1}{3}$, width $2\frac{1}{3}$. Snout $3\frac{1}{10}$ in head; eye $4\frac{1}{10}$, $1\frac{1}{4}$ in snout, 1 in interorbital; maxillary reaches $\frac{1}{2}$ in eye, length 2 in head; lips narrow, fleshy, lower extended forward $\frac{2}{3}$ in mandible leaving broad frenum at symphysis; interorbital $4\frac{1}{4}$, low, nearly level; suborbitals broad, cover $\frac{2}{3}$ of cheek to preopercle ridge and postocular $\frac{1}{3}$ of eye. Gill rakers 2 + 5, short weak points, $\frac{1}{4}$ of gill filaments, which 2 in eye.

Scales 39 + 3 in lateral line; 9 above, 3 below to ventral, 4 below to anal; 21 predorsal. Small scales on chest and breast, and little larger on belly, though these smaller than lateral scales. Pectoral with pointed axillary scale $2\frac{1}{3}$ in fin and ventral scaly flap 2 in fin. Caudal base with 3 rows of moderately large scales. Lateral line well decurved, complete, tubes slender and well exposed. Scales without basal striae; 10 or 11 radiating apical striae; circuli fine, more or less complete, though less perfect apically.

D. III, 9, 1, first branched ray $1\frac{3}{4}$ in head; A. III, 13, 1, first branched ray 2, fin origin below base of seventh dorsal ray; caudal $3\frac{2}{5}$ in rest of fish, well forked and slender lobes pointed; least depth of caudal peduncle $3\frac{3}{4}$ in head; pectoral $1\frac{1}{2}$, rays 1, 16, fin reaches within 5 scales of ventral; ventral rays I, 8, fin $2\frac{1}{2}$ in head.

Light brown on back, sides paler and under surfaces whitish, with traces of silvery reflections. On body 9 dark brown vertical bars, last 3 or 4 as dark blotches or spots. Snout and head above brownish, sides and below pale to whitish. Iris gray. Fins brownish, lower ones brownish.

One 86 mm. Ekibondo's Village, Belgian Congo. September.

ENGRAULICYPRIS Günther

Subgenus ENGRAULICYPRIS Günther

Maxillary not reaching below eye. Lower gill rakers numerous, about 30. Scales 48 to 52. Dorsal origin before anal origin. Anal with 10 or 11 branched rays. Pectoral reaches $1\frac{1}{2}$ to ventral.

Type *Engraulicypris pinguis* Günther = *Barilius sardella* Günther.

ANCHOVICYPRIS new subgenus

Maxillary reaches half way below eye. Gill rakers few, wide-set points, 6 below. Pectoral reaches to or beyond ventral base.

Type *Engraulicypris congicus* Nichols and Griscom.

Differs from *Engraulicypris* and *Neobola* in the well developed axillary scaly flaps of the paired fins. The latter seems nearer in its few and very short lower gill rakers, the maxillary reaching well below the eye and the pectoral nearly reaching the ventral.

(*Anchovia* + *Cypris* or *Cyprinus*.)

Engraulicypris congicus Nichols and Griscom. Figure 58.

Depth $5\frac{1}{4}$; head $4\frac{1}{8}$, width $2\frac{3}{8}$. Snout 4 in head; eye $4\frac{1}{8}$, subequal with snout, $1\frac{1}{8}$ in interorbital; maxillary reaches $\frac{1}{2}$ in eye, length 2 in head; lips narrow, lower extends well forward though leaves broad, entire symphyseal area; nostrils large and with intervening flap; interorbital $3\frac{1}{4}$, low, convex; suborbitals broad, extend over cheek to preopercular ridge.

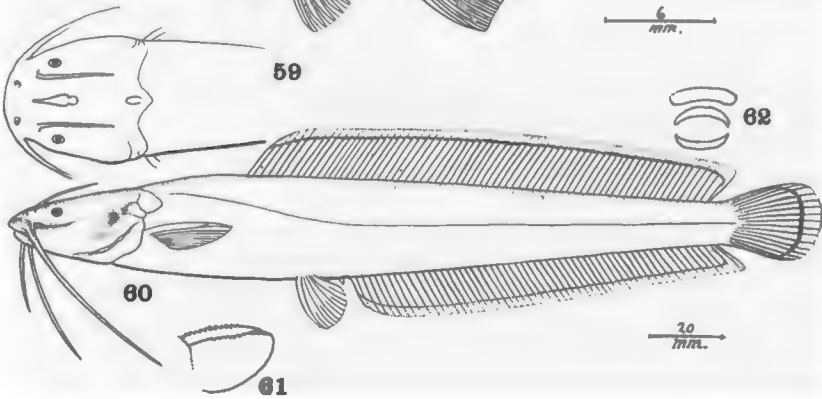
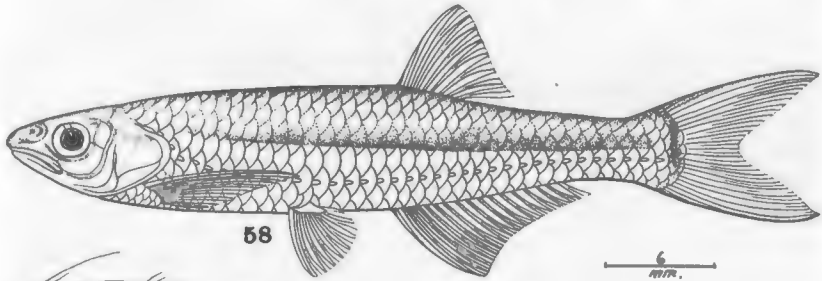
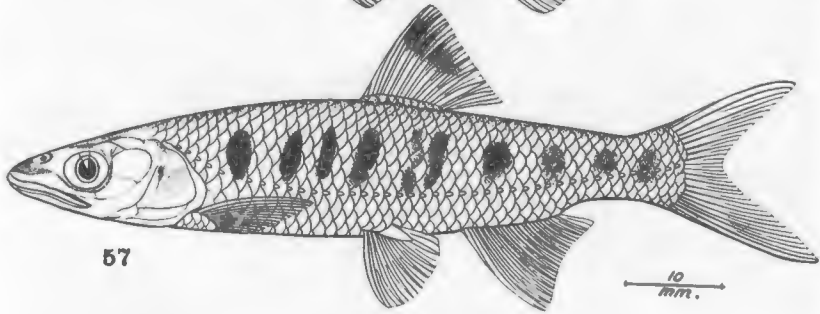
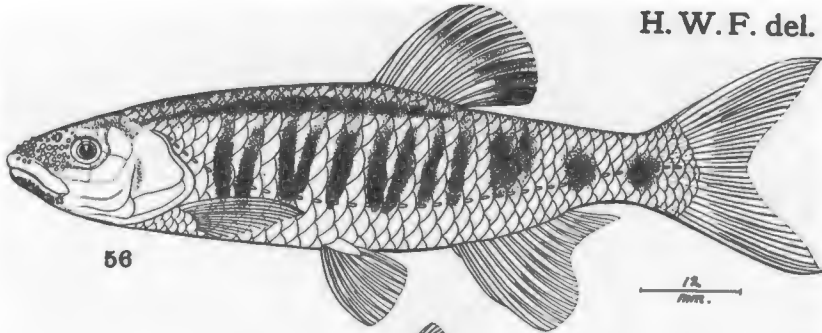
Scales 33 + 2 in lateral line; 6 above, 2 below to ventral, 2 below to anal; 21 predorsal. Scales moderate on chest and breast and large scales above middle of side of body. Caudal with 3 rows of rather large basal scales. Pectoral with long pointed axillary scaly flap $2\frac{3}{8}$ in fin; ventral scaly flap $1\frac{3}{4}$ in fin. Lateral line complete, deeply decurved and ascends obliquely to median caudal base; tubes moderate, slender or narrow, all well exposed. Scales very thin, delicate, with 3 short basal and somewhat radiating striae, also 4 longer apically; circuli fine, broad, obsolete or indistinct apically.

D. III, 7, 1, origin slightly behind anal origin, first branched ray $1\frac{3}{8}$ in head; A. III, 15, 1, first branched ray $1\frac{3}{8}$; caudal $3\frac{1}{8}$ in rest of fish, well forked and lobes sharply pointed; least depth of caudal peduncle $2\frac{3}{8}$; pectoral 1, fin reaches little beyond ventral origin, rays 1, 11; ventral rays I, 7, fin 2 in head.

Uniformly pale or very light brown, with obscure brown axial band, widest on tail though less than vertical eye diameter; this band traversed throughout its course by dark median or axial line. Iris gray, evidently silvery white in life. Fins all pale to whitish.

One 44 mm. Fort Sibut, Ubangi-Shari, December. Differs slightly from the larger specimens of Nichols and Griscom in that it shows scales on the chest and breast, the pectoral reaching over the ventral base and the paired fins each with a long pointed scaly axillary flap. Moreover its fin rays and scales are fewer and in agreement with my *E. luluuae*, which is apparently synonymous.

H. W. F. del.



56. *Barilius ubangensis*. 57. *Barilius salmolucius*.
58. *Engraulicypris congicus*. 59 to 62. *Clarias hilli*.

RASTRINEOBOLA new subgenus

Lower gill rakers 15 or 16, lanceolate. No pointed axillary scale to either pair of paired fins. Scales 46 to 50. Dorsal origin opposite to or slightly before anal origin. Pectoral reaches $1\frac{3}{8}$ to ventral.

Type *Neobola argentea* Pellegrin.

(*Rastrum* rake or raker, with reference to the gill rakers + *Neobola*.)

Engraulicypris argenteus (Pellegrin).

Depth $4\frac{1}{3}$ to 6; head $3\frac{3}{8}$ to 4, width $2\frac{1}{3}$ to $2\frac{2}{5}$. Snout 4 in head from snout tip; eye $2\frac{1}{5}$ to $3\frac{1}{4}$, greater than snout or interorbital, subequal with interorbital with age; maxillary reaches front edge of eye, length $2\frac{2}{5}$ to $3\frac{2}{5}$ in head from snout tip; lips narrow, thin, little fleshy, lower extends forward $\frac{3}{8}$ length of lower jaw; interorbital $3\frac{2}{5}$ to $3\frac{3}{8}$ in head, low, broadly convex; suborbitals broad, cover cheek to preopercular ridge. Gill rakers 3 + 14, slender, lanceolate, $\frac{1}{2}$ of gill filaments, which $1\frac{1}{8}$ in eye.

Scales 47 or 48 + 3 in lateral line, which abruptly bent down low just before ventral origin; 9 above, 2 below to ventral, 2 below to anal; 31 predorsal. Small scales on chest, breast and belly; 3 rows on caudal base; scales on body all narrowly imbricated. Scales with 5 to 8 very short, marginal, basal striae and 2 to 4 little longer ones apically; circuli fine, basal, less distinct apically.

D. III, 7, 1, simple rays entire, longest little flexible and $1\frac{3}{8}$ to $1\frac{2}{3}$ in total head; A. III, 13, 1 to III, 15, 1, simple rays slender, smooth, longest little flexible and $1\frac{7}{8}$ to $2\frac{1}{10}$; caudal $3\frac{1}{2}$ to $3\frac{3}{5}$ in rest of fish, deeply forked, long, slender lobes sharply pointed; least depth of caudal peduncle $2\frac{2}{5}$ to $2\frac{3}{4}$ in total head length; pectoral $1\frac{1}{8}$ to $1\frac{1}{3}$, rays 1, 8; ventral rays I, 6, fin $1\frac{9}{10}$ to $2\frac{1}{8}$ in total head length.

Back brown, edge of each scale dotted with blackish. Gray underlaid lateral band, axial, wider and more conspicuous on side of tail and caudal peduncle. Head, including end of lower jaw dusted with dark or blackish brown. Iris gray, evidently pale in life. Fins brownish, lower ones paler to whitish.

Ninety-two 30 to 64 mm. Lake Victoria at Kitale, Uganda, August 9 to 16.

CLARIIDAE

Clarias anguillaris (Linnaeus).

Depth $7\frac{1}{4}$; head $4\frac{1}{3}$, width $1\frac{1}{3}$. Snout $2\frac{2}{3}$ in head; eye $12\frac{1}{2}$, $3\frac{1}{2}$ in snout, 6 in interorbital; mouth width $2\frac{3}{4}$ in head; maxillary barbel reaches $\frac{1}{2}$ in depressed pectoral, outer mental $\frac{1}{4}$, inner mental reaches $\frac{5}{8}$ to pectoral origin, nasal barbel reaches $\frac{3}{4}$ to hind edge of gill opening; teeth villiform, in moderate bands in jaws and rather narrow crescentic band on vomer, less in width than band of upper jaw; interorbital $2\frac{1}{4}$ in head, low, broadly and slightly convex; frontal fontinel $1\frac{2}{3}$ in interorbital, 3 times occipital; supra-occipital extension an isocles triangle, extends halfway to dorsal origin. Gill rakers 3 + 19, lanceolate, $1\frac{1}{3}$ times eye; gill filaments $\frac{7}{8}$ of gill rakers.

Skin smooth, thin on cranium and top of head, where smooth to touch. Lips and basal portions of larger barbels finely papillate.

D. 70, hind fin edge 2 eye diameters distant from caudal base, fin height $3\frac{1}{4}$ in head; A. 51, hind edge nearly encroaching on caudal base, fin height $3\frac{3}{4}$; caudal $1\frac{1}{5}$, convex behind; least depth of caudal peduncle $3\frac{1}{5}$; pectoral 2, reaches opposite dorsal origin, spine with 16 antrorse serrae on outer edge and inner edge entire; ventral $2\frac{3}{4}$ in head and last fourth of fin encroaching on anal.

Back olive brown, whitish on under surfaces with line of demarcation along side of head distinct and bounded by dark line, more nebulous on rest of body. On each side of mandible below a dark streak back until close before pectoral base. Iris dark gray. Barbels brownish, lower ones paler basally. Fins brownish, paler marginally. Several large, scattered black spots on dorsal and caudal fins and tail.

One 227 mm. Batangafo, Ubangi-Shari.

Clarias angolensis Steindachner.

Depth $5\frac{3}{4}$ to $6\frac{1}{5}$; head $4\frac{1}{5}$ to $4\frac{1}{3}$, width $1\frac{1}{5}$ to $1\frac{1}{4}$. Snout $2\frac{4}{5}$ to 3 in head; eye 9 to 11, 3 to $4\frac{1}{4}$ in snout, $4\frac{1}{4}$ to 6 in interorbital; mouth width $2\frac{1}{8}$ to $2\frac{3}{8}$ in head, lower jaw much shorter; maxillary barbel reaches to end of pectoral or ventral origin, outer mental barbel reaches $\frac{3}{4}$ to end of depressed pectoral, inner mental reaches pectoral origin or $\frac{1}{5}$ in pectoral, nasal barbel reaches hind edge of gill opening or middle of pectoral; teeth villiform, in rather broad bands in jaws, similar narrower crescentric band on vomer; interorbital $1\frac{1}{8}$ to 2 in head, low, but slightly convex, largely flattened; frontal fontanel nearly twice as long as occipital fontanel, which $1\frac{1}{2}$ times eye; supraoccipital extension an equilateral triangle invading $\frac{2}{5}$ ($\frac{1}{2}$ in young) of predorsal. Gill rakers 4 + 11, lanceolate, equal gill filaments or $1\frac{2}{3}$ times eye. Inside gill opening shoulder girdle with small knobbed extension.

Skin smooth, over cranium smooth and rather thin. Lips and thickened bases of barbels papillate. Lateral line distinct, complete, axial.

D. 72 to 74, hind edge equals or less than eye diameter from vertical of caudal base, fin height $2\frac{1}{2}$ to $2\frac{7}{8}$ in head; A. 57 or 58, hind edge eye diameter from vertical of caudal base, fin height $2\frac{2}{5}$ to 3; caudal $1\frac{1}{2}$ to $1\frac{2}{5}$, convex behind; least depth of caudal peduncle $2\frac{7}{8}$ to 3; pectoral $1\frac{3}{8}$ to $1\frac{4}{5}$, reaches $1\frac{1}{4}$ to, or to dorsal origin, rays I, 8, spine serrated on both edges, 25 or 26 serrae on front edge and 10 to 12 much larger on inner edge; ventral I, 5, fin $2\frac{1}{2}$ to $2\frac{3}{8}$ in head, overlaps front of anal $\frac{1}{4}$ to $\frac{1}{3}$ its own length.

Olive or sienna above, marbled or blotched irregularly with obscure gray black cloudings, not extending on under surface of head, belly and lower surface of tail above anal fin. Entire upper surfaces all marked with very variable, small, scattered pale or white to gray white spots, these also scattered variably over vertical fins, though on latter often only basal. Lower surface of body with pale to gray white tints, often with pale gamboge or yellowish brown. Sometimes dark brown tinge on under faces of mandible, which may also be white spotted. Barbels brownish. Dark or blackish streak on postocular to opercle. Paired fins dark brown, edges light brown, also bases. Soft dorsal and anal sometimes with narrow submarginal whitish line.

One 172 mm. Saidi's Village, Belgian Congo; one 112 mm. Fort Sibut, October; twenty-five 60 to 116 mm. Nola, Middle Congo, September; eleven 70 to 201 mm. Batangafo, Ubangi-Shari.

Clarias buthupogon Sauvage.

Depth 6 to $7\frac{2}{3}$; head $4\frac{1}{3}$ to $5\frac{1}{4}$, width 1. Snout $2\frac{1}{4}$ to $2\frac{2}{3}$ in head; eye $10\frac{3}{4}$ to $11\frac{1}{8}$, $3\frac{3}{4}$ to 4 in snout, $5\frac{3}{4}$ to 8 in interorbital; mouth width 2 to $2\frac{1}{2}$ in head, lower jaw shorter; maxillary barbel reaches to hind pectoral edge or $1\frac{1}{3}$ in depressed ventral, outer mental reaches $\frac{1}{2}$ to $\frac{5}{8}$ to ventral, inner mental $\frac{1}{3}$ to $\frac{2}{3}$ to ventral, nasal barbel reaches $\frac{1}{2}$ to $\frac{9}{10}$ to dorsal origin; teeth in villiform bands in jaws and crescentic band equally broad on vomer; interorbital $1\frac{1}{3}$ in head, broadly and slightly convex; frontal fontanel twice length of occipital fontanel, $2\frac{1}{3}$ in interorbital; supraoccipital extension small triangle, extends $\frac{1}{4}$ to dorsal origin. Gill rakers 2 + 14, lanceolate, $1\frac{1}{2}$ in gill filaments, which $1\frac{1}{3}$ in eye. Inside gill opening with small knob-like extension.

Skin smooth, snout, jaws, lips and basal portions of barbels papillate. Lateral line distinct, complete, axial.

D. 72 to 79, hind fin edge little less than eye diameter from vertical of caudal base, fin height $1\frac{3}{8}$ to $1\frac{1}{3}$ in head; A. 61 to 63, hind edge eye diameter from caudal base, fin height $2\frac{2}{8}$ to $2\frac{1}{2}$ in head; caudal $1\frac{1}{4}$ to $1\frac{3}{8}$, convex behind; least depth of caudal peduncle $2\frac{1}{2}$ to 3; pectoral $1\frac{2}{8}$ to $1\frac{1}{8}$, reaches $1\frac{1}{4}$ to $1\frac{1}{2}$ to dorsal origin, rays I, 10, spine with 22 or 23 small low spinules on front edge and 20 to 22 larger better developed antrorse serrae on inner edge; ventral rays I, 5, fin encroaching last fourth to $\frac{2}{3}$ on front of anal, length $2\frac{3}{8}$ to $2\frac{1}{3}$ in head.

Olive or gray brown above, pale or light brown on under surface of head, trunk and tail. Iris dark gray. Barbels dark gray brown. Vertical fins gray brown, dorsal and anal with dark submarginal line and caudal dark gray, broadly paler marginally. Some small examples with whitish transverse arc on caudal, parallel with its hind edge, at last $\frac{2}{3}$ in fin length. Paired fins gray brown basally, shading paler apically.

Ten 160 to 245 mm. Nola, Middle Congo. I use the original spelling for the name of this species, changed to *Clarias bythipogon* by Boulenger.

Clarias submarginatus Peters.

Depth $6\frac{2}{8}$ to 7; head 5 to $5\frac{1}{8}$, width $1\frac{1}{8}$ to $1\frac{1}{4}$. Snout $2\frac{3}{8}$ to $2\frac{3}{4}$ in head; eye $11\frac{1}{2}$ to $14\frac{1}{2}$, $3\frac{3}{4}$ to $4\frac{1}{2}$ in snout, $5\frac{3}{4}$ to $7\frac{1}{4}$ in interorbital; mouth width $2\frac{3}{4}$ to $2\frac{3}{4}$ in head, lower jaw much shorter than upper; maxillary barbel reaches $\frac{1}{2}$ in, or to end, of depressed pectoral, outer mental barbel reaches $\frac{1}{2}$ to $\frac{4}{8}$ in same, inner mental barbel reaches $\frac{2}{8}$ to, or to pectoral origin, nasal barbel reaches $\frac{1}{2}$ in depressed pectoral; teeth in villiform bands in jaws and on vomer similar band slightly smaller; interorbital $1\frac{1}{8}$ to $1\frac{1}{4}$ in head, low, widely convex; frontal fontanel $1\frac{1}{4}$ to 2 in interorbital, twice length of occipital fontanel; supraoccipital extension isosceles triangle, extends $\frac{1}{4}$ to dorsal origin. Gill rakers 1 + 12, lanceolate, $1\frac{1}{4}$ in gill filaments, which $1\frac{1}{2}$ times eye. Knob-like extension on shoulder girdle inside gill opening long as eye.

Skin smooth, same also over top of head. Lips, end of snout and barbels basally papillose. Lateral line distinct, complete, axial along side of body.

D. 68 or 69, hind fin edge 1 to $1\frac{1}{2}$ eye diameters from caudal base, fin height $2\frac{3}{8}$ to $2\frac{3}{4}$ in head; A. 57 or 58, hind fin edge 2 to $2\frac{3}{4}$ eye diameters from caudal base, fin height $2\frac{3}{4}$ to $2\frac{2}{8}$ in head; caudal $1\frac{2}{8}$ to $1\frac{1}{2}$, convex behind; least depth of caudal peduncle $3\frac{1}{4}$ to $3\frac{2}{8}$; pectoral $1\frac{2}{8}$ to $1\frac{3}{8}$, fin reaches $1\frac{1}{2}$

to $1\frac{2}{5}$ to dorsal origin, rays I, 10, spine with 13 or 14 short denticles on front edge, hind edge entire; ventral with last $\frac{1}{5}$ to $\frac{1}{5}$ encroaching on front part of anal, fin 2 to $2\frac{1}{2}$ in head.

Dark brown, gray brown to olive brown above, more or less clouded with darker, though cloudings nowhere sharply defined. Lower surface of head, breast, belly and under surface of long tail anteriorly pale to whitish. This color rather sharply set off or contrasted from darker coloration above. Lips and lower median areas of branchiostegals soiled with brownish. Iris dark gray. Barbels all brown. Vertical fins gray brown like back. Dorsal with very narrow pale edge and pale submarginal line, often obscured; fin basally frequently clouded obscurely like back. Caudal with narrow white edge, then broad, dark gray submarginal band, another little before middle and base also dark. Anal with broad white border, medially and sub-basally gray brown. Sometimes gray submarginal band in broad white border of anal. Pectoral brown basally, broadly bordered with white. Ventral whitish.

Fourteen 50 to 192 mm. Vube, Belgian Congo, September; eighteen 60 to 260 mm. Ekibondo's Village, Belgian Congo, September; sixteen 78 to 155 mm. Nola, Middle Congo, October; five 125 to 150 mm. 30 kilometers east of Kribi, Cameroons. The last all differ from Boulenger's figure in having a single pale to whitish, narrow, submarginal band on the caudal, some with 2 bands.

Clarias hilli new species. Figures 59 (head above), 60 (lateral view), 61 (pectoral spine) and 62 (dentition).

Depth 7 to $8\frac{2}{5}$; head $4\frac{1}{8}$ to $5\frac{3}{8}$, width $1\frac{1}{8}$ to $1\frac{1}{4}$. Snout $2\frac{1}{2}$ to $2\frac{3}{8}$ in head; eye 10 to 12, $3\frac{1}{5}$ to 4 in snout, $5\frac{1}{8}$ to 6 in interorbital; mouth width 2 to $2\frac{1}{10}$; maxillary barbel reaches $\frac{3}{4}$ in depressed pectoral, outer mental barbel $\frac{1}{2}$ to $\frac{2}{5}$ in same, inner mental barbel $\frac{5}{8}$ to, or to pectoral origin; nasal barbel nearly reaches hind edge of gill opening; teeth in villiform bands in jaws, narrower crescentic band on vomer; interorbital 2 to $2\frac{1}{2}$ in head, low, depressed, or but slightly convex; frontal fontanel $\frac{1}{2}$ of interorbital, twice length of occipital fontanel; supraoccipital extension rather broad obtuse angle, invades $\frac{1}{8}$ of predorsal space. Gill rakers 2 + 7, lanceolate, $\frac{2}{3}$ of gill filaments, which $1\frac{1}{2}$ times eye diameter. Inner edge of gill opening with short knobbed extension.

Skin soft, smooth, entirely covers upper surface of head, which smooth to touch. Lips and bases of most barbels papillate. Lateral line distinct, complete, axial.

D. 70 to 73, hind edge of fin 1 to 2 eye diameters from caudal base, fin height $2\frac{3}{4}$ to 3 in head; A. 55 to 60, hind fin edge $\frac{1}{2}$ to 2 eye diameters from caudal base, fin height $2\frac{1}{8}$ to 3 in head; caudal $1\frac{2}{5}$ to $1\frac{3}{4}$, convex behind; least depth of caudal peduncle 4; pectoral $1\frac{3}{4}$ to $1\frac{4}{5}$, reaches $\frac{2}{5}$ to $\frac{3}{4}$ to dorsal origin, rays I, 10, spine with 12 or 13 rather large antrorse denticles on its front edge and 6 or 7 low weak ones on hind edge; ventral $2\frac{1}{2}$ to $2\frac{4}{5}$ in head, rays I, 5, fin reaches anal or encroaches on front of anal $\frac{1}{4}$ of ventral length.

Gray brown to dark brown, paler or lighter gray on under surface of head, trunk and tail. Sometimes upper surface clouded or marbled with dark gray. Barbels gray, mentals little paler basally. Iris dark gray. Fins all grayish and margins of all paler, sometimes broadly so.

A.N.S.P. No. 65879. Saidi's Village, Belgian Congo. Length 214 mm. Type.

Also Nos. 65880 to 65885, same data paratypes. Length 138 mm. Also six 88 to 172 mm. Ekibondo's Village, Belgian Congo.

Somewhat allied to *Clarias submarginatus*, differing chiefly in the fewer gill rakers, the pectoral spine with a row of outer serrae and its inner edge with a few weak serrae or nearly to quite entire. Its combined head and trunk is $1\frac{1}{3}$ in the tail to the caudal base. Like *C. submarginatus* and *C. platycephalus* the caudal is well free from the dorsal and anal, but like the latter species the head is very broad. *Clarias platycephalus* Boulenger is supposed by David 1935 to be a hybrid, though of this I am not convinced. My materials are clearly more slender.

(For Mr. Gordon Hill, volunteer assistant in the Department of Fishes and Reptiles of the Academy.)

Clarias ekibondoi new species. Figures 63 (head above), 64 (pectoral), 65 (dentition) and 66 (lateral view).

Depth 7; head $5\frac{1}{3}$, width $1\frac{1}{3}$ to $1\frac{1}{4}$. Snout $2\frac{3}{8}$ to $2\frac{5}{8}$ in head; eye $4\frac{1}{2}$ to $11\frac{1}{4}$ in snout, $7\frac{2}{8}$ in interorbital; mouth width $1\frac{1}{3}$ in head, lower jaw much shorter than upper; maxillary barbel reaches $\frac{3}{4}$ in depressed pectoral, outer mental reaches $\frac{2}{3}$ in same, inner mental reaches $\frac{1}{2}$ to pectoral origin, nasal barbel reaches $\frac{3}{4}$ to hind end of gill opening, or to $\frac{1}{3}$ in depressed pectoral; teeth in villiform bands in jaws, and on vomer similar band nearly same size; interorbital $1\frac{5}{8}$ in head, low, broadly or slightly convex; frontal fontanel $2\frac{1}{8}$ in interorbital, twice length of occipital fontanel; supraoccipital extension nearly equilateral triangle, extends $\frac{2}{3}$ to dorsal origin. Gill rakers 3 + 10, lanceolate, $1\frac{1}{3}$ in gill filaments, which $1\frac{1}{2}$ times eye. Rather long, knob-like extension inside gill opening on shoulder girdle.

Skin smooth, also over top of head. Lips, end of snout and bases of barbels all papillate. Lateral line distinct, complete, axial along side of body.

D. 76, hind fin edge $1\frac{1}{2}$ eye diameters from caudal base, fin height $3\frac{3}{4}$ in head; A. 55, hind fin edge $1\frac{1}{2}$ eye diameters from caudal base, fin height $3\frac{1}{2}$ in head; caudal 2, convex behind; least depth of caudal peduncle 4; pectoral $1\frac{2}{3}$ to 2, fin reaches $1\frac{1}{3}$ to dorsal origin, rays I, 8, spine entire and smooth; ventral with last $\frac{1}{4}$ encroaching over front of anal, fin $2\frac{2}{3}$ in head.

Body brownish or dull sienna above, under surface of head, belly and tail pale or light brown to whitish. Entire upper surface marbled or blotched with dark to blackish gray, markings all more or less in contrast. Similar colored though finer or smaller markings may also be scattered over the dorsal and caudal. Iris dark gray. Nasal and maxillary barbels brownish, lower ones paler to whitish. Edge of dorsal very narrowly pale, also caudal, and anal more broadly so. Anal pale or light over basal half and outer half submarginally dark gray brown.

A.N.S.P., No. 65886. Ekibondo's Village, Belgian Congo. September. Length 260 mm. Type.

Known by its variegated coloration, short tail, smooth pectoral spine, few gill rakers and other features in combination.

(For Ekibondo, Chief of the Mombuttu to the east of Niangara, who greatly assisted the members of the Expedition while quartered in his village.)

Clarias varispinis new species. Figures 67 (head above), 68 (pectoral spine), 69 (dentition) and 70 (lateral view).

Depth $6\frac{1}{5}$; head $4\frac{1}{4}$, width $1\frac{1}{4}$. Snout $2\frac{3}{5}$ in head; eye $14\frac{1}{3}$, 6 in snout, $8\frac{1}{2}$ in interorbital; mouth width 2 in head, lower jaw well included in upper; maxillary reaches opposite dorsal origin, outer mental reaches $\frac{1}{2}$ in depressed pectoral, inner mental reaches $\frac{3}{4}$ to pectoral origin, nasal barbel nearly reaches hind edge of gill opening; teeth in villiform bands in jaws, vomerine band similar except slightly narrower; interorbital 2 in head, low, broadly convex; frontal fontanel $1\frac{9}{10}$ in interorbital, twice long as occipital fontanel; supraoccipital extension nearly an equilateral triangle, extends $\frac{2}{5}$ to dorsal. Gill rakers $2 + 10$, lanceolate, $\frac{1}{5}$ of gill filaments, which $1\frac{1}{2}$ times eye diameter.

Skin smooth, also thin and smooth on top of head. Lips papillate. Lateral line distinct, complete, axial along side of body.

D. 80, hind edge distant from caudal base $2\frac{1}{4}$ eye diameters, fin height $2\frac{7}{8}$ in head; A. 63, hind edge distant from caudal base 2 eye diameters, fin height $3\frac{3}{5}$ in head; caudal $1\frac{9}{10}$, convex behind; least depth of caudal peduncle $3\frac{1}{2}$; pectoral rays I, 10, reaches dorsal origin, length $1\frac{7}{8}$ in head, spine with 12 rather low serrae on outer edge and inner edge entire; ventral with last fifth encroaching on front part of anal, fin length $2\frac{1}{2}$ in head, rays I, 5.

Dull sienna or brownish above, blotched or marbled with dark to blackish gray, and markings also may extend on dorsal and caudal fins. Iris dark gray. Maxillary and nasal barbels gray brown, mentals pale to whitish. Under surface of head, breast, belly and tail its whole length, pale to whitish. Dark brownish streak begins at mandibular articulation and extends back along upper branchiostegal region. Dorsal with narrow, pale or whitish edge and on posterior part of fin submarginally a narrow dark line. Anal with broad white border, medially with broad dark gray area. Caudal with 4 dark brown, broad cross bands. Pectoral dark brown medially and basally, with broad whitish margins. Ventral pale to whitish.

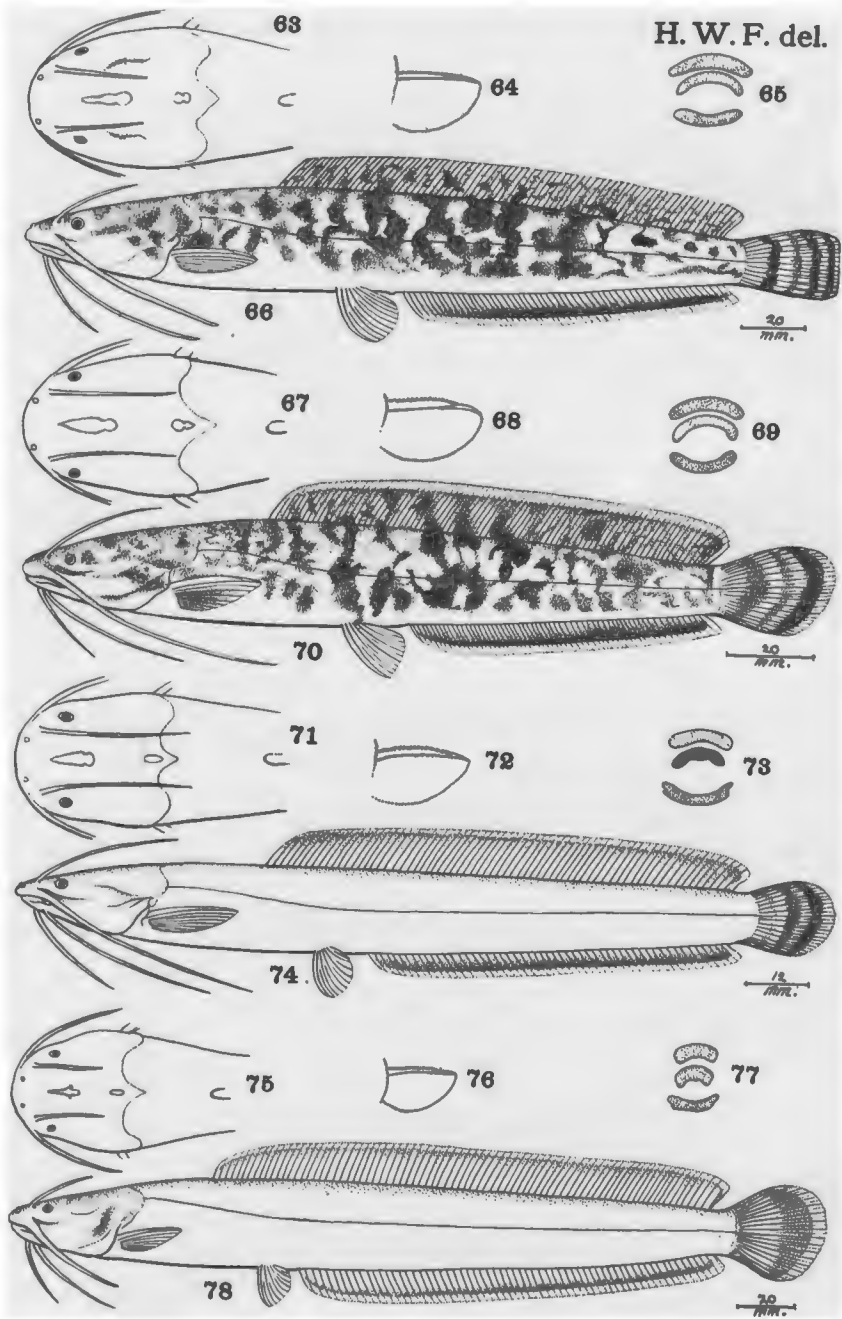
A.N.S.P., No. 65887. Nola, Middle Congo. October. Length 188 mm. Type.

Greatly resembles *Clarias ekibondoi* in general appearance, though differing in the outer edge of the pectoral spine being serrated.

(*Varius varius* + *spina* spine.)

Clarias melanopogon new species. Figures 71 (head above), 72 (pectoral), 73 (dentition) and 74 (lateral view).

Depth $8\frac{1}{5}$ to $9\frac{1}{2}$; head 5 to $5\frac{1}{2}$, width $1\frac{1}{10}$ to $1\frac{1}{8}$. Snout $2\frac{1}{2}$ to $2\frac{3}{5}$ in head; eye $9\frac{1}{2}$ to $9\frac{3}{4}$, $3\frac{1}{2}$ to $3\frac{3}{4}$ in snout, $5\frac{1}{4}$ to $6\frac{1}{2}$ in interorbital; mouth width 2 to $2\frac{1}{2}$ in head; maxillary barbel reaches to hind end of depressed pectoral, outer mental $\frac{4}{5}$ to $\frac{3}{5}$ in same, inner mental $\frac{7}{8}$ to, or to $\frac{1}{5}$ in depressed pectoral, nasal barbel reaches far back as end of occipital extension or to $\frac{1}{2}$ in predorsal; teeth finely villiform, in bands in jaws, vomerine band about large as upper jaw band and granular; interorbital 2 to $2\frac{1}{5}$ in head, low, flat or level; frontal fontanel $1\frac{9}{10}$ to 2 in interorbital, twice occipital fontanel.



63 to 66. *Clarias ekibondoi*.

67 to 70. *Clarias varispinis*.

71 to 74. *Clarias melanopogon*.

75 to 78. *Clarias gracilis*.

which extends into supraoccipital extension, this reaching $\frac{1}{8}$ to $\frac{1}{4}$ in predorsal space to dorsal origin. Gill rakers 1 + 11, lanceolate, $1\frac{1}{2}$ times eye; gill filaments $\frac{3}{4}$ of gill rakers. Inside gill opening knobbed extension from shoulder girdle long as eye.

Skin smooth, thin on top of head. Lips finely papillate. Lateral line distinct, complete, axial along side of body.

D. 67 to 70, hind fin edge eye diameter from caudal base, fin height $2\frac{1}{8}$ to $2\frac{1}{2}$ in head; A. 55 to 57, hind edge of fin eye diameter from caudal base, fin height $3\frac{1}{4}$ to $3\frac{1}{2}$ in head; caudal $1\frac{1}{4}$ to $1\frac{1}{2}$, convex behind; least depth of caudal peduncle $3\frac{1}{4}$ to 4; pectoral $1\frac{1}{2}$ to $1\frac{3}{8}$, fin reaches $\frac{3}{4}$ to $\frac{4}{5}$ to dorsal origin, rays I, 8, spine with 15 or 16 serrae on its outer edge, inner edge entire or with only 3 to 5 obsolete small points; ventral not encroaching on anal fin, length $2\frac{3}{4}$ to 3 in head, rays I, 5.

Back and upper surfaces dark seal brown or blackish brown, well contrasted with whitish of under surface of head, chest, belly and lower surface of tail anteriorly. Iris gray black. Barbels dark to blackish, their lower edges paler. Lips dark brown and chin dark or soiled brown. Dorsal and caudal dark gray, sometimes with pale or whitish spot or blotch-like area variably about margins of latter. Anal grayish, lower edge whitish, broadly so anteriorly. Pectoral grayish, lower surfaces whitish. Ventral pale to whitish.

A. N. S. P., No. 66075. Thirty kilometers east of Kribi, Cameroons. Length 175 mm. Type.

Also Nos. 66076 to 66097, same data, paratypes. Length 83 to 154 mm.

Differs from *Clarias walkeri* Günther in its more slender body and small head. Known by its very long, slender body, in combination with its large occipital fontanel encroaching on the occipital extension, the pectoral spine serrated only on its outer edge, ventrals entirely before anal, free caudal and rather long barbels.

(μελανοπώγων black beard, with reference to the dark barbels.)

Clarias gracilis new species. Figures 75 (head above), 76 (pectoral), 77 (dentition) and 78 (lateral view).

Depth $8\frac{3}{8}$ to $9\frac{1}{4}$; head $6\frac{1}{2}$ to $6\frac{3}{8}$, width 1 to $1\frac{1}{8}$. Snout $2\frac{1}{2}$ to $2\frac{3}{4}$ in head; eye 15 to 16, 5 to 6 in snout, 7 to 9 in interorbital; mouth width 2 in head, lower jaw shorter than upper; maxillary barbel reaches $\frac{1}{5}$ to $\frac{2}{5}$ in depressed pectoral, outer mental reaches pectoral origin or $\frac{1}{2}$ in depressed pectoral, inner mental reaches $\frac{3}{4}$ to $\frac{7}{8}$ to pectoral origin, nasal barbel reaches $\frac{2}{5}$ to $\frac{4}{5}$ of space to end of supraoccipital extension; teeth finely villiform, in moderately wide band in jaw, with parallel similar band but little shorter on vomer; interorbital 2 to $2\frac{5}{8}$ in head, low, level, largely flat; frontal fontanel $\frac{1}{2}$ of interorbital or 5 times long as small occipital fontanel; supraoccipital extension triangular, invades $\frac{1}{4}$ of predorsal. Gill rakers 1 + 9, lanceolate, equal gill filaments, which twice eye diameter. Inner edge of shoulder girdle with moderate knob-like branch.

Skin smooth, completely covers cranium, which smooth to touch. Lips and bases of barbels with numerous, close-set papillae, also thickened basal parts of barbels. Lateral line complete, distinct, axial.

D. 71 to 74, origin nearer anal origin than head as measured to hind edge of gill opening, well separated from caudal base by at least $1\frac{1}{2}$ to 2

eye diameters, fin height $2\frac{1}{2}$ to $2\frac{3}{4}$ in head; A. 56 to 64, fin height $2\frac{1}{5}$ to 3, well separated from caudal base by 1 to 2 eye diameters; caudal $1\frac{1}{3}$ to $1\frac{1}{2}$ in head, convex behind; least depth of caudal peduncle $2\frac{2}{3}$ to 3; pectoral reaches $1\frac{1}{3}$ to $1\frac{3}{4}$ to dorsal origin, fin $1\frac{3}{8}$ to $1\frac{3}{4}$ in head, rays I, 9, spine with outer edge furnished with 22 or 23 very small spines and inner edge entire, all invested with a tough coriaceous membrane; ventral $2\frac{2}{5}$ to 3 in head, rays I, 5, fin rounded and overlaps front of anal.

Largely uniform gray brown, but slightly paler on under surface of head and middle area of belly. Iris gray. Barbels all gray. Dorsal and anal gray, with narrow pale or gray white edges, these widening posteriorly on fins. Caudal gray, hind edge gray white. Pectoral gray, with broad whitish hind edge. Ventral paler than pectoral, also broadly still lighter.

A.N.S.P., No. 66098. Saidi's Village, Belgian Congo. September. Length 290 mm. Type.

Also Nos. 66099 to 66117, same data, paratypes. Length 72 to 263 mm. One 200 mm. Nola, Middle Congo. October.

Related to *Clarias longior* Boulenger in its slender body, which has its combined head and trunk longer, or $1\frac{1}{3}$ in tail, longer pectoral reaching back close to dorsal origin, longer barbels, larger eye, more gill rakers, pectoral spine smooth, more dorsal and anal rays, and color "Dark brown above, whitish beneath."

(*Gracilis* slender.)

Clarias hollyi new species. Figures 79 (head above), 80 (pectoral), 81 (dentition) and 82 (lateral view).

Depth 7 to $7\frac{3}{4}$; head $4\frac{3}{8}$ to $5\frac{3}{8}$, width $1\frac{1}{8}$ to $1\frac{1}{4}$. Snout 3 in head; eye 10 to 14, $3\frac{3}{4}$ to $4\frac{1}{2}$ in snout, 5 to $6\frac{1}{4}$ in interorbital; maxillary barbel reaches to or little beyond pectoral fin, or $1\frac{1}{4}$ to ventral origin, outer mental reaches $\frac{3}{4}$ in depressed pectoral or to end of depressed pectoral spine, inner mental reaches pectoral origin, or to $\frac{1}{4}$ in depressed pectoral fin, nasal barbel reaches $\frac{1}{4}$ to $\frac{1}{2}$ in depressed pectoral; mouth width $2\frac{1}{8}$ to $2\frac{1}{5}$ in head; teeth in villiform bands, moderately broad, in jaws, also crescentic band on vomer subequal with upper band; interorbital $2\frac{1}{8}$ to $2\frac{2}{5}$, low, widely convex; frontal fontanel $2\frac{2}{5}$ to $2\frac{4}{5}$ in interorbital, occipital fontanel $\frac{2}{3}$ of frontal; broad and obtusely triangular occipital extension reaches $\frac{1}{8}$ to $\frac{1}{6}$ to dorsal origin. Gill rakers 3 + 11, lanceolate, equal gill filaments, or $1\frac{1}{4}$ times eye. Knob-like extension on inner side of gill opening long as eye.

Skin smooth, very thin over upper surface of head. Lips and bases of larger barbels papillate. Lateral line distinct, axial along side of body.

D. 73 to 76, last ray joined by low basal membrane with caudal, fin height 2 to $2\frac{1}{2}$ in head; A. 55 to 58, last ray joined by low basal membrane with caudal, fin height $2\frac{1}{4}$ to $2\frac{3}{4}$ in head; caudal $1\frac{1}{3}$ to $1\frac{2}{5}$, hind edge convex; least depth of caudal peduncle $3\frac{1}{5}$ to 4; pectoral reaches dorsal origin, rays I, 8, spine with 13 low, close-set denticles or serrae on basal half of its outer edge and 12 large antrorse serrae along its inner edge, fin $1\frac{1}{2}$ to $1\frac{3}{4}$ in head; ventral with last fifth encroaching on front of anal, rays I, 5, fin $2\frac{2}{3}$ to 3 in head.

Dark brown generally, gray brown on under surfaces of head, belly and tail. Iris dark gray. Barbels and lips blackish brown. Vertical fins like

body, each with narrow black submarginal line, that on caudal further from edge. Paired fins grayish, paler to whitish terminally.

A. N. S. P., No. 66118. Thirty kilometers east of Kribi, Cameroons. Length 187 mm. Type.

Also Nos. 66119 to 66124, same data, paratypes. Length 102 to 157 mm.

Apparently near *Clarias amplexicauda* Boulenger from the upper Ubangi and Chad basins, described with 80 dorsal and 65 anal rays and its nasal barbels in general agreement. It differs in "Both dorsal and anal embracing root of caudal," the figure showing them united for $\frac{1}{2}$ length of fin.

(For Dr. Maximilian Holly, in appreciation of his valued synopsis of Cameroons clariids.)

Channallabes apus (Günther).

Two 143 to 163 mm. Nola, Middle Congo. October.

SCHILBEIDAE

Schilbe mystus (Hasselquist).

Forty-five 72 to 137 mm. from Fort Sibut, Ubangi-Shari.

Schilbe marmoratus Boulenger. Figure 83.

Depth $3\frac{3}{8}$ to $4\frac{3}{4}$; head $4\frac{1}{2}$ to 5, width $1\frac{1}{2}$ to $1\frac{1}{4}$. Snout 3 to $3\frac{3}{8}$ in head; eye $4\frac{1}{8}$ to $5\frac{1}{8}$, $1\frac{1}{2}$ to 2 in snout, $3\frac{3}{4}$ to $3\frac{7}{8}$ in interorbital; mouth cleft short, extends $\frac{2}{3}$ to eye; mouth width $1\frac{1}{5}$ to 2 in head; jaws even; nasal barbel $1\frac{1}{2}$ to $1\frac{1}{4}$ in head, maxillary barbel reaches $\frac{1}{2}$ to $\frac{2}{3}$ in depressed pectoral, outer mental reaches $\frac{1}{3}$ to $\frac{1}{2}$, inner mental reaches $\frac{1}{2}$ to pectoral origin; teeth villiform, in rather narrow bands in jaws and still narrower band of similar teeth on vomer and continuous with longer band on each palatine; interorbital $1\frac{3}{8}$ to $1\frac{1}{2}$ in head, moderately elevated and widely convex. Gill rakers 5 + 6, slender, lanceolate, equal gill filaments or $1\frac{1}{2}$ in eye.

Skin smooth. Small, narrow occipital fontanel equals $1\frac{1}{2}$ eye diameters, not reaching occiput. Humeral extension $1\frac{2}{3}$, reaches $\frac{2}{3}$ in depressed pectoral spine. Lateral line distinct, complete.

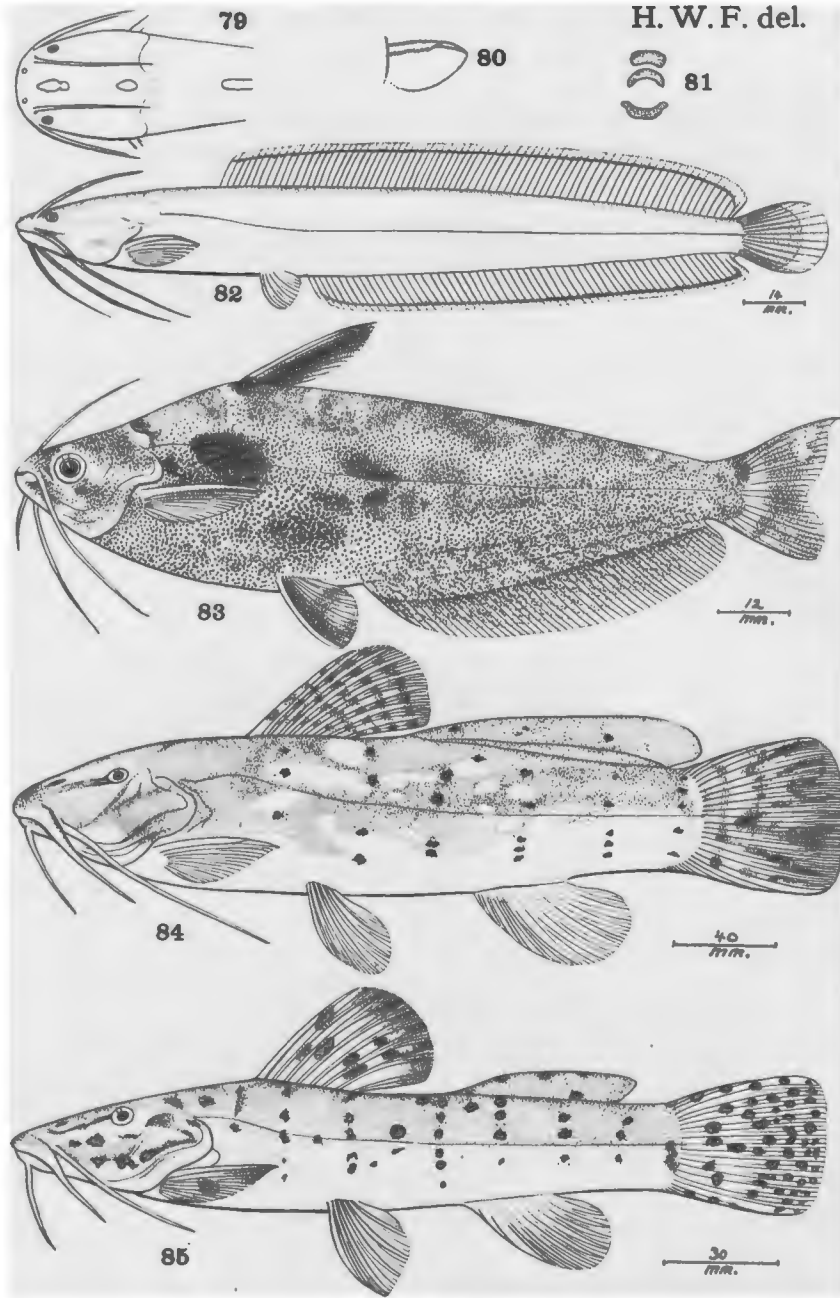
D. I, 6, spine with 8 small antrorse denticles on front edge and 12 on hind edge, concealed by invested membrane, length $1\frac{1}{4}$ in head, first branched ray 1 to $1\frac{1}{4}$; A. 52 to 54, fin height 2 to $2\frac{1}{2}$; caudal $1\frac{1}{2}$ to $1\frac{1}{5}$, emarginate behind; least depth of caudal peduncle $2\frac{4}{5}$ to $3\frac{1}{4}$; pectoral $1\frac{1}{2}$ to $1\frac{1}{4}$, spine with 10 outer and 18 inner antrorse serrae along edges, outer less developed, rays I, 8; ventral I, 5, fin length $1\frac{3}{8}$ to $1\frac{3}{4}$ in head.

Brown, variegated with dark brown as irregular marblings or cloudings and whole overspread with dark to blackish dots and specks. Large nearly black blotch on costal region above pectoral. Spinous dorsal largely black. Other fins gray or brownish, with dark markings. Barbels pale. Small example with all fins more or less dusky.

Three 100 to 145 mm. Fort Sibut, Ubangi-Shari. October.

Siluranodon auritus (I. Geoffroy Saint Hilaire).

Depth $3\frac{1}{8}$ to $4\frac{1}{2}$; head 4 to $4\frac{3}{4}$, width $1\frac{3}{4}$ to $2\frac{1}{2}$. Snout $3\frac{3}{4}$ to 4 in head from snout tip; eye $3\frac{3}{4}$ to $4\frac{1}{4}$, 1 to $1\frac{1}{2}$ in snout, $1\frac{1}{2}$ to $2\frac{1}{8}$ in interorbital:



79 to 82. *Clarias hollyi*.
84. *Auchenoglanis iturii*.

83. *Schilbe marmoratus*.
85. *Auchenoglanis balayi*.

mandible little protruded; maxillary reaches $\frac{3}{4}$ to eye; mouth width 3 to $3\frac{1}{4}$ in head from snout tip; nasal barbel $1\frac{1}{4}$ in head to $1\frac{1}{2}$ times head, maxillary barbel reaches $\frac{1}{2}$ to $\frac{4}{5}$ in pectoral, outer mental $\frac{1}{2}$ to $\frac{7}{8}$, inner mental $\frac{3}{4}$; interorbital 2 to $2\frac{1}{2}$ in head, rather high, well convex. Gill rakers 15 + 14, finely lanceolate, equal eye; gill filaments $\frac{3}{4}$ of gill rakers.

Skin smooth. Fontanel broad, long, extends from above front of snout to occipital extension. Head smooth above. Lateral line complete, axial along side of body.

D. I, 4, rays all flexible, slender, first branched ray 2 in total head length; A. 73 to 80, fin height $1\frac{7}{8}$ to $2\frac{1}{4}$; caudal 1 to $1\frac{1}{8}$, well emarginate and lower lobe $1\frac{1}{2}$ to $1\frac{3}{8}$ in upper; least depth of caudal peduncle $2\frac{2}{3}$ to 3; pectoral 1, rays I, 9, with smooth, slender, firm spine; ventral rays I, 5, length 3 to $4\frac{2}{3}$ in total head length.

Light brown, color of back and 2 lateral bands on body made up of dark brown dots; upper lateral band includes lateral line and lower much narrower, extends along lower side of tail. Occiput and opercles shaded with dark brown. Iris dark gray. Barbels brownish. Gray brown blotch size of eye behind humeral arch above pectoral. Dorsal largely dark brown. Caudal brownish, grayish behind and dark above. Paired fins dull brown.

Nineteen 52 to 87 mm. Batangafo, Ubangi-Shari.

EUTROPIUS Müller and Henle

PROEUTROPIUS new subgenus

Distinguished from the other species, as associated by Boulenger, in the advanced ventrals, which are inserted below the base of the first dorsal fin, so that the origin of the latter and the ventral are nearly opposite. Also the long pectoral reaches over the front of the anal.

Type *Silurus congensis* Leach.

(*Pro* before, with reference to the insertion of the ventrals + *Eutropius*.)

Eutropius congensis (Leach).

Depth $3\frac{3}{4}$; head $4\frac{2}{3}$, width $1\frac{3}{8}$. Snout $2\frac{7}{8}$ in head; eye $6\frac{1}{4}$, 2 in snout, $3\frac{1}{4}$ in interorbital; maxillary not quite reaching eye; lower jaw slightly shorter than upper; mouth width $2\frac{1}{10}$ in head; nasal barbel 4 in head or reaches opposite eye center, maxillary barbel reaches $1\frac{3}{4}$ to gill opening, outer mental $2\frac{3}{4}$ in head, inner mental $4\frac{7}{8}$; teeth fine, villiform, in bands, rather broad in jaws and continuous vomerine and palatine band slightly wider; interorbital $2\frac{1}{10}$, high, well convex. Gill rakers 4 + 12, of which 3 lowest rudiments; lanceolate, subequal with gill filaments or $1\frac{1}{2}$ in eye.

Skin smooth. Lateral line distinct, complete, with short branches above and below its entire length. Fontanel narrow, extends nearly whole length of skull into occipital.

D. I, 6, spine long, smooth, 4 in fish to caudal base; adipose fin $5\frac{1}{2}$ in head; A. 54, fin height $1\frac{3}{4}$; caudal 4 in rest of fish, well forked; least depth of caudal peduncle 3; pectoral 4, reaches beyond ventral base, long slender spine entire and smooth, rays I, 11; ventral I, 5, fin $1\frac{7}{8}$ in head.

Back gray brown, sides and below paler or more leaden. Iris gray, also barbels. Fins brownish. Dark blotch behind head above front part of pectoral.

One 383 mm. Ekibondo's Village, Belgian Congo, September 26.

Subgenus EUTROPIUS Müller and Troschel

Eutropius grenfelli Boulenger.

Depth $3\frac{2}{3}$; head $4\frac{1}{2}$, width $1\frac{2}{3}$. Snout $3\frac{1}{8}$ in head; eye $3\frac{1}{8}$, $1\frac{1}{10}$ in snout, 2 in interorbital; maxillary reaches eye; mouth width $2\frac{1}{5}$ in head length; villiform bands of teeth in jaws, and parallel vomerine-palatine band little narrower and as 4 subequal links; interorbital 2, rather high, well convex. Gill rakers 5 + 5, lanceolate, $1\frac{1}{2}$ in gill filaments, which 2 in eye.

Skin smooth. Lateral line distinct, complete, axial, with short irregular branches given off both above and below all its extent. Broad fontanel especially so in frontal region and extends in occipital region. Blunt humeral extension $\frac{1}{4}$ of pectoral fin.

D. I, 6, spine, slender and entire, fin $1\frac{1}{10}$ times head; adipose fin 4 in head; A. 52, fin height $2\frac{1}{8}$; caudal $1\frac{1}{8}$ times head, well forked, lobes pointed and lower little shorter; least depth of caudal peduncle $2\frac{3}{4}$ in head; pectoral 1, spine broken, rays 11, fin reaches ventral base; ventral I, 5, fin $1\frac{1}{2}$ in head, insertion opposite first third of dorsal base.

Brown, little paler below, marked with obscure dark brown dots. Belly and abdomen gray or drab. Dark gray blotch much larger than eye, above outer part of depressed pectoral. Dorsals brownish, first fin pale basally. Caudal and anal brown. Pectoral gray terminally, pale brown basally. Anal brownish, pale basally.

One 190 mm. Fort Sibut, Ubangi-Shari. October 13.

Ansorgia vittata Boulenger.

Two 49 to 87 mm. Fort Sibut, Ubangi-Shari. October 10.

Parailia congica Boulenger.

Depth $4\frac{2}{3}$; head $5\frac{1}{3}$, width $1\frac{2}{3}$. Snout $4\frac{1}{2}$ in head; eye $4\frac{1}{2}$, 1 in snout, 2 in interorbital; maxillary reaches $\frac{2}{3}$ to eye; lower jaw well protruding; nasal barbel reaches $\frac{4}{5}$ in pectoral or equals $1\frac{1}{2}$ times head, maxillary barbel reaches sixth anal ray base or twice long as head and both mental barbels subequally as long; teeth not evident; interorbital 2 in head, rather low, broadly convex. Gill rakers 8 + 23, finely lanceolate, slender, equal gill filaments, which $1\frac{1}{3}$ in eye.

Skin smooth, tender. Air bladder shows through body walls as transparent rounded area, little larger than eye, close behind head. Long fontanel extends most length of skull. Lateral line complete, axial. Anal papilla little longer than eye.

A. 81, fin height $1\frac{1}{3}$ in total head length; caudal $1\frac{1}{2}$, well forked, with lower lobe little shorter; least depth of caudal peduncle 3; pectoral $1\frac{1}{3}$, rays I, 9, reaches base of third anal ray; ventral very small, nearly long as eye, rays I, 5.

Light brown, with silvery white sheen below, whole body marked with rather large and well scattered black spots on back, side of head and lower half of tail, many also on anal and caudal fins, which otherwise whitish to transparent. Paired fins pale. Iris gray. Barbels pale.

One 76 mm. Fort Sibut, Ubangi-Shari. October.

PORCIDAE

Parauchenoglanis guttatus (Lönnberg).

Depth $4\frac{3}{4}$ to $5\frac{1}{3}$; head 3 to $3\frac{1}{4}$, width $1\frac{1}{3}$ to $1\frac{1}{2}$. Snout $2\frac{2}{3}$ to $2\frac{3}{4}$ in head; eye $8\frac{1}{2}$ to 11, 3 to 4 in snout, $2\frac{1}{3}$ to $2\frac{3}{4}$ in interorbital; maxillary reaches $\frac{1}{2}$ in snout; lower jaw slightly shorter than upper; maxillary barbel reaches pectoral origin or to $\frac{1}{5}$ in pectoral fin, outer mental $\frac{1}{2}$, inner mental reaches $\frac{3}{4}$ to or to pectoral origin; rather broad bands of villiform teeth in jaws, but none on palate; interorbital 4 in head, low, broadly and but slightly convex. Gill rakers 4 + 11, lanceolate, slender, equal eye; gill filaments $\frac{7}{8}$ of gill rakers. Occipital extension very short, less than eye.

Skin smooth. Frontal fontanel extends from little before nostrils until little behind eye. Cranial ridges distinct, covered with thin skin. Humeral extension strong, reaches $\frac{2}{3}$ in pectoral fin, with ridges. Lateral line distinct, complete, simple, axial.

D. I, 7, spine slender, smooth, third ray $1\frac{3}{8}$ to $1\frac{3}{4}$ in head; adipose fin $1\frac{1}{8}$ to $1\frac{1}{4}$; A. v or vi, 8, third branched ray 2; caudal $1\frac{1}{8}$ to $1\frac{2}{8}$, convexly rounded behind; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{3}{8}$; pectoral $1\frac{1}{2}$, rays I, 8, spine robust, flattened, outer edge entire and inner with 14 large antrorse denticles; ventral I, 5, length $1\frac{2}{3}$ to 2 in head.

Dark or blackish brown, with rounded blackish spots, 4 transversely and more or less forming dark transverse cross bands. Fins grayish or brownish, with smaller and more numerous black spots. Under surface of head and belly little paler or brownish than back and with numerous darker brown spots. Barbels brown.

Two 138 to 146 mm., thirty kilometers east of Kribi, Camerouns. November 24 and 25.

Auchenoglanis iturii Steindachner. Figure 84.

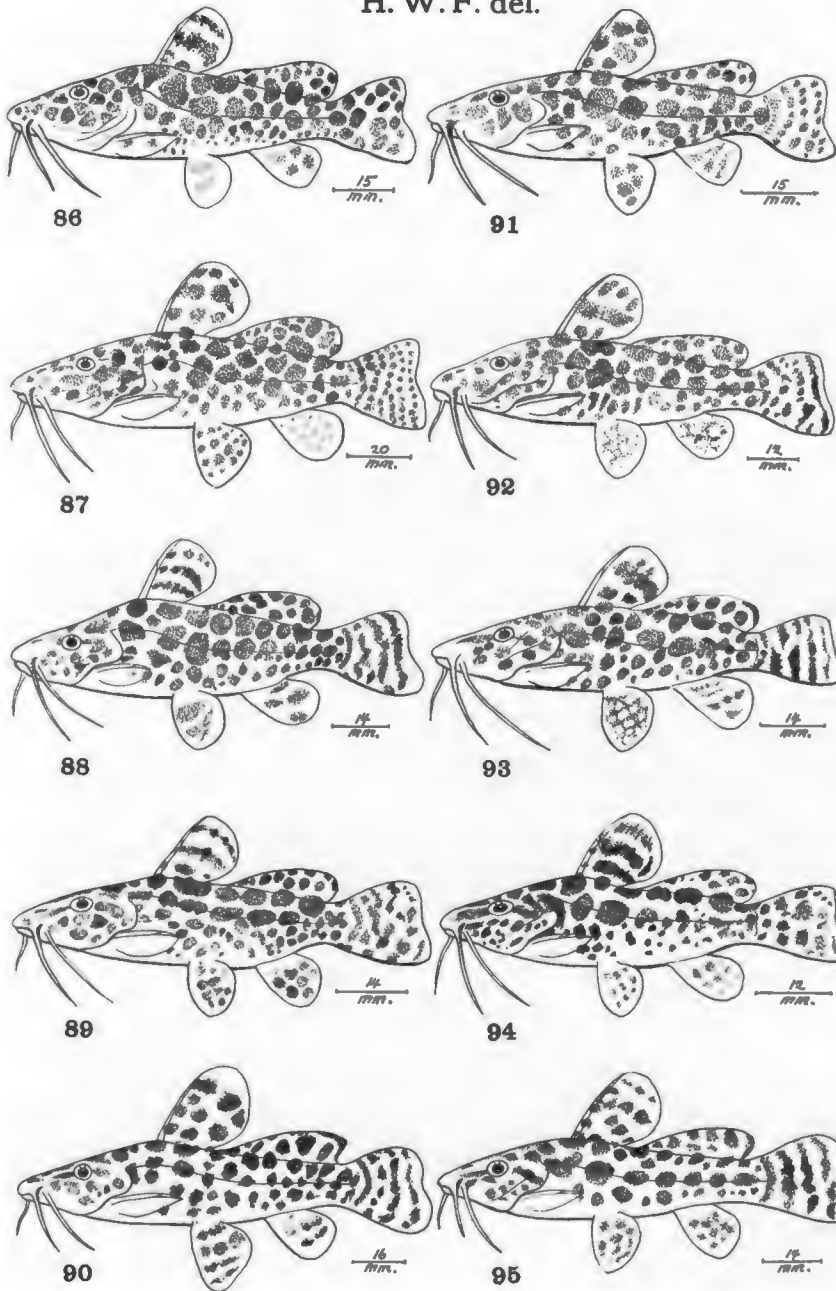
Depth $4\frac{2}{3}$; head $3\frac{3}{4}$, width $1\frac{1}{4}$. Snout $1\frac{1}{3}$ in head; eye $9\frac{1}{2}$, $5\frac{1}{3}$ in snout, 3 in interorbital; maxillary reaches nearly half width to eye; mouth width $2\frac{2}{3}$ in head; lower jaw little shorter than upper; maxillary barbel reaches pectoral origin, outer mental nearly reaches ventral origin; inner $\frac{4}{8}$ to pectoral origin; lips very thick, fleshy, plaited; teeth villiform, only 2 small median close-set premaxillary patches and 2 larger lower patches each giving off narrow slender band along front of mandible well inside jaw; interorbital $3\frac{2}{8}$, low, broadly convex. Gill rakers 4 + 9, robust, lanceolate, $\frac{2}{3}$ of gill filaments, which $1\frac{1}{3}$ times eye or $\frac{1}{2}$ of interorbital.

Skin tough, leathery, smooth. Occipital extension broad, nearly equilateral triangle, but not reaching dorsal buckler. Humeral extension strong, $3\frac{1}{8}$ in head or $\frac{1}{2}$ of pectoral length. Lateral line complete, simple, axial, inconspicuous.

D. I, 7, spine slender, entire, second branched ray $1\frac{1}{8}$ in head; long adipose fin $2\frac{2}{8}$ in fish without caudal; A. iv, 6, second branched ray $1\frac{1}{2}$ in head; caudal $1\frac{1}{8}$, lower rays little longer and end in point below; least depth of caudal peduncle $1\frac{3}{4}$; pectoral $1\frac{2}{8}$; rays I, 8, with 5 weak outer antrorse serrae and 15 or 16 strong inner ones; ventral I, 5, fin $1\frac{3}{8}$ in head, reaches $1\frac{2}{8}$ to anal.

Dark gray above, whitish below, with large irregular pale areas on side, or whitish like belly. Six transverse rows of blackish gray spots on body, 3 to 6 spots in each row. Dorsals grayish, with 6 transverse rows of dark

H. W. F. del.

86 to 95. *Auchenoglanis tchadensis* (variation).

gray spots and 3 faint ones on upper part of caudal. Lower fins all pale or whitish, with grayish terminally on some.

One 313 mm. Fort Sibut, Ubangi-Shari. October 13.

Auchenoglanis tchadensis (Pellegrin). Figures 86 to 89, 91 to 94 (Fort Sibut), 90 and 95 (Batangafo) (variation).

Depth 4 to $4\frac{2}{5}$; head $2\frac{2}{3}$ to 3, width $1\frac{1}{2}$ to $1\frac{7}{8}$. Snout $1\frac{7}{8}$ to 2 in head; eye 6 to $6\frac{1}{2}$, $3\frac{3}{4}$ to $3\frac{5}{8}$ in snout, $1\frac{7}{8}$ to 2 in interorbital; maxillary reaches $\frac{1}{2}$ in snout; mouth width $3\frac{1}{3}$ in head; lips broad, fleshy, papillose; maxillary barbel reaches $\frac{2}{3}$ to $\frac{7}{8}$ to pectoral origin, outer mental reaches pectoral origin or $\frac{1}{2}$ in pectoral fin, inner mental $2\frac{1}{2}$ to pectoral origin; teeth minute, villiform, in 2 small, close-set patches above and small narrow band below; interorbital 3 to $3\frac{1}{2}$ in head, low, slightly concave. Gill rakers 4 + 12, robust, $\frac{2}{3}$ of gill filaments, which equal eye.

Skin smooth. Cranium and opercles above more or less rugose striate; occipital extension nearly equilateral triangle, nearly reaches dorsal buckler. Frontal fontanel opposite eyes in interorbital and equals same. Opercle with radiating rugose striae. Lateral line complete, inconspicuous, axial, with numerous short branches both above and below.

D. I, 7, spine slender, its front edge with minute granules or roughened and hind edge with 6 minute denticles apically, second branched ray $1\frac{2}{3}$ to 2 in head; adipose fin length $1\frac{1}{5}$ to $1\frac{1}{4}$; A. v or vi, 7 or 8, third ray $2\frac{1}{2}$ to $2\frac{3}{5}$; caudal $1\frac{1}{2}$ to $1\frac{2}{3}$, cuneate or with rather broad median point behind; least depth of caudal peduncle 3 to 4; pectoral $1\frac{2}{3}$ to 2, rays I, 9, strong flattened spine with 25 close-set antrorse spines on outer edge and 13 large denticles on inner edge; ventral rays I, 5, fin $1\frac{2}{3}$ to 2 in head.

Brownish, paler to light brown on under surfaces. Body with 3 principal rows of dark brown rounded and close-set spots, medial lateral row and row down back largest. Dark spots very variable and may form several more rows, also extend on dorsals and caudal, which fins brownish and spots usually not so contrasted as on body. Lower fins all uniformly pale brownish. Barbels brownish, maxillary pair darker. Iris gray.

Eight 64 to 134 mm. Fort Sibut, Ubangi-Shari, October; two 118 to 130 mm. Batangafo.

Auchenoglanis balayi (Sauvage). Figure 85.

Depth $5\frac{1}{5}$; head $3\frac{1}{4}$, width $1\frac{1}{3}$. Snout 2 in head; eye $9\frac{1}{5}$, $3\frac{1}{2}$ in snout, 2 in interorbital; maxillary reaches $\frac{1}{3}$ to eye; lower jaw little shorter than upper; mouth width $2\frac{3}{4}$ in head; maxillary barbel reaches $\frac{3}{4}$ to pectoral, outer mental reaches half way in depressed pectoral, inner mental reaches $1\frac{2}{3}$ to pectoral origin; lips fleshy, thick, papillate; teeth villiform, in 2 small, close-set patches above and moderate band expanded at symphysis below; interorbital $3\frac{3}{4}$ in head, low, with median depression. Gill rakers 3 + 7, lanceolate, $1\frac{1}{3}$ in gill filaments, which equal eye.

Skin smooth. Lateral line complete, simple and axial along side. Head smooth above and frontal fontanel twice eye diameter. Humeral extension covered with skin, $2\frac{1}{3}$ in depressed pectoral fin.

D. I, 7, spine slender, pungent, smooth, first branched ray $1\frac{7}{8}$ in head; adipose fin subequal with head; A. III, 8, I, second ray $1\frac{2}{3}$; caudal $1\frac{1}{3}$, convex behind; least depth of caudal peduncle $2\frac{1}{3}$; pectoral $1\frac{2}{3}$, rays I, 8, front

edge of spine with 5 weak antrorse serrae apically and inner edge with 14 strong antrorse serrae, fin length $1\frac{3}{4}$ in head; ventral $1\frac{7}{8}$, rays 1, 5, inserted below last dorsal rays.

Back and upper surface gray brown, lower half of body, belly and under surfaces paler or drab to whitish. Iris gray. Barbels brownish, mentals paler. Head with obsolete or inconspicuous dark gray blotches. On body 7 transverse rows of dark or blackish spots, also few others scattered between. Fins brownish, with scattered blackish spots on dorsals and caudal, others more or less uniform and paler.

One 208 mm. Epulu River Ferry, Belgian Congo. September 4.

Auchenoglanis grandis new species. Figure 96.

Depth 4; head $3\frac{1}{2}$, width $1\frac{2}{3}$. Snout $2\frac{1}{10}$ in head; eye $8\frac{1}{2}$, 4 in snout, $2\frac{1}{5}$ in interorbital; maxillary reaches $\frac{1}{3}$ to eye, length $3\frac{1}{2}$ in head; lower jaw shorter than upper, mouth width 3 in head; maxillary barbel reaches pectoral origin, outer mental reaches end of depressed pectoral, inner reaches $\frac{2}{3}$ to pectoral origin; lips fleshy, thick, papillate; teeth villiform, fine, in 2 close-set rounded patches and lower as band expanded at mandibular symphysis; interorbital $3\frac{2}{3}$ in head, low, level. Gill rakers 3 + 8, clavate, $1\frac{1}{2}$ in gill filaments, which equal eye.

Skin smooth. Lateral line complete, simple, axial along side of body. Occipital extension equilateral triangle, nearly reaches buckler of dorsal spine. Frontal fontanel slender, twice eye diameter. Humeral extension half of depressed pectoral.

D. I, 7, spine pungent, with 3 terminal antrorse serrae on front edge and 4 or 5 obsolete points along hind edge, first branched ray $1\frac{1}{3}$ in head; adipose fin 1; A. III, 8, fourth ray $2\frac{1}{4}$; caudal $1\frac{2}{3}$, convex behind; least depth of caudal peduncle $2\frac{1}{8}$; pectoral $1\frac{2}{3}$, spine strong, flattened, with 3 or 4 obsolete antrorse serrae apically on outer edge and about 11 strong antrorse serrae along inner edge, rays 1, 8; ventral rays 1, 5, fin inserted below last dorsal rays, fin length $1\frac{1}{3}$ in head.

Brown generally, with upper surfaces marked with numerous dark or gray black blotches, many greatly larger than eye. Eight transverse dark bands formed on body, made up of close-set blackish spots, and larger and smaller dark spots in intervening areas. Under surface of head, breast, belly and abdomen uniformly pale, evidently whitish in life. Iris gray. Barbels brownish, mentals paler. Fins all brownish and marked with small, close-set, numerous dark spots, most on dorsal and caudal.

A.N.S.P., No. 66125. Nola, Middle Congo. October–November. Length 155 mm. Type.

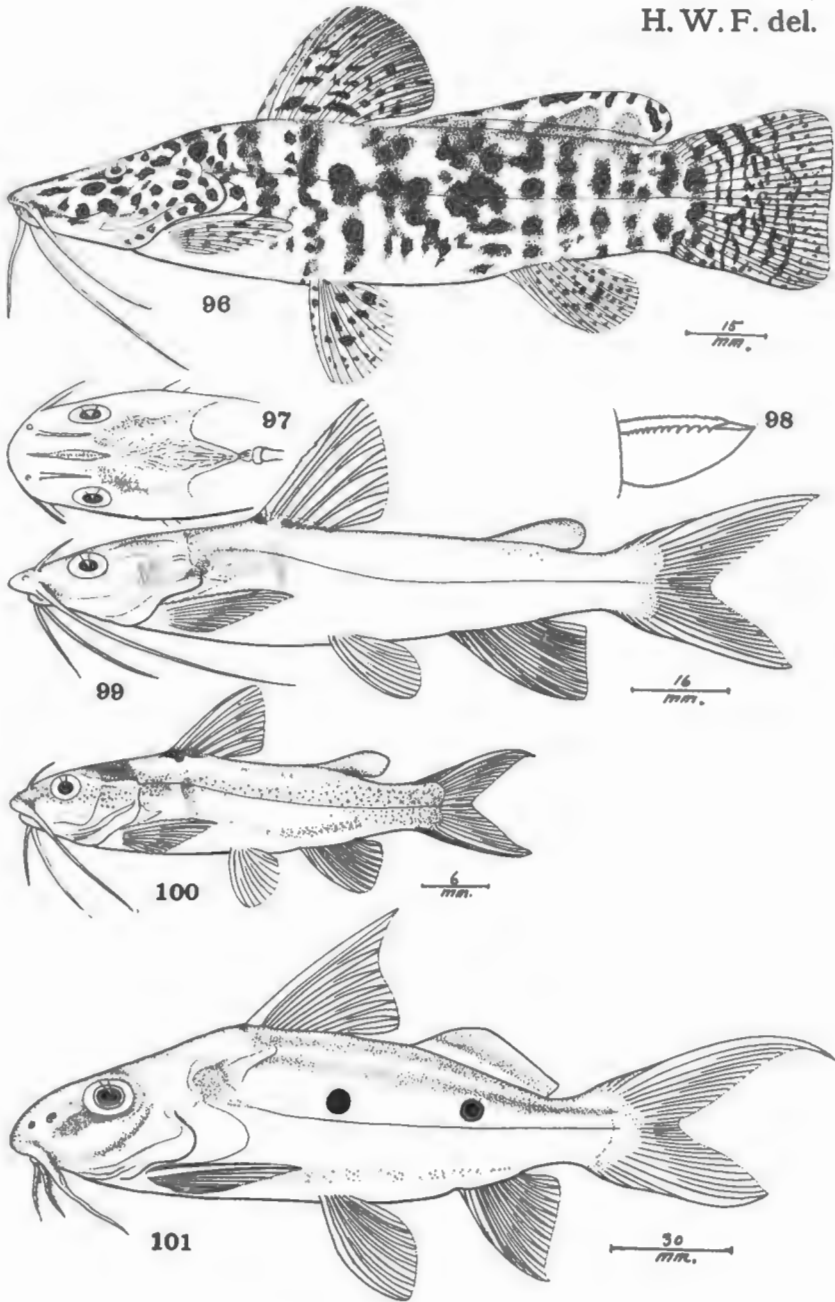
Approaches *Auchenoglanis ngamensis* Boulenger from Lake Ngami, but its coloration is different and barbels longer. In this respect it is like *A. ahli* Holly, but though spotted in coloration the disposition of the spots is apparently quite different.

(*Grandis* large.)

Chrysichthys pitmani new species. Figures 97 (head above), 98 (pectoral), 99 (lateral view) and 100 (young).

Depth $4\frac{1}{8}$ to $4\frac{1}{2}$; head 3 to $3\frac{1}{2}$, width $1\frac{1}{3}$ to $1\frac{2}{3}$. Snout $2\frac{9}{10}$ to $3\frac{1}{2}$ in head; eye 4 to $5\frac{1}{4}$. $1\frac{1}{4}$ to $1\frac{1}{2}$ in snout, $1\frac{2}{3}$ to 2 in interorbital; maxillary reaches $\frac{2}{3}$

H. W. F. del.



96. *Auchenoglanis grandis*. 97 to 100. *Chrysichthys pitmani*.
101. *Synodontis nummifer*.

to $\frac{3}{4}$ to eye, length $3\frac{1}{3}$ to $3\frac{2}{3}$ in head; mouth with lower jaw much shorter than upper; mouth width $2\frac{1}{2}$ in head; nasal barbel reaches $\frac{1}{3}$ to $\frac{1}{2}$ in eye, maxillary reaches base of fourth dorsal ray, outer mental reaches $\frac{1}{3}$ to $\frac{1}{2}$ in depressed pectoral, inner mental reaches $\frac{1}{2}$ to $\frac{2}{3}$ to pectoral origin; lips thick, fleshy, papillate; teeth villiform, in bands in jaws, and narrow band on each palatine, though not united across front of vomerine section; interorbital $2\frac{1}{3}$ to 3 in head, low, flat. Gill rakers 10 + 17, lanceolate, equal gill filaments, which $1\frac{1}{2}$ in eye.

Skin smooth, though top of head or cranial region rugose-striate. Occipital extension with base $1\frac{1}{2}$ in its length, which connected with dorsal buckler. Frontal fontanel long, or twice length of eye. Humeral extension rugosely striate, $1\frac{2}{3}$ in pectoral fin. Lateral line complete, entire, axial.

D. I, 6, spine slender, front edge rugose serrate with several large antrorse serrae apically and hind edge with obsolete serrae, first ray $1\frac{1}{3}$ to $1\frac{2}{3}$ in head; adipose fin length $2\frac{1}{10}$ to $2\frac{1}{8}$; A. iv, 9, first branched ray $1\frac{1}{8}$ to 2; caudal $2\frac{1}{8}$ to 3 in rest of fish, well forked, lobes slender and sharp pointed; least depth of caudal peduncle 3 to $3\frac{1}{2}$ in head; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$, spine compressed, front edge finely serrated and few large antrorse serrae terminally, inner edge with 8 to 12 large serrae, fin height $1\frac{1}{3}$ in head, rays I, 8; ventral $1\frac{2}{3}$ to 2 in head, rays I, 5, fin 2 to $2\frac{1}{8}$.

Gray brown above, sides and below paler to whitish. Iris gray. Lips and barbels pale, maxillary pair brownish above. Blackish gray humeral blotch large as eye. Fins all uniformly pale. Young more contrasted with edges of head as viewed from above paler, also a light postocular bar.

A.N.S.P., No. 65888. Athi River Crossing 16 miles north-northeast of Kibwezi, Kenya Colony. July 19 to 26. Length 130 mm. Type.

Also Nos. 65889 to 65899, same data, paratypes. Length 50 to 127 mm.

Differs from Boulenger's species in the longer barbels, greatly forked caudal, dentition, etc.

(For Captain C. R. S. Pitman.)

MOCHOKIDAE

Synodontis schall (Schneider).

Depth $3\frac{2}{3}$; head $3\frac{2}{3}$, width $1\frac{1}{2}$. Snout $2\frac{1}{8}$ in head; eye 5, $2\frac{1}{3}$ in snout, 3 in interorbital; mouth width 4; lips fleshy, wrinkled, papillate; maxillary barbel reaches $3\frac{2}{3}$ in pectoral, outer mental $\frac{4}{5}$ to pectoral origin, inner mental half length of outer, outer with 4 branches and both of inner with 4 pairs of branches; teeth villiform above, with 3 outer irregular rows and inner close set and more numerous; lower teeth pectinate, close set, pungent, slender, ends sharply pointed, 35 besides several shorter ones along front margin irregularly; interorbital 2, low, broadly convex. Gill opening restricted, long as snout. Gill rakers 6 + 16, lanceolate, $\frac{2}{3}$ of gill filaments, which equal eye.

Skin coriaceous, smooth. Upper surface of head rugose. Frontal fontanel rather broad and deep, long as eye. Occipital extension with width $1\frac{1}{3}$ in its length, reaches dorsal buckler. Humeral extension $1\frac{2}{3}$ in pectoral, finely rugose. Lateral line distinct, complete, axial, with very short, imperfect branches.

D. I, 7, spine broken off, first ray equals head; adipose fin $2\frac{9}{10}$ in fish without caudal; A. iv, 8, 1, first branched ray $1\frac{1}{2}$ in head; caudal $2\frac{2}{3}$ in rest

of fish, deeply forked, lobes sharply pointed and upper longer; least depth of caudal peduncle $2\frac{3}{4}$ in head; ventral $1\frac{1}{3}$, rays I, 6; pectoral $3\frac{1}{4}$ in fish without caudal, spine broken off, rays I, 8.

Uniformly dark gray brown above, little paler on under surfaces of head, belly and tail. Lower fins little darker grayish. Iris gray. Barbels brownish.

One 253 mm. Butiaba, Lake Albert, Uganda. August 20.

***Synodontis victoriae* Boulenger.**

Depth $3\frac{1}{2}$; head $3\frac{3}{8}$, width $1\frac{1}{5}$. Snout $2\frac{1}{4}$ in head; eye $5\frac{1}{2}$, $2\frac{1}{4}$ in snout, $1\frac{1}{8}$ in interorbital; mouth width 4 in head; lips fleshy, wrinkled, coarsely papillate; maxillary barbel reaches $\frac{2}{3}$ in pectoral, outer mental $2\frac{1}{8}$ to pectoral origin and inner mental half length of outer, outer with 5 branches and both of inner with 3 pairs and an odd branch; teeth above in short broad band, lower in pectinate row of 16, with 5 or 6 more outer superimposed but shorter ones; interorbital $2\frac{3}{4}$ in head, low, broadly convex. Gill opening restricted, $1\frac{1}{4}$ in snout. Gill rakers 4 + 14, lanceolate, $2\frac{1}{2}$ in gill filaments, which equal eye.

Skin coriaceous, smooth. Upper surface of head rugose. Frontal fontanel moderate, long as eye. Occipital extension with its width $1\frac{1}{2}$ its length, reaches dorsal buckler. Humeral extension $1\frac{1}{2}$ in pectoral, rugose. Lateral line distinct, complete, axial, with very short branches.

D. I, 7, fin $1\frac{1}{3}$ in head, spine strong, with front edge entire and hind edge with a few obsolete antrorse striae; adipose fin 1; A. iv, 7, I, first branched ray $1\frac{2}{3}$; caudal $3\frac{1}{2}$ in rest of fish, deeply forked, with pointed lobes; least depth of caudal peduncle $2\frac{3}{4}$; pectoral $1\frac{1}{10}$, rays I, 8, spine with outer edge rather finely and irregularly denticulate, inner edge with 19 strong denticles; ventral $1\frac{3}{4}$ in head, rays I, 6.

Olive brown above, paler below where evidently whitish in life. Body spotted rather finely with gray black above and on sides, with small spots crowded over humeral extension, large on dorsal and adipose fins and only on caudal basally. Maxillary barbel brownish, mentals pale. Dark spot at ventral base. Lower fins otherwise pale.

One 210 mm. Lake Victoria at Kitala, Uganda.

***Synodontis nummifer* Boulenger. Figure 101.**

Depth $3\frac{3}{4}$; head $3\frac{1}{4}$, width $2\frac{1}{3}$. Snout $2\frac{1}{10}$ in head; eye $3\frac{3}{4}$, $1\frac{3}{8}$ in snout, $1\frac{1}{5}$ in interorbital; mouth width 4 in head; lips and lower surfaces of barbels fleshy and coarsely papillate; maxillary barbel reaches pectoral origin and mental barbels subequal, with fleshy papillate branches in about 5 or 6 series on each barbel, reach $\frac{1}{2}$ to pectoral origin; teeth above in 2 small irregular patches in jaws followed by row across vomer, all pointed, slender or narrow and pectinate; lower teeth 10, similar, mostly uniserial; interorbital 3 in head, low, depressed. Gill opening long as snout. Gill rakers 3 + 10, lanceolate, $\frac{1}{2}$ of gill filaments or $1\frac{3}{4}$ in eye.

Skin smooth. Upper surface of cranium forward to front of eyes back over occipital extension finely rugose. Occipital extension width $1\frac{1}{4}$ in its length. Humeral extension broadly rounded, depth half its length and reaches back far as hind end of occipital extension. Frontal fontanel long as eye. Lateral line distinct, complete, axial, simple.

D. I, 7, spine broken off, first branched ray $1\frac{1}{2}$ in head; adipose fin $1\frac{1}{4}$; A. III, 8, first branched ray $1\frac{2}{3}$; caudal $2\frac{1}{4}$ in rest of fish, deeply forked, lobes slender and sharply pointed; least depth of caudal peduncle $3\frac{1}{4}$ in head; pectoral rays I, 8, fin $1\frac{1}{2}$ in head, spine broken off; ventral $1\frac{2}{3}$, rays I, 6, reaches anal.

Head brown above, pale or very light below. Back gray brown, sides and below paler to whitish. Round black spot close above lateral line and close behind last dorsal ray, also a second below middle of adipose fin. Fins all brownish, with numerous small gray spots on dorsal and caudal rays, other fins immaculate and lower ones little pale. Iris and barbels brown.

One 205 mm. Fort Sibut, Ubangi-Shari. October 13.

MALAPTERURIDAE

Malapterurus electricus (Gmelin). Figures 102 to 103, and 108 to 109 (Batangafo), and 104 to 107, and 110 to 113 (Kribi) (variation).

Four 54 to 194 mm. Batangafo; nine 57 to 192 mm., thirty kilometers east of Kribi, Cameroons, November 24-25.

CYPRINODONTIDAE

Procatopus nototaenia Boulenger.

Depth 3; head $3\frac{1}{2}$, width $1\frac{1}{5}$. Snout $3\frac{1}{3}$ in head from snout tip; eye $2\frac{1}{5}$, greatly exceeds snout, $1\frac{1}{5}$ in interorbital; maxillary vertical, reaches $\frac{1}{2}$ to eye, length 3 in head from snout tip; teeth conic, curved, simple, outer row little enlarged with 6 to 8 in front more conspicuous, especially in lower jaw; no teeth on palate; interorbital $2\frac{1}{5}$ in head, low, nearly level. Gill rakers + 8, short, weak points, $\frac{1}{2}$ of gill filaments, which $1\frac{2}{3}$ in eye.

Scales 20 + 4 in axial lateral series, 7 transversely below dorsal origin; 23? predorsal forward to end of snout. Scales with 15 or 16 marginal radiating striae; circuli fine, basal, obsolete apically.

D. I, 8, fin origin opposite last third of anal base, fin height 1 in total head length; A. 16, fin height $1\frac{1}{5}$; caudal 3 in rest of fish, evidently little pointed behind with median rays longest; least depth of caudal peduncle $1\frac{1}{2}$; pectoral inserted high, fin origin level with upper eye edge, fin $1\frac{1}{3}$, rays I, 9; ventral rays I, 5, fin 1 in head.

Pale brown generally, with narrow dark gray axial line along side. Iris gray. Under surfaces of body little paler than upper. Dorsal, anal and caudal gray, other fins paler.

One 35 mm., thirty kilometers east of Kribi, Cameroons.

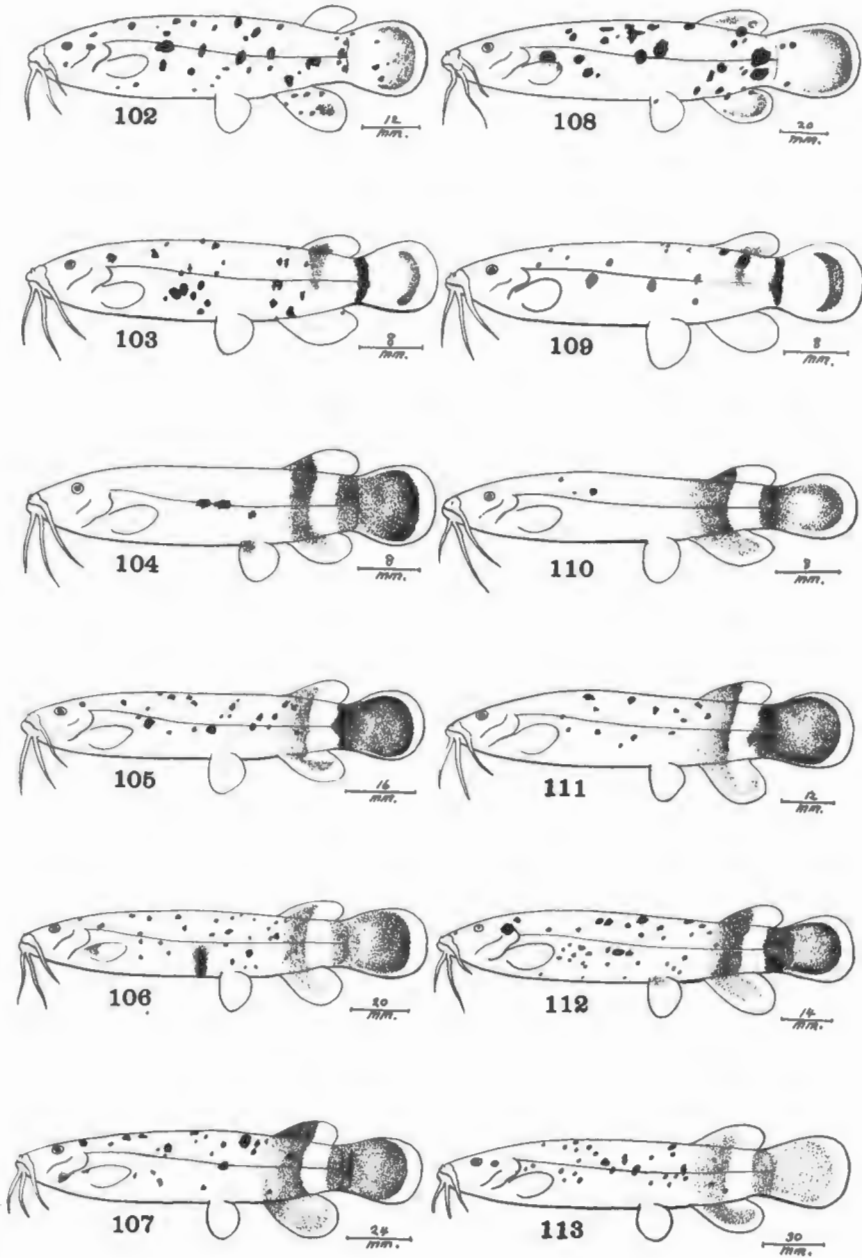
Epiplatys sexfasciatus Gill. Figures 114 to 118 (variation).

Twelve 39 to 84 mm., thirty kilometers east of Kribi, Cameroons, November 26.

Epiplatys multifasciatus (Boulenger).

One 42 mm. Batangafo, Ubangi-Shari; one 30 mm., thirty kilometers east of Kribi.

H. W. F. del.



102 to 113. *Malapterurus electricus* (variation).

Aplocheilichthys vanderbilti new species. Figures 128 (type) and 129 (paratype).

Depth $3\frac{2}{3}$ to 4; head $3\frac{9}{10}$ to 4, width 2 to $2\frac{1}{2}$. Snout 4 to $4\frac{1}{4}$ in head from snout tip; eye $2\frac{9}{10}$ to 3, greatly exceeds snout, $1\frac{1}{4}$ to $1\frac{3}{4}$ in interorbital; mouth superior, with broad, convex, protruding mandible; maxillary extends $\frac{2}{3}$ to eye; mouth width 3 to 4 in head from snout tip; teeth minutely villiform, in rather broad bands in jaws; apparently no teeth on palate; interorbital 2 to $2\frac{1}{2}$, low, flat. Gill rakers + 8?, short spines, $1\frac{1}{4}$ of gill filaments, which $1\frac{3}{4}$ in eye.

Scales 27 + 2 or 3 in axial lateral series; 6 scales below dorsal origin transversely, 23 or 24 predorsal forward to snout end. Scales rather small on chest, breast and belly, also large on prepectoral region. Head largely scaly, with 2 rows on cheek. Scales with 20 or 21 short, radiating basal striae; 8 to 10 irregular, minute, short, apical spinules; circuli 18 to 20 apically, finer or more numerous basally. Lateral line as row of axial, shallow, obsolete, horizontal impressions, or as a sort of groove on each scale, with a slight pit median in extent on some scales.

D. 1, 9, sixth ray 1 to $1\frac{1}{2}$ in head, fin inserted about opposite first $\frac{2}{3}$ in anal base; A. 1, 14 or 1, 15, eighth ray $1\frac{1}{4}$ in head; caudal $3\frac{1}{8}$ to $3\frac{1}{2}$ in rest of fish, broadly rounded behind; least depth of caudal peduncle $1\frac{1}{8}$ to $1\frac{1}{2}$ in head; pectoral $1\frac{1}{8}$ to $1\frac{1}{2}$, rays 1, 8, fin origin nearly level with lower edge of pupil; ventral $1\frac{3}{8}$ to $1\frac{3}{4}$ in head, rays I, 5.

Brownish, each scale on body with submarginal dark or narrow blackish brown line, whole forming conspicuous reticulated pattern. Iris gray. Head dark above, pale below and only few of scales postocular and above with dark submargins. Fins all pale brownish, with 5 transverse or horizontal grayish bands, most distinct on last rays. Caudal with as many broader and more distinct transverse dark bands. In paratype all fins uniform.

A.N.S.P., No. 65900. Lake Victoria at Kitala, Uganda. August 9 to 16. Length 53 mm. Type.

Also No. 65901, same data, paratype. Length 55 mm. This evidently a female, with much less developed fins and without the dark cross bands on dorsal and caudal.

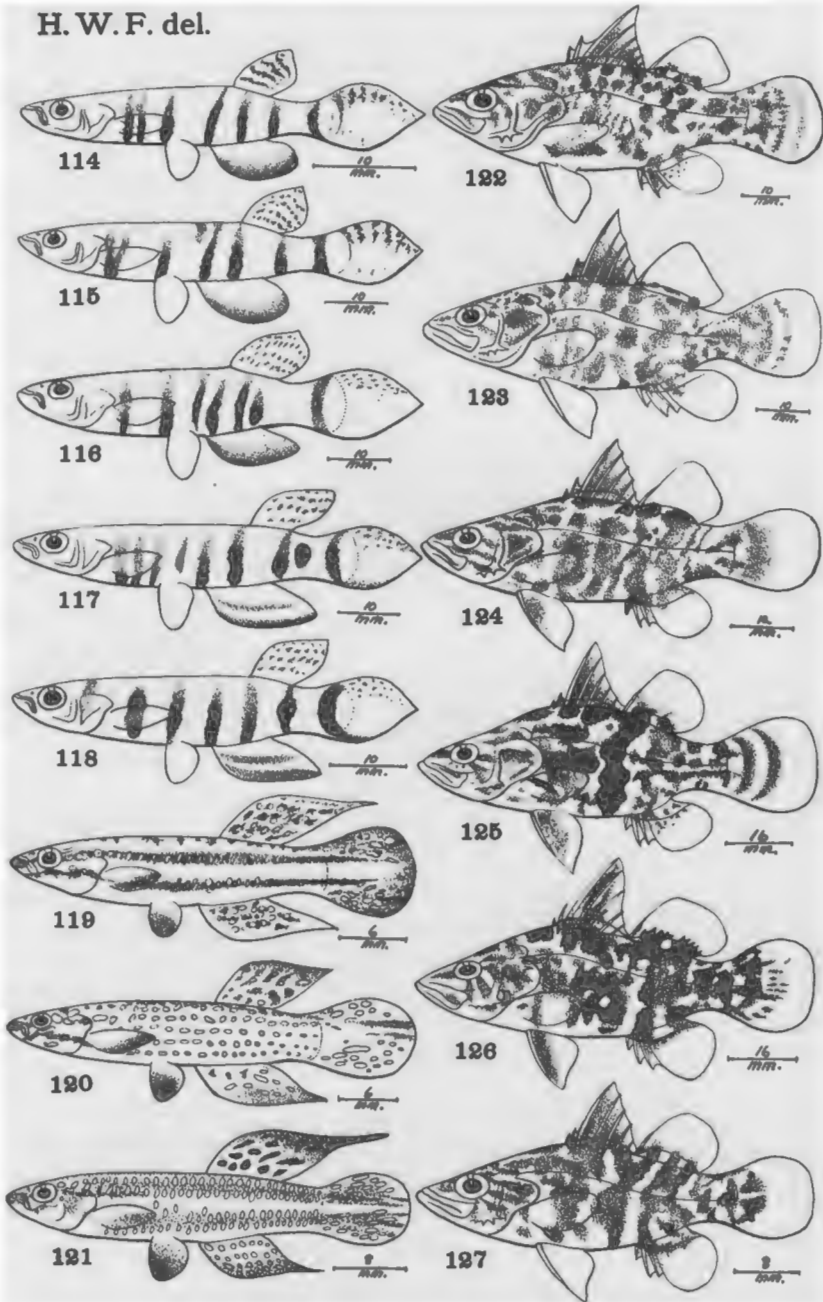
Apparently closely related to *Aplocheilichthys pumilis* (Boulenger), but differing in coloration, especially the presence of the dark cross bands on the dorsal and caudal. Although Boulenger had 22 specimens, he makes no mention of the above characters. He says "a dark lateral streak sometimes present" and this is shown in his figure of the type. This is apparently not very good, the head appearing upturned and the dorsal and anal greatly lower than in my specimens.

(For Mr. George Vanderbilt.)

Aphyosemion bivittatus (Lönnberg). Figures 119 to 121 (variation).

Depth 4 to $4\frac{1}{2}$; head $3\frac{1}{2}$ to $3\frac{1}{2}$, width $1\frac{2}{3}$ to $1\frac{1}{2}$. Snout $3\frac{2}{3}$ to $3\frac{3}{4}$ in head from snout tip; eye 3 to $3\frac{1}{2}$, greater than snout, $1\frac{1}{4}$ to $1\frac{1}{2}$ in interorbital; maxillary not quite reaching to or reaches $\frac{1}{2}$ in eye, length $2\frac{1}{4}$ to $3\frac{1}{2}$ in head from snout tip; teeth conic, curved, with outer series little enlarged, especially below, and narrow inner band or series of finer ones of which some project as larger; no teeth on palate; lower jaw well protruded; interorbital $2\frac{1}{2}$ to $2\frac{1}{4}$, low, flat. Gill rakers 3 + 10, short, lanceolate, $\frac{1}{3}$ of gill filaments, which 3 in eye.

H. W. F. del.



114 to 118. *Epiplatys sezafasciatus*. 119 to 121. *Aphyosemion bivittatus*.
 122 to 127. *Lates niloticus* (variation).

Scales 24 or 25 + 2 or 3 in lateral line, which formed as median or axial lateral row of pores, one to each scale; 9 transversely from dorsal origin; 17 or 18 predorsal forward to front end of snout. Cheek with 2 rows of scales. Scales little smaller on chest, breast, belly and caudal base. Scales with 24 or 25 basal nearly parallel marginal striae; circuli fine basally, little coarser apically.

D. III, 8, fin height $1\frac{1}{4}$ in head to $2\frac{1}{4}$ in fish without caudal; A. III, 9 or III, 10, fin height $1\frac{1}{3}$ to $1\frac{2}{3}$ in head, fin origin opposite dorsal origin; caudal $2\frac{1}{3}$ to $2\frac{2}{3}$ in rest of fish, emarginate and ends in 2 median points behind; least depth of caudal peduncle $2\frac{1}{5}$ to $2\frac{3}{5}$ in total head length; pectoral $1\frac{1}{4}$ to $1\frac{2}{5}$, rays 1, 13; ventral rays I, 5, fin $1\frac{1}{5}$ to $2\frac{2}{5}$ in head.

Most examples show numerous dark crimson spots on body and head. In some large ones scales edged with crimson, forming a reticulated pattern, also streaks on head dark crimson. In small examples the lips are dark or blackish brown, followed by a white transverse band across the mandible, bounded behind by a dark or blackish bar, which extends up to the lower edges of the eye. Vertical fins all dark slaty, even to blackish, and with dark crimson spots. Pectoral yellowish basally, lower and outer portions crimson. Ventral pale, with brown or crimson spots or blotches terminally.

Twenty-seven 28 to 46 mm., thirty kilometers east of Kribi, Cameroons.

Very characteristic is a white or pearly band, conspicuous as the head is viewed from below, across the mandible. It is bounded in front and behind by a broad, dark, contrasted border, blackish brown to black. Also the lower border of the pectoral fin is blackish, like the general tint of all the other fins.

Aphyosemion margaretae new species. Figure 130.

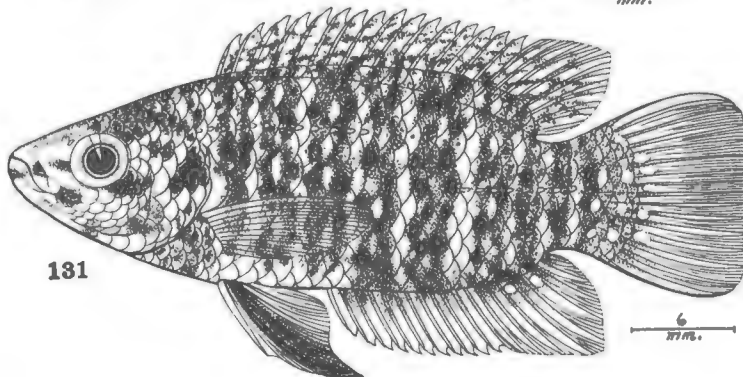
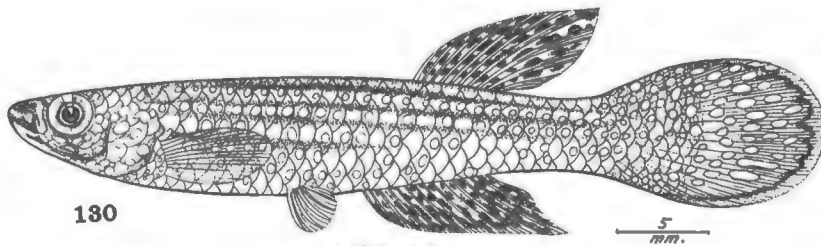
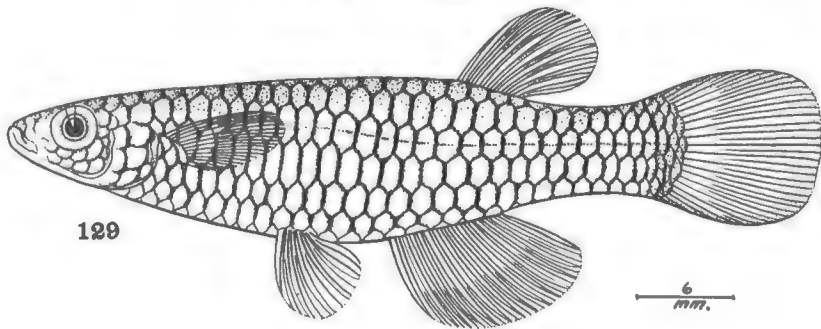
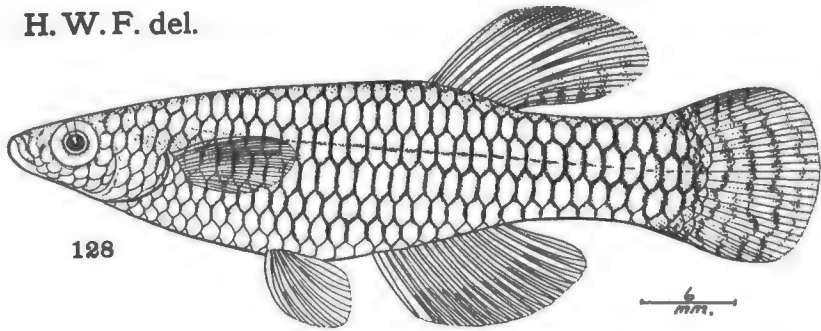
Depth $5\frac{1}{4}$ to $6\frac{2}{3}$; head $3\frac{4}{5}$ to $4\frac{1}{4}$, width $1\frac{1}{2}$ to $1\frac{2}{3}$. Snout $4\frac{1}{4}$ to $4\frac{1}{2}$ in head from snout tip; eye $3\frac{1}{8}$ to $3\frac{1}{2}$, greatly exceeds snout to subequal, $1\frac{1}{2}$ to 2 in interorbital; maxillary little free, reaches $\frac{1}{3}$ below front of eye, length $3\frac{1}{2}$ in head from snout tip; mandible well protruded, obtuse or convex, mouth cleft superior; teeth biserial in jaws, little curved, conic, simple, outer slightly longer; no teeth on palate; interorbital 2 to $2\frac{2}{3}$, low, level. Gill rakers 7? short, weak, points, $\frac{1}{4}$ of gill filaments, which $\frac{1}{2}$ of eye.

Scales 25 or 26 + 3 in axial lateral count; 6 below dorsal origin to anal base, 23 predorsal forward to snout tip. Scales smaller on chest, breast and belly. Caudal with basal fourth scaly on median rays, scales not encroaching on fulcra above or below. Scales with 16 to 20 basal radiating striae, close set and parallel; sometimes 2 or 3 weak apical spinules; circuli fine basally, few to obsolete apically.

D. III, 6, 1 or III, 7, 1, fin height $1\frac{1}{10}$ to $1\frac{2}{5}$ in total head length, fin origin opposite first $\frac{1}{3}$ to $\frac{2}{5}$ of anal base; A. III, 10, 1 or III, 11, 1, fin height $3\frac{2}{5}$ to $4\frac{2}{5}$ in rest of fish, apparently rounded behind; least depth of caudal peduncle $2\frac{2}{5}$ to $2\frac{3}{5}$ in total head; pectoral $1\frac{1}{4}$ to $1\frac{1}{2}$, rays 1, 13; ventral rays I, 5, fin $2\frac{2}{5}$ to 3 in total head length.

Brown above and on sides, under surfaces paler to little lighter or even nearly whitish. On side of head and body 4 or 5 more or less longitudinal rows of deep, brilliant crimson small spots. Fins all pale or gray white, verticals marked with large, numerous, variable, brilliant, crimson blotches or spots. Iris gray, with golden ring around pupil. Lips brownish. Chin

H. W. F. del.



128 and 129. *Aplocheilichthys vanderbilti*. 130. *Aphyosemion margaretae*.
131. *Anabas congicus*.

yellowish. Small crimson spots on cheeks, branchiostegal region and prepectoral region. Belly nearly or quite immaculate. Pectoral with lower broad crimson border and ventral largely crimson, only pale or whitish basally.

A.N.S.P., No. 65902. Forest rills near Saidi's Village, Belgian Congo. Length 44 mm. Type.

Also No. 65903, same data, paratype. Length 40 mm.

Distinguished by its crimson vertical fins, all with deeper crimson spots. Lower pectoral edge crimson, also ventral largely crimson. Resembles *Panchax ornatus* Ahl, based on an example 52 mm., with paired fins rose-colored.

(For Mrs. Margaret Emerson, mother of Mr. George Vanderbilt, in appreciation of her interest in the African Expedition.)

ANABANTIDAE

Anabas congicus (Boulenger). Figure 131.

Thirty-one 25 to 50 mm. Fort Sibut, Ubangi-Shari. October. All differ from Boulenger's figure of the type in having 10 dark brown vertical bands, each a little wider than pale interspaces. There are no dark spots on the soft vertical fins such as he shows. The dark transverse body bands are extended on the basal portions of the fins. I have for comparison 3 specimens from the Luali River, Angola, which agree with the above series.

Anabas nanus (Günther). Figure 132.

Fifteen 26 to 73 mm. Vube, Belgian Congo, September; thirteen 34 to 70 mm. Ekibondo's Village, Belgian Congo, September; thirteen 37 to 78 mm. Nola, Middle Congo, October; ten 40 to 63 mm., 30 kilometers east of Kribi, Cameroons, November 22. Last with dark bands more contrasted and wider than pale interspaces, extend well on fins.

Anabas petherici chadensis new subspecies. Figure 24.

Depth $2\frac{1}{10}$ to $2\frac{1}{3}$; head $2\frac{1}{2}$ to $2\frac{5}{8}$, width $1\frac{3}{8}$ to $2\frac{1}{8}$. Snout $4\frac{1}{3}$ to $4\frac{2}{3}$ in head from snout tip; eye 4 to $4\frac{1}{2}$, greater than snout in young to subequal with age, 1 to $1\frac{2}{3}$ in interorbital; maxillary reaches $\frac{1}{3}$ to $\frac{1}{4}$ in eye, length $2\frac{7}{8}$ to $3\frac{1}{8}$ in head from snout tip; teeth minute, villiform, in bands in jaws, on vomer and palatines, narrow on last; interorbital $3\frac{1}{10}$ to $3\frac{2}{5}$, little elevated, broadly convex. Gill rakers 8, robust, smaller below and lowest 3 or 4 mere rudimentary tubercles, none long as gill filaments which $1\frac{4}{5}$ in eye.

Scales 16 or 17 in upper lateral line, 9 or 10 + 4 or 5 in lower section; 4 above, 9 below upper section in vertical series to anal origin. Vertical fins all finely scaled, some basal scales little larger. Scales only slightly smaller on breast, chest and belly little smaller than on sides. Scales with 15 to 20 basal radiating striae; 30 to 65 minute apical denticles, with 2 to 15 transverse series of basal elements; circuli very fine basally, fewer extending apically.

D. XVII to XVIII, 10, 1 to 11, 1, last spine $2\frac{1}{2}$ to $3\frac{1}{5}$ in total head length, soft fin height $1\frac{2}{5}$ to $1\frac{9}{10}$; A. IX to X, 10 or 11, soft fin height $1\frac{1}{2}$ to $1\frac{3}{4}$;

caudal $1\frac{1}{5}$ to $1\frac{2}{3}$, convex behind; least depth of caudal peduncle $1\frac{9}{10}$ to 2; pectoral $1\frac{1}{3}$ to $1\frac{2}{3}$, rays I, 13 or I, 14; ventral rays I, 5, fin $1\frac{9}{10}$ to 2 in total head length.

Dark brown above, little paler or light brown on under surface of head, breast, belly and tail. Obscure blackish bar below eye on cheek. Opercles clouded with blackish brown. Blackish blotch, about twice size of eye on caudal peduncle before caudal base. Vertical fins all dark or blackish gray. Pectoral olive gray. Ventral pale brown to whitish. Iris brown to gray.

A. N. S. P., No. 66126. Batangafo, Chad basin, Ubangi-Shari. Length 128 mm. Type.

Also Nos. 66127 to 66130, same data, paratypes. Length 85 to 118 mm.

Günther's figure of the type of *Ctenopoma petherici* shows a more slender fish and no dark bar below the eye. This is the chief character of distinction for this form.

(For Lake Chad.)

CHANNIDAE

Channa obscura (Günther).

Depth $6\frac{1}{8}$; head 3, width $2\frac{1}{10}$. Snout $5\frac{1}{5}$ in head from snout tip; eye $7\frac{1}{2}$, $1\frac{1}{4}$ in snout, $1\frac{2}{3}$ in interorbital; maxillary reaches slightly behind eye, expansion $1\frac{1}{3}$ in eye, length $2\frac{3}{4}$ in head from snout tip; teeth in villiform bands in jaws, on vomer and palatines, and 4 to 6 rather large canines on each side of lower jaw; nasal tentacle $1\frac{1}{5}$ in eye; interorbital $4\frac{1}{3}$ in head from snout tip, which low, level or flat, forward snout little more elevated convexly. Gill rakers 11 low, broad, asperous tubercles, greatly lower than gill filaments, which 2 in eye.

Scales 66 + 6? along lateral line; 36 tubes in lateral line; 7 scales above, 11 below, 20 predorsal forward to snout. Scales greatly smaller on chest, breast, belly and prepectoral region, also caudal base, where they extend $\frac{3}{4}$ out over fin. Scales with 9 to 11 basal, radiating striae; circuli fine basally, coarser above and below, and 16 or 17 main striae apically.

D. 41, fin height $2\frac{2}{5}$ in total head length; A. 28, fin height 3; caudal $1\frac{1}{2}$, convex behind; least depth of caudal peduncle 4; pectoral $2\frac{1}{10}$, rays I, 16; ventral I, 5, fin $2\frac{3}{4}$ in total head length.

Brown, scarcely paler or grayish on under surface of head and belly. Row of large blackish brown blotches along lateral line, and row of less perfect, smaller and variable blotches along back and another along belly and tail below. Dark postocular band broadening behind, to gill opening, and margined above and below with blackish brown. Under surface of head and mandible with variable whitish bars or spots. Fins grayish, spotted with gray black to blackish, forming oblique bands on dorsal and anal, and transverse bands across caudal. Pectoral with 10 narrow black cross bands and ventral with 7, though these wider. Iris gray brown.

One 168 mm. Batangafo, Ubangi-Shari.

MASTACEMBELIDAE

Mastacembelus catchpolei new species. Figure 25.

Depth $12\frac{1}{4}$; head $5\frac{3}{8}$, width $3\frac{1}{2}$. Snout 3 in head; eye 9, 3 in snout, greatly exceeds interorbital; maxillary reaches $\frac{7}{8}$ to eye, length $3\frac{3}{8}$ in head;

lips rather broad, fleshy, smooth; teeth in rather broad villiform bands in jaws; nasal tube long as eye; interorbital $1\frac{1}{2}$ in eye. Gill filaments $1\frac{1}{4}$ in eye. Strong preorbital spine $\frac{3}{4}$ of eye. Preopercular spine well developed.

Scales very minute, 23 between dorsal origin and lateral line. Scales with 18 basal radiating, marginal striae; circuli fine basally, coarse apically. Lateral line complete, distinct, axial.

D. XXVII, 75, last spine $\frac{7}{8}$ of eye, soft fin height $3\frac{1}{2}$ in head; A. II, 78, second spine $4\frac{2}{3}$, soft fin height $3\frac{2}{3}$; caudal $3\frac{2}{3}$, convex behind; pectoral $3\frac{1}{2}$, rays 18; vent much nearer end of caudal than end of snout.

Dark brown, with row of 20 blackish, large blotches close along and mostly above lateral line. Along back an intervening row of black blotches, more or less variable or smaller, also on tail extending on dorsal fin basally, and variably with extensions from large lateral series and others further on dorsal fin. A row of intervening blackish blotches similarly along anal fin base and lower edge of tail, also with extensions out on anal, though whole border of anal conspicuously and broadly light or whitish; towards caudal more contrasted, due to darker submarginal area. Belly and under surface of head pale and uniform in color. Dark postocular band from eye to humeral region above pectoral. Iris brownish.

A.N.S.P., No. 65904. Tinda tributary of Shari-Ituri in Bunia region of the Kibali-Ituri District, Belgian Congo. Captain Geoffrey Catchpole. Length 295 mm. Type.

Related to Boulenger's division of species with *Mastacembelus ubangensis* Boulenger and *M. illipsifer* Boulenger, but differing in coloration. The latter is from Lake Tanganyika and with a quite different coloration, and its mouth cleft does not reach below the posterior nostril.

(For Captain Geoffrey Catchpole, of Njiana Farm near Bunia, who collected the type.)

SERRANIDAE

Lates niloticus (Hasselquist). Figures 122 (Kribi), and 123 to 127 (Batangafo) (variation).

Seven 50 to 90 mm. Batangafo, Chad Basin, Ubangi-Shari; one 87 mm., 30 kilometers east of Kribi, Cameroons, November 24-25.

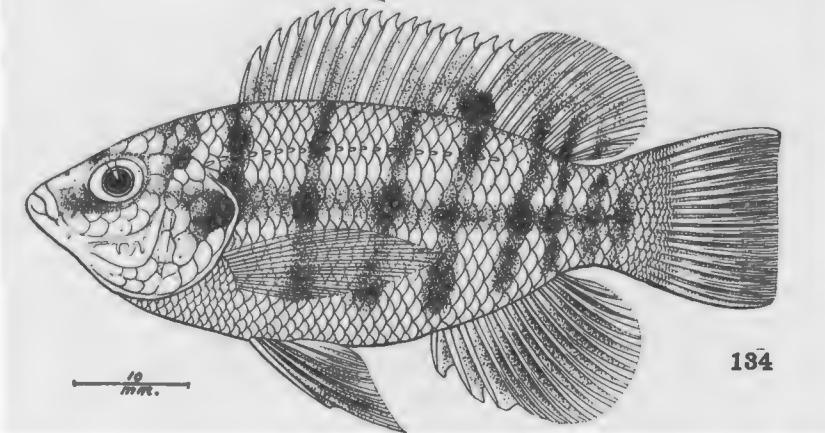
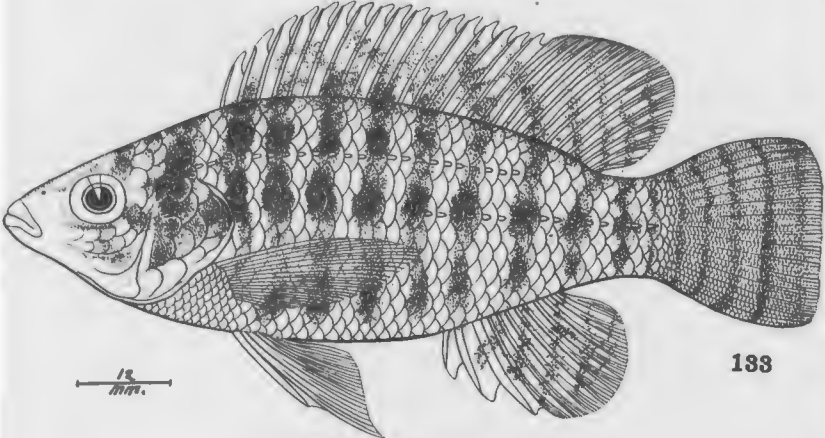
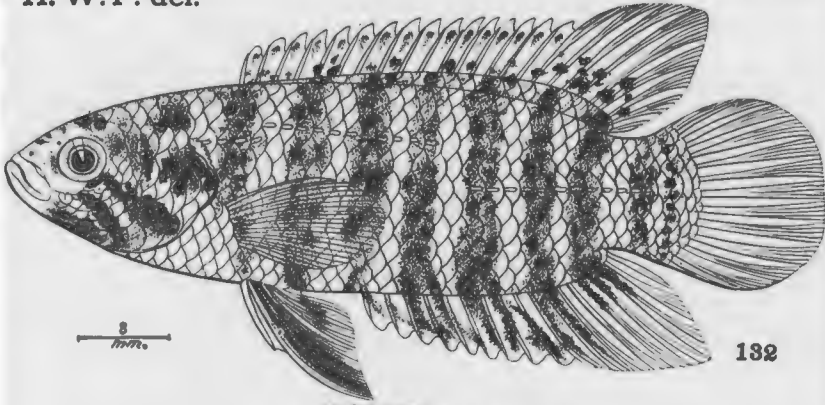
CICHLIDAE

Tilapia browni Nichols. Figures 141 to 146 (variation).

Depth $2\frac{1}{3}$ to $2\frac{3}{8}$; head $2\frac{3}{4}$ to $\frac{9}{10}$, width $1\frac{1}{2}$ to $1\frac{1}{8}$. Snout 3 to $3\frac{1}{2}$ in head; eye $3\frac{3}{4}$ to $4\frac{1}{4}$, $1\frac{1}{8}$ to $1\frac{1}{4}$ in snout, $1\frac{1}{8}$ to $1\frac{1}{3}$ in interorbital; maxillary reaches $\frac{4}{5}$ to $\frac{7}{8}$ to eye, length $3\frac{1}{3}$ to $3\frac{2}{5}$ in head; teeth biserial in jaws, slender, fine, close set, bifid; no teeth on palate; interorbital 3 to $3\frac{1}{4}$, broadly convex, low; preopercular edge entire. Gill rakers 4 + 18, short, slender, compressed, narrowly triangular, $\frac{1}{3}$ of gill filaments, which $1\frac{1}{2}$ in eye.

Scales 19 or 20 in upper lateral line, which overlaps lower 5 scales; lower lateral line with 13 or 14 + 4; 5 scales above, 11 or 12 below upper lateral line to anal origin; 10 predorsal scales forward opposite front eye edge; 2 or 3 rows on cheek below eye to preopercular ridge. Muzzle, including preorbital, naked. Scales small and crowded on chest and breast.

H. W. F. del.



132. *Anabas nanus*. 133. *Tilapia nilotica*.
134. *Tilapia galilaea*.

Small scales on prepectoral region and caudal base, though very fine scales cover most of caudal excepting its hind submargin. Scales with 11 to 15 basal radiating striae; circuli fine, basal, coarse apically.

D. XVI to XVIII, 10, 1, last spine $1\frac{2}{5}$ to $1\frac{1}{5}$ in head, fifth ray $1\frac{2}{5}$ to $1\frac{3}{5}$; A. IV or V, 8, 1 to 10, 1, last spine $1\frac{1}{5}$ to 2, fourth ray $1\frac{4}{5}$; caudal $1\frac{1}{10}$ to $1\frac{1}{2}$, truncate behind; least depth of caudal peduncle $2\frac{2}{5}$ to $2\frac{1}{2}$; pectoral 1 to $1\frac{1}{10}$, rays 1, 12 or 1, 13; ventral rays 1, 5, fin length $1\frac{1}{5}$ to $2\frac{3}{4}$ in head.

Brown above, paler to light below, or under parts all apparently whitish in life. Dozen dark or blackish slate-colored narrow transverse bands on back, variable and not extending much below pectoral. Round black spot on opercle size of pupil. Iris gray. Dorsals and caudal gray, on spinous dorsal dark or gray large ill-defined spots and on soft fin 6 blackish vertical bars, last darkest. On caudal 7 dark or black transverse bands. Anal grayish. Paired fins whitish.

Large series of 366 examples 108 to 158 mm. Athi River Crossing, near Kibwezi, Kenya Colony. July 19 to 26.

Nichols' figure and description seem to agree with the present species, though quite imperfect in details. The mouth is much larger than in any of my specimens and the caudal described "with a few scales on the base only," where as in most specimens the basal $\frac{2}{3}$ of the caudal is scaly.

Tilapia cancellata Nichols, also from Abyssinia, is certainly also very close, and may be a variant. The anal spines are given as only 3 and though said to have "Three rows of scales on the cheek" the figure shows only 2.

Tilapia nilotica (Linnaeus). Figure 133.

Three 80 to 103 mm. Batangafo, Chad Basin, Ubangi-Shari.

Tilapia galilaea (Linnaeus). Figure 134.

Two 38 to 43 mm. Fort Sibut, Ubangi-Shari, October; twenty-one 40 to 66 mm. Batangafo, Ubangi-Shari.

Tilapia zillii (Gervais).

Depth $2\frac{3}{4}$; head $2\frac{1}{2}$, width $2\frac{1}{3}$. Snout $2\frac{4}{5}$ in head from snout tip; eye 3, $1\frac{1}{10}$ in snout, greater than interorbital; maxillary reaches $\frac{3}{4}$ to eye, length $3\frac{1}{2}$ in head from snout tip; teeth biserial, simple, conic, close set in jaws, palate toothless; interorbital 4, low, level; preopercle edge entire. Gill rakers 7 + 10, $\frac{1}{2}$ of gill filaments which $\frac{1}{4}$ of eye.

Scales 19 in upper lateral line, overlaps 2 scales, lower lateral line 7 + 1; 4 scales above, 8 below end of upper lateral line to spinous anal origin; 11? predorsal forward to snout; 4 rows on cheek below eye. Small scales on chest, breast and belly. Scales with 9 to 14 short basal marginal radiating striae; circuli fine, few or coarse apically.

D. XVI, 10, last spine $2\frac{3}{5}$ in total head length, fifth ray 2; A. III, 7, third spine $2\frac{2}{5}$, fourth spine $1\frac{1}{5}$; caudal $1\frac{1}{5}$, truncate behind with rounded corners; least depth of caudal peduncle $2\frac{3}{4}$; pectoral $1\frac{1}{5}$, rays 1, 13; ventral I, 5, fin $1\frac{1}{4}$ in total head length.

Back olive brown, paler to light brown below and dull yellowish to whitish on under surfaces of body. Snout dark brown above, with front edge above maxillary blackish. Round black spot size of pupil on opercle

posteriorly. Iris gray white to silvery. Fins all pale, pectorals dull brownish and ventral dark gray terminally.

One 68 mm. from 30 kilometers east of Kribi, Cameroons. Differs a little from Boulenger's account in the uniform vertical fins.

***Tilapia christyi* Boulenger.**

Depth $2\frac{1}{4}$; head $2\frac{2}{5}$, width 2. Snout 3 in head; eye $3\frac{2}{5}$, $1\frac{1}{4}$ in snout, $1\frac{2}{5}$ in interorbital; maxillary reaches $\frac{3}{4}$ to eye, length $3\frac{1}{5}$ in head; teeth biserial, compressed, close set, bifid, outer row little larger, palate toothless; interorbital $2\frac{3}{4}$, low, broadly convex; preopercle edge entire. Gill rakers 3 + 12, short points with broad bases, $\frac{1}{3}$ of gill filaments, which $1\frac{3}{4}$ in orbit.

Scales 18 in upper lateral line, overlap 3, 12 + 3 in lower lateral line; 4 scales above, 10 below, 9 predorsal forward opposite front eye edge; 3 rows on cheek below eye. Scales very small and crowded on breast and chest. Caudal covered over basal $\frac{3}{4}$ at least with small scales, little larger over caudal base. Scales with 8 to 13 basal radiating striae; circuli fine, coarsely apically.

D. XV, 12, last spine 2 in head, sixth ray $1\frac{2}{5}$; A. III, 8, third spine $2\frac{1}{4}$, third ray $1\frac{1}{8}$; caudal $1\frac{1}{2}$, truncate; least depth of caudal peduncle $2\frac{1}{5}$; pectoral $1\frac{1}{10}$, rays 1, 13; ventral rays I, 5, fin $1\frac{1}{8}$ in head.

Brown, little paler to whitish on head, below, breast and belly. Scales on back and sides variably each with small whitish spot. Iris gray. Blackish gray blotch nearly large as eye on opercle. Broken median lateral dark gray band. Dorsals gray, spinous fin with dark obscure basal cloudings. Blackish gray blotch at origin of soft dorsal nearly large as eye, with whitish bar in front and behind. Soft dorsal gray, with 5 transverse or vertical rows of rather large whitish spots. Spinous anal gray and soft anal with large dark gray basal blotch posteriorly. Caudal with 4 or 5 obscure gray transverse bars, intervals each with few whitish spots. Pectoral grayish. Ventral dark gray terminally, whitish basally.

One 115 mm. Batangafo, Ubangi-Shari, Chad basin. Differs from Boulenger's figure as the dark vertical bars are not distinct on the body, and the dark posterior anal blotch basally, not shown in Boulenger's figure.

***Haplochromis lacrimosa* (Boulenger).**

Depth $2\frac{1}{8}$ to $2\frac{7}{8}$; head $2\frac{2}{3}$ to $2\frac{3}{4}$, width 2 to $2\frac{1}{3}$. Snout 3 to $3\frac{1}{4}$ in head; eye $3\frac{1}{4}$ to $3\frac{3}{4}$, 1 to $1\frac{1}{5}$ in snout, 1 in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{4}{5}$ in snout, length $2\frac{2}{5}$ to $3\frac{1}{5}$ in head; teeth with outer series close set, bicuspid, and little enlarged, followed by band of fine or villiform teeth; no teeth on palate; interorbital $3\frac{1}{2}$ to $4\frac{1}{8}$, low, broadly and slightly convex; preopercle edge entire. Gill rakers 3 + 8, short points, with broad bases, $\frac{1}{2}$ of gill filaments, which $2\frac{1}{2}$ in eye.

Scales 20 to 22 in upper section of lateral line, overlaps 1 to 4; 11 + 2 in lower section; 4 or 5 scales above, 9 below from hind end of upper lateral line to spinous anal origin; 14 predorsal forward opposite front eye edge; 4 below eye on cheek. Scales on breast, chest and caudal $\frac{2}{3}$ basally small and crowded. Scales 14 to 17 marginal radiating striae; 70 to 73 fine apical denticles, with 2 or 3 transversely; circuli fine basally, coarse basally.

D. XV to XVI, 9, last spine $2\frac{1}{4}$ in head, fifth ray $1\frac{1}{8}$ to $1\frac{1}{4}$; A. III, 7, 1, third spine 2 to $2\frac{1}{2}$, fourth ray $1\frac{1}{3}$ to 2; caudal $1\frac{2}{5}$ to $1\frac{1}{2}$, convex behind;

least depth of caudal peduncle $3\frac{1}{3}$ to $3\frac{2}{3}$; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$, rays 1, 10; ventral rays I, 5, fin $1\frac{1}{3}$ to $1\frac{1}{2}$ in head.

Body brown, with 9 or 10 darker though obscure transverse and somewhat variable bands. Dark median lateral band may cross dark vertical bands. Iris gray. Blackish blotch on opercle size of eye. Dark bar, broad, down from front of eye till behind end of maxillary. Fins brownish. Each membrane of dorsals with vertical dark gray band parallel with spines and rays. Soft anal with broad pale margin. Caudal with 4 or 5 dark transverse bars. Paired fins uniform. Most show traces of 2 dark bars over upper surface.

Two 58 to 65 mm. Lake Victoria at Kitala, Uganda, August 9 to 16. These two interesting fishes are noteworthy for their asymmetrical color patterns. Both show the usual markings of the other specimens or as 4 dark vertical bars on the right side of the trunk. In both left side has but 2 broad dark transverse bands. Also eight 57 to 79 mm., same data.

Haplochromis longirostris (Hilgendorf). Figure 136.

Depth 3 to $3\frac{1}{10}$; head $2\frac{3}{4}$ to $2\frac{4}{5}$, width 2 to $2\frac{1}{3}$. Snout $2\frac{3}{8}$ to $2\frac{3}{4}$ in head from snout tip; eye $4\frac{1}{2}$ to $4\frac{3}{5}$, $1\frac{1}{2}$ to 2 in snout, 1 to $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{4}{5}$ to $\frac{7}{8}$ to eye, length $2\frac{1}{2}$ to $2\frac{3}{4}$ in head from snout tip; mandible well protruded; lips moderately wide, rather tough; jaws with outer band of strong, conic, curved, well spaced, enlarged teeth and an inner moderately wide band of finely villiform teeth; palate toothless; interorbital $3\frac{3}{4}$ to 4, low, broadly convex; premaxillary extensions not reaching into interorbital; preopercle edge entire. Gill rakers 2 + 11, robust, strong, short, $1\frac{1}{2}$ in gill filaments, which $2\frac{1}{2}$ in eye.

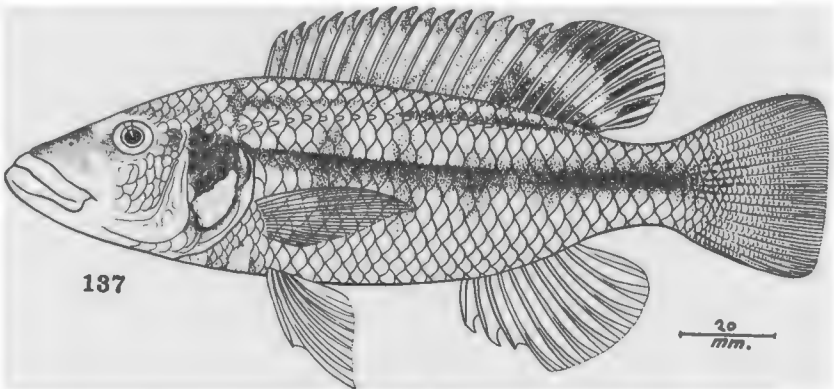
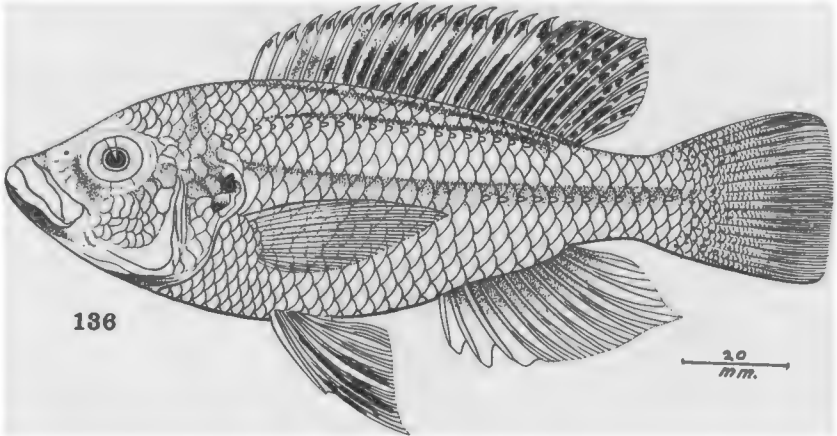
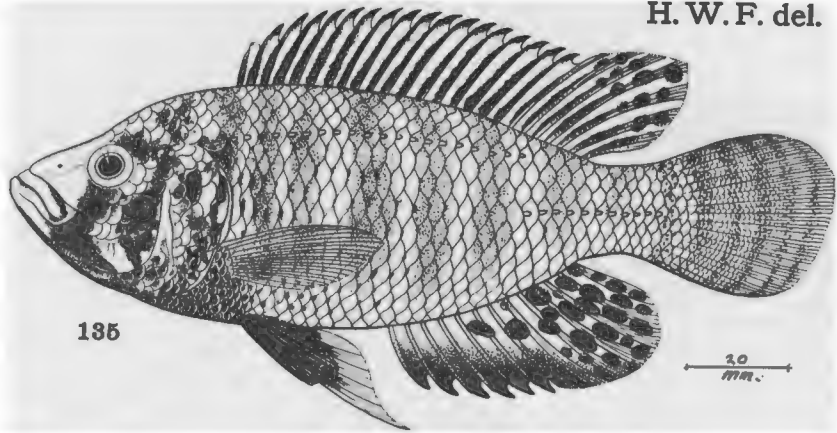
Scales 21 in upper lateral line of which last 4 overlap; 11 or 12 + 1 in lower lateral line; 6 or 7 above, 10 below upper lateral line to anal origin; 13 to 15 predorsal forward opposite front eye edge; 3 rows on cheek below eye. Scales small and crowded on chest, breast, prepectoral, and on basal half of caudal. Scales with 20 to 29 basal radiating striae; 0 to 102 fine apical denticles, with 0 to 14 transverse series of basal elements; circuli fine basally, coarse to obsolete apically.

D. XV or XVI, 8 or 9, last spine $2\frac{3}{8}$ to $2\frac{4}{5}$ in total head length, fourth ray $1\frac{7}{8}$ to 2; A. III, 8 or 9, third spine $2\frac{3}{8}$ to $2\frac{9}{10}$, fifth ray $1\frac{3}{4}$ to $2\frac{1}{5}$; caudal $1\frac{1}{2}$ to $1\frac{3}{4}$, truncate behind; least depth of caudal peduncle $3\frac{1}{3}$ to $3\frac{7}{8}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$, rays 1, 10 to 1, 12; ventral rays I, 5, fin $1\frac{2}{5}$ to $1\frac{1}{2}$ in total head.

Brown, little paler on under surfaces. Iris gray. Seven to 9 obscure transverse dark cross bars on body. Longitudinal dark band midway along side, though not distinctly defined on side of snout or postorbital region of head, and on tail extends along and close above lower section of lateral line. Under surface of head with more or less soiled to dusky and dark gray cloudings, especially over branchiostegal region. Blackish spot on hind angle or lobe of opercle less than eye. Fins all brownish. Dorsals with dark or brownish gray streaks on membranes, parallel with spines and rays, which on second dorsal more or less broken as spots or bars. Anal dark gray basally. Caudal dark on membranes basally, as rows of dark spots. Paired fins brownish, dark to blackish gray on membranes of ventrals.

Three 150 to 165 mm. Lake Victoria at Kitala, Uganda, August 9 to 16. Although Boulenger does not mention any dark cross bands, my specimens

H. W. F. del.



135. *Astatore alluaudi*. 136. *Haplochromis longirostris*.
137. *Haplochromis lamprogenys*.

all show at least traces of them. None, however, now have any white spots on the anal like he shows.

Haplochromis lamprogenys new species. Figure 137.

Depth $3\frac{1}{2}$ to $3\frac{1}{4}$; head $2\frac{3}{4}$, width $2\frac{1}{2}$ to $2\frac{3}{8}$. Snout $2\frac{1}{2}$ to $2\frac{3}{8}$ in head from snout tip; eye 5 to $5\frac{1}{2}$, 2 to $2\frac{1}{3}$ in snout, $1\frac{1}{3}$ to $1\frac{1}{2}$ in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{7}{8}$ to eye, length $2\frac{1}{2}$ to $2\frac{3}{8}$ in head from snout tip; lips rather broad, fleshy; teeth with brown ends, simple, conic, curved, all rather large, an outer rather enlarged series and 4 to 6 irregular rows form an inner band in each jaw; palate toothless; premaxillaries with posterior extensions not reaching into interorbital; interorbital $4\frac{1}{3}$ to $4\frac{1}{2}$ in head from snout tip. Gill rakers 2 + 9, robust, points, some of larger may each have a short branch; length $1\frac{1}{2}$ in gill filaments, which 2 in eye.

Scales 18 to 22 in upper arch of lateral line, of which last 1 to 3 may overlap; 10 or 11 + 0 to 1 in lower lateral line; 5 scales above, 9 or 10 below end of upper branch to anal origin; 4 rows below eye on cheek; 18 or 19 predorsal forward opposite front edge of eye. Scales small and crowded over chest, breast and most of caudal except rather broad hind submargin. Scales with 18 to 26 basal radiating striae; 27 to 115 minute apical denticles, with 14 to 20 transverse series of basal elements; circuli very fine, obsolete apically.

D. XV, 9 or 10, last spine $2\frac{3}{4}$ to 3 in total head length, fourth ray 2; A. III, 9 or 10, third spine 3, fourth ray 2 to $2\frac{1}{3}$; caudal $1\frac{3}{8}$ to $1\frac{3}{4}$, little convex behind; least depth of caudal peduncle $3\frac{1}{3}$ to $3\frac{2}{3}$; pectoral $1\frac{2}{3}$ to $1\frac{1}{2}$, rays 1, 11; ventral rays 1, 5, length $1\frac{2}{3}$ to $1\frac{3}{8}$ in total head length.

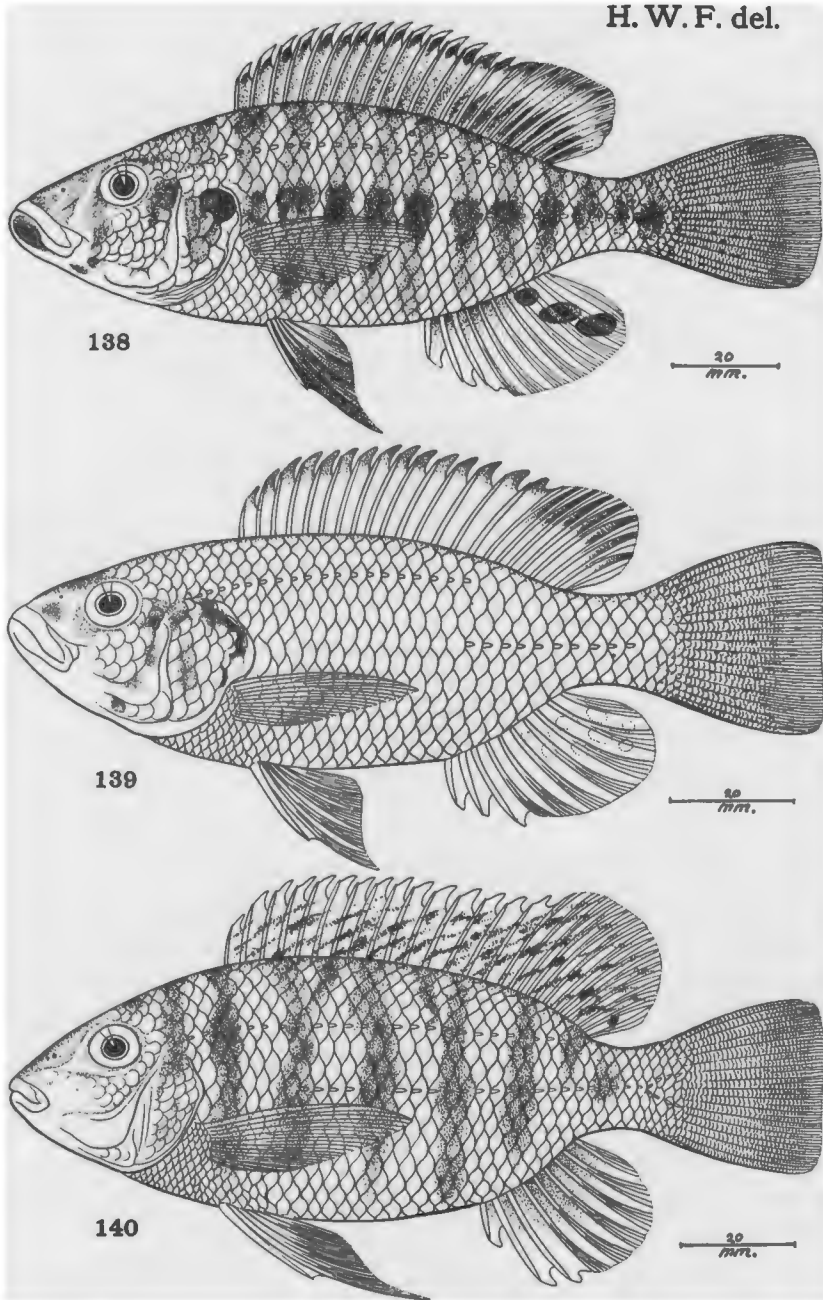
Back olive brown, sides paler and lower surfaces whitish. Along close above upper lateral line a longitudinal dark streak. Dark gray black lateral band begins on side of snout, passes behind eye and along middle of side to middle of caudal base. In its course also an upper longitudinal band traverses about 6 or 7 obscure dark transverse bars along back and middle of side. Large pearl white blotch on opercle and subopercle, very conspicuous or contrasted and equals $1\frac{1}{2}$ times eye. Iris gray white. Fins pale gray, with dorsals dark gray basally and terminally, sometimes broken as indistinct dark spots on soft dorsal. Caudal little darker basally. Pectoral little brown above, whitish below. Ventral and anal whitish, latter sometimes with 2 rather large pale spots, though indistinctly subbasal and posterior.

A.N.S.P., No. 66131. Kitala, Lake Victoria, Uganda. Length 167 mm. Type.

Also No. 66132, paratype, same data. Length 161 mm.

Related to *Haplochromis serranus* (Pfeffer), but differing in the well protruded mandible, the maxillary not reaching the eye, and the very conspicuous large pearly blotch on each lower side of the head.

(*λαμπρός* bright + *γένυς* cheek; with reference to the large bright pearly opercle and subopercle.)



138. *Haplochromis microdon*. 139. *Haplochromis crassilabris*.
140. *Pelmatochromis lateralis*.

Haplochromis crassilabris (Boulenger). Figure 139.

Depth $2\frac{2}{3}$; head $2\frac{2}{3}$, width 2. Snout $3\frac{1}{3}$ in head from snout tip; eye 4, $1\frac{1}{4}$ in snout, $1\frac{1}{2}$ in interorbital; maxillary reaches eye, length 3 in head from snout tip; preorbital depth below front eye edge 2 in eye; lips thick, fleshy, concealed teeth; teeth simple, conic, pointed, outer series little enlarged and inner rather narrow band of villiform teeth; interorbital $3\frac{1}{4}$ in head from snout tip, low, broadly convex; hind preopercle entire. Gill rakers 3 + 9, robust, compressed, short, $\frac{1}{2}$ of gill filaments, which 2 in eye.

Scales 19 in upper lateral line, of which last one overlaps; 12 + 1 in lower lateral line, of which first 4 scales only with single pore to each; 6 above, 9 below end of upper lateral line to spinous anal origin; 16 predorsal scales forward opposite front edge of pupil. Small scales on chest, breast, and all of caudal but hind submargin. Scales with 22 or 23 basal radiating striae; 100 to 115 minute apical denticles with 10 to 12 transverse series of basal elements; circuli fine, obsolete apically.

D. XVI, 8, 1, last spine $2\frac{2}{3}$ in total head length, fourth ray 2; A. III, 8, 1, third spine $2\frac{2}{3}$, fourth ray 2; caudal $1\frac{2}{3}$, slightly convex behind as expanded; least depth of caudal peduncle 3; pectoral $1\frac{1}{2}$, rays 1, 11; ventral rays I, 5, fin $1\frac{2}{3}$ in total head length.

Brown, little paler below, likely whitish in life. An obscure dark median lateral band, wide as pupil, also on side of snout and postocular. Dark spot, ill defined and less than eye, on opercle. Iris grayish. Fins brownish. Soft dorsal drab or gray marginally. Caudal with upper outer portion with some small obscure spots. Pectoral gray. Ventral pale.

Two 137 to 151 mm. Lake Victoria at Kitala, Uganda, August 9 to 16.

Haplochromis microdon (Boulenger). Figure 138.

One 133 mm. Lake Victoria at Kitala, Uganda, August 9-16.

Haplochromis pitmani new species. Figures 26, and 147 to 149 (young).

Depth $3\frac{2}{3}$ to $3\frac{3}{4}$; head $2\frac{2}{3}$ to $2\frac{4}{5}$, width $2\frac{2}{3}$ to $2\frac{1}{2}$. Snout 3 to $3\frac{1}{2}$ in head from snout tip; eye 3 to $3\frac{2}{3}$, 1 to $1\frac{1}{5}$ in snout, greater than interorbital; maxillary reaches $\frac{2}{3}$ to eye, length $2\frac{2}{3}$ to $3\frac{2}{3}$ in head from snout tip; teeth with an outer row of curved, rather well spaced, simple, conic ones and inner moderate band of villiform or minute teeth; no teeth on palate; interorbital $3\frac{2}{3}$ to $4\frac{1}{3}$, low, nearly level; hind preopercle edge entire. Gill rakers 3 + 8, lanceolate, $\frac{2}{3}$ of gill filaments, which 3 in eye.

Scales 17 to 20 in upper lateral line, last 2 overlap; 11 + 1 in lower lateral line; 6 above, 9 below upper lateral line to spinous anal origin; 13 predorsal forward opposite front eye edge; 3 or 4 rows of scales on cheek. Small scales on chest, breast, belly and most of caudal except posterior $\frac{2}{3}$. Scales with 11 or 12 basal radiating striae; 0 to 48 short fine apical denticles, with 7 transverse series of basal elements; circuli fine basally, coarse to obsolete apically.

D. XVI, 8 or 9, last spine 3 in total head length, third ray 2 to $2\frac{1}{3}$; A. III, 8, third spine $2\frac{1}{2}$ to $2\frac{2}{3}$, third ray $2\frac{2}{3}$ to $2\frac{2}{3}$; caudal $1\frac{2}{3}$ to $1\frac{1}{2}$, truncate; least depth of caudal peduncle $3\frac{1}{4}$ to $3\frac{1}{3}$; pectoral $1\frac{1}{2}$ to $1\frac{2}{3}$, rays 1, 12; ventral I, 5, fin $1\frac{2}{3}$ to $1\frac{2}{3}$ in total head length.

Brown, paler on under surface of head and abdomen. Ten dark vertical bands on body. Black opercular blotch size of pupil. Fins brownish, without distinct markings. Dorsals with upper edge narrowly dark gray to

blackish and young example with dark gray median longitudinal band. Caudal with 3 or 4 irregular dark cross bands, uniform in large example.

A.N.S.P., No. 66133. Kitala, Lake Victoria, Uganda. August 9 to 16. Length 55 mm. Type.

Also Nos. 66134 to 66137, same data, paratypes. Length 38 to 42 mm.

Apparently distinct in its coloration, especially in the numerous dark transverse bands, also the dark edges to the dorsals.

(For Captain C. R. S. Pitman, who cordially assisted the Expedition in its work at Kisubi Mission, Kitala.)

Astatore alluaudi (Pellegrin). Figure 135.

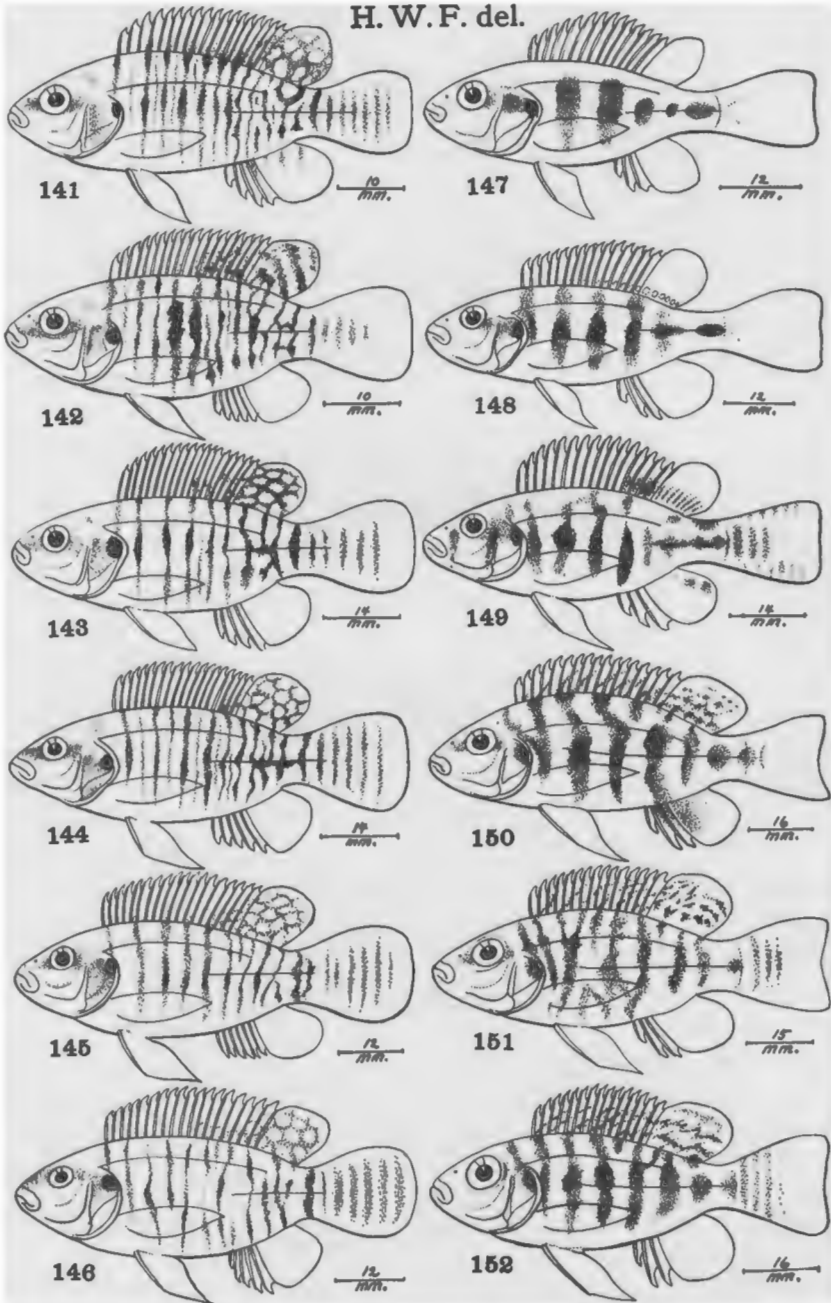
Depth $2\frac{3}{4}$ to $2\frac{4}{5}$; head $2\frac{3}{4}$ to $2\frac{4}{5}$, width $1\frac{3}{4}$ to $1\frac{1}{2}$. Snout 3 to $3\frac{2}{5}$ in head from snout tip; eye $4\frac{1}{5}$ to $4\frac{3}{4}$, $1\frac{1}{3}$ to $1\frac{3}{4}$ in snout, $1\frac{1}{3}$ to $1\frac{1}{2}$ in interorbital; mouth reaches eye, length $2\frac{1}{2}$ to $2\frac{2}{3}$ in head; teeth conic, simple, pointed, in band of 4 or 5 irregular series above with outer row little larger; lower teeth biserial, with outer row little larger; palate toothless; interorbital $3\frac{1}{5}$ to $3\frac{1}{4}$, convex; preopercle edge entire. Gill rakers 2 + 10, robust, lanceolate, $\frac{1}{3}$ of gill filaments, which $1\frac{2}{5}$ in eye.

Scales 18 to 21 in upper lateral line, overlaps 1 or 2 scales or may fall short; 9 or 10 + 2 in lower lateral line; 4 scales above, 8 or 9 below upper lateral line to anal origin; 13 predorsal forward opposite front eye edge. Small scales on breast and chest, and caudal with basal half covered with small scales. Scales with 24 to 26 basal radiating striae; circuli fine, obsolete apically.

D. XVIII or XIX, 7, 1, last spine 2 to $2\frac{1}{5}$ in head, fourth ray $1\frac{3}{5}$ to $1\frac{1}{2}$; A. V, 6, 1 or 7, 1, last spine $2\frac{2}{5}$ to $2\frac{1}{2}$; caudal $1\frac{2}{5}$ to $1\frac{1}{2}$, convex behind; least depth of caudal peduncle $3\frac{1}{5}$ to $3\frac{1}{4}$; pectoral $1\frac{2}{5}$ to $1\frac{1}{2}$, rays 1, 13; ventral rays I, 5, fin $1\frac{1}{4}$ to $1\frac{1}{3}$ in head.

Olive brown, with 8 or 9 darker obscure transverse bands, little broader than pale interspaces. Dark band vertically down front of eye behind mouth and another behind eye along front of preopercle, also black spot on opercle less than eye. With age body more or less darker, sides and lower surface of head variably blackish, also breast, chest and ventrals. Fins dark brown, with blackish streak along front of each dorsal spine and soft ray, at least basally. Anal blackish terminally and soft fin with 3 or 4 irregular large round blackish blotches. In small examples soft anal broadly whitish terminally. Caudal with 6 obscure dark transverse bands. Paired fins olive, ventral dark gray terminally.

Four 49 to 173 mm. Lake Victoria at Kitala, Uganda, August 9 to 16. The largest example much blacker on under surfaces. It and next in size with black ventrals and dark pectorals. Both with traces of 7 obscure dark transverse bands. Two smaller examples with paler paired fins and no black on the under surfaces. My most contrasted specimen differs from Boulenger's account in that he describes "some young specimens dark steel grey, nearly black on top of the back and head."



141 to 146. *Tilapia browni*. 147 to 149. *Haplochromis pitmani*.
150 to 152. *Pelmatochromis lateralis* (variation).

Pelmatochromis lateralis Boulenger. Figures 140 and 150 to 152 (variation).

Depth $2\frac{1}{2}$ to $2\frac{3}{8}$; head $2\frac{3}{4}$ to $3\frac{1}{8}$, width 2 to $2\frac{1}{8}$. Snout $2\frac{1}{8}$ to $2\frac{3}{8}$ in head; eye 3 to $3\frac{1}{2}$, $1\frac{1}{4}$ to $1\frac{1}{8}$ in snout, greater than interorbital to $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{3}{8}$ to $\frac{3}{4}$ to eye, length $3\frac{1}{8}$ to $3\frac{1}{4}$ in head; lips rather narrow, fleshy; teeth minute, in 3 rows in jaws, largely concealed, palate toothless; interorbital 3 to $3\frac{1}{3}$, low, broadly convex; hind preopercle edge entire. Gill rakers 10 + 15, compressed, short, $\frac{1}{2}$ of gill filaments, which $1\frac{3}{4}$ in eye.

Scales 24 or 25 in upper lateral line, of which 17 to 20 overlap; 27 or 28 + 3 to 10 in lower lateral line; 6 or 7 above; 7 or 8 below lower lateral line; 14 to 16 predorsal forward over middle of eye; 3 rows on cheek below eye. Small crowded scales on chest, breast, prepectoral region and over caudal except its hind margin. Scales with 11 or 12 basal radiating striae; 25 feeble, minute denticles; circuli fine, coarser apically.

D. XV, 13 or 14, last spine $2\frac{1}{4}$ to $2\frac{1}{3}$ in head, eighth ray $1\frac{3}{4}$ to $1\frac{7}{8}$; A. III, 7, third spine $1\frac{7}{8}$ to 2, second ray $1\frac{7}{8}$ to 2; caudal $1\frac{1}{8}$ to $1\frac{1}{4}$, little emarginate; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{3}{8}$; pectoral $2\frac{7}{8}$ to $3\frac{1}{8}$ in fish without caudal, rays I, 14; ventral rays I, 5, fin 1 to $1\frac{1}{10}$ in head.

Brown, slightly paler on under surface of head and abdomen. Dark bar across interorbital and 8 more on body, all much wider than pale interspaces and extend well down on body. Iris gray. Fins brownish, all more or less grayish terminally. Soft dorsal with gray reticulations leaving pale spots.

Nine 90 to 149 mm. Ekibondo's Village, Belgian Congo, September.

Pelmatochromis kribensis Boulenger.

Twelve 42 to 60 mm. from 30 kilometers east of Kribi, Cameroons, November 26. Boulenger's figure shows the anal barred, a condition not found in any of my specimens.

Hemichromis fasciatus Peters.

Thirty-six 90 to 166 mm. Fort Sibus, Ubangi-Shari, September 15; twenty-seven 67 to 140 mm. from 30 kilometers east of Kribi, Cameroons, November 24-25; eleven 52 to 200 mm. Batangafo, Ubangi-Shari.

Hemichromis bimaculatus Boulenger.

Two 28 to 73 mm. from 30 kilometers east of Kribi, Cameroons, November 26; eight 28 to 82 mm. Batangafo, Ubangi-Shari.

ELEOTRIDAE

Eleotris nana Boulenger.

Two 20 to 24 mm. from 30 kilometers east of Kribi, Cameroons, November 26.