

PUPA.

- Fig.* 5. Dorsal view.
Fig. 6. Anterior outer lamina of left-hand respiratory horn, viewed from behind. *p.a.*, paler area.
Fig. 7. Inner laminæ of left-hand respiratory horn, viewed from behind. *a.i.l.*, anterior inner lamina; *p.i.l.*, posterior inner lamina; *t.*, trachea, a fragment still attached under the chitinous wall of the body.
Fig. 8. Diagrammatic ground-plan of left-hand respiratory horn. *m.*, median longitudinal line of thorax; *a.o.l.*, *p.o.l.*, anterior and posterior outer laminæ; *a.i.l.*, *p.i.l.*, anterior and posterior inner laminæ; *s.*, spiracle.

IMAGO.

- Fig.* 9. Head and mouth-parts of ♂, mounted in balsam, the organs pushed apart by pressure. *labr.*, labrum; *hyp.*, hypopharynx; *mx.*, lobes of the two maxillæ; *lab.*, labium.
Fig. 10. Right maxillary palpus of ♂, enlarged.
Fig. 11. Apex of ♂ hypopharynx, enlarged; the lateral fringes are doubled one over the other, so that the hairs projecting on the right side of the organ really arise from its left side, and *vice versâ*.
Fig. 12. Apex of hypopharynx of *Kelloggina barnardi* ♂, to same scale as *fig.* 11, for comparison.
Fig. 13. ♂ genital armature from beneath, viewed as a transparent object.
Fig. 14. Terminal joint of hind tarsus and claws, ♂ (closely similar in ♀).
Fig. 15. Wing of ♂ (from one of Williston's paratypes).
Fig. 16. ♀, × 7: the pale reticulation shown on the abdomen is due to desiccation-shrinkage.
Fig. 17. ♀, head and body, × 7.

XIII.—*Descriptions of new Freshwater Fishes from Sierra Leone.* By G. A. BOULENGER, F.R.S.

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A SMALL collection of fishes made at Matca, Sierra Leone, by Mr. N. W. Thomas, and presented by him to the British Museum, contains examples of three species previously known, viz. *Marcusenius brachistius*, Gill, *Fundulus sjoestedti*, Lönnb., *Haplochilus macrurus*, Blgr.; and of four which I regard as new to science, viz. an *Eleotris* allied to *E. kribensis*, Blgr., which will be described in the forthcoming third volume of the 'British Museum Catalogue,' and the following, referable to the genera *Barbus*, *Haplochilus*, and *Paratilapia*.

Barbus leonensis.

Depth of body equal to length of head, $3\frac{1}{4}$ times in total length. Snout rounded, shorter than eye, which is 3 times in length of head and a little less than interorbital width; mouth small, terminal, with feebly developed lips; no barbels. Dorsal III 7, equally distant from posterior border of eye and from caudal, border straight; last simple ray not enlarged, not serrated, slightly shorter than head. Anal III 5, not reaching caudal. Pectoral shorter than head, not reaching ventral; latter below origin of dorsal. Caudal forked. Caudal peduncle $1\frac{1}{3}$ times as long as deep. Scales radiately striated, 21-23 $\frac{4\frac{1}{2}}{3\frac{1}{2}}$, 2 between lateral line series and ventral, 8 round caudal peduncle; lateral line present only in front, reduced to 7 tubules. Yellow, with black dots on the borders of the dorsal scales; a black spot on the dorsal fin and another at the base of the caudal.

Total length 21 mm.

Two specimens.

Closely allied to *B. jae*, Blgr.

Haplochilus annulatus.

Depth of body 5 times in total length, length of head $3\frac{1}{2}$ times. Head flat above; snout a little shorter than eye; mouth directed upwards, lower jaw projecting; eye $2\frac{2}{3}$ times in length of head, $1\frac{1}{3}$ times in interorbital width; præorbital very narrow. Dorsal 7, originating twice as far from occiput as from root of caudal, above posterior fourth of anal, produced, longest ray as long as head. Anal 13, produced like the dorsal. Pectoral a little shorter than head, extending beyond base of ventral; latter small. Caudal pointed, median rays produced, longer than head. Caudal peduncle $1\frac{2}{3}$ times as long as deep. 28 or 29 scales in longitudinal series; lateral line represented by an interrupted series of pits. Lemon-yellow, with four broad black rings, the first round the head, the last round the caudal peduncle; dorsal and anal yellow, with the anterior rays black; caudal orange, with two dark purple longitudinal lines.

Total length 16 mm.

Two specimens.

Appears most nearly related to *H. chevalieri*, Pellegr.

Paratilapia thomasi.

Depth of body 2 to $2\frac{1}{3}$ times in total length, length of head $2\frac{3}{4}$ to $3\frac{1}{4}$ times. Head twice as long as broad; snout with convex upper profile, broader than long, $\frac{1}{2}$ to $\frac{3}{5}$ postocular part of head; eye $3\frac{1}{3}$ to $3\frac{1}{2}$ times in length of head, 1 to $1\frac{1}{3}$ times in interorbital width, greater than præorbital depth; mouth rather small, extending to between nostril and eye; præmaxillary processes short; teeth small, in 3 or 4 series; 3 or 4 series of scales on the cheek, width of scaly part a little less than diameter of eye. Gill-rakers short, 7 or 8 on lower part of anterior arch. Dorsal XIV 9-10; spines increasing in length to the last, which measures $\frac{2}{5}$ to $\frac{1}{2}$ length of head; longest soft ray nearly as long as head. Anal III 7-8; third spine a little shorter than last dorsal. Pectoral a little shorter than head, not extending to vertical of origin of anal. Ventral much produced, extending beyond origin of anal. Caudal rounded. Caudal peduncle deeper than long. Scales very feebly denticulate, 25-27 $\frac{2}{10}$; lateral lines $\frac{15-16}{6-10}$. Yellowish, with six black cross-bands, the third of which may expand into a rhombic spot; a black bar from the eye to the mouth; a black opercular spot, with or without small pearl-white spots; dorsal and anal fins grey, the former edged with white; outer rays of ventral black.

Total length 65 mm.

Three specimens.

Appears most nearly related to *P. dorsalis*, Pellegr. As in *P. codringtoni*, Blgr., the maxillary bone is concealed when the mouth is closed, the fish having the appearance of a *Tilapia*.

The exploration of the freshwater fauna of Sierra Leone has not received much attention. The number of species of fishes with which I am acquainted amounts only to eighteen:—*Polypterus palmas*, Ayres, *Protopterus annectens*, Ow., *Marcusenius brachistius*, Gill, *Notopterus afer*, Gthr., *Alestes ongipinnis*, Gthr., *Barbus leonensis*, Blgr., *Clarias liberiensis*, Stdr., *Fundulus sjoestedti*, Lönnb., *Haplochilus fasciolatus*, Gtar., *H. chaperi*, Sauv., *H. macrurus*, Blgr., *H. annulatus*, Blgr., *Paratilapia thomasi*, Blgr., *Hemichromis fasciatus*, Peters, *H. bimaculatus*, Gill, *Eleotris lebretoni*, Stdr., *E. leonensis*, Blgr., and *Mastacembelus reticulatus*, Blgr.



Boulenger, George Albert. 1915. "Descriptions of new freshwater fishes from Sierra Leone." *The Annals and magazine of natural history; zoology, botany, and geology* 15, 202–204.

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