

	mm.
4th finger, metacarpus .....	27
"    1st phalanx .....	9
"    2nd phalanx .....	10
5th finger, metacarpus .....	27
"    1st phalanx .....	9
"    2nd phalanx .....	10
Tail .....	18.5
Lower leg .....	16
Foot .....	7

XXVI.—*Diagnoses of new Fishes discovered by Capt. E. L. Rhoades in Lake Nyassa.* By G. A. BOULENGER, F.R.S.

A LARGE collection of fishes from Lake Nyassa, comprising examples of thirty-four species, twelve of which are undescribed, has been presented by Capt. E. L. Rhoades to the British Museum. Most of the specimens are in an excellent state of preservation, and their value is much enhanced by coloured sketches made by Capt. Rhoades himself from them in the fresh condition. Thanks to this rich material, I hope ere long to prepare for publication an illustrated account of the fishes of Lake Nyassa. In the meanwhile I have drawn up diagnoses of the new species.

*Barbus rhoadesii.*

D. IV 8. A. III 5. L. lat. 37-40. L. tr.  $\frac{6\frac{1}{2}-7\frac{1}{2}}{6\frac{1}{2}}$ .

Depth of body  $3\frac{2}{5}$  to  $3\frac{2}{3}$  times in total length, length of head  $3\frac{2}{3}$  to 4 times. Snout rounded,  $3\frac{1}{4}$  to  $3\frac{1}{3}$  times in length of head, eye 5 times, interorbital width  $3\frac{2}{3}$  to 4 times; width of mouth 3 to  $3\frac{1}{2}$  times in length of head; lips moderately developed, interrupted on the chin; barbels 2 on each side, anterior minute, posterior  $\frac{1}{3}$  to  $\frac{1}{2}$  diameter of eye. Last simple ray of dorsal very strong, bony, not serrated, rigid portion about  $\frac{1}{2}$  length of head. Ventrals immediately in front of origin of dorsal. Caudal peduncle  $1\frac{2}{3}$  to  $1\frac{3}{4}$  times as long as deep. 3 or  $3\frac{1}{2}$  scales between lateral line and ventral, 16 or 18 round caudal peduncle. Olive to dark green above, white beneath.

Six specimens, measuring 250 to 325 mm.



*Paratilapia chrysonota*.D. XV-XVI 9-11. A. III 9-11. Sc. 32-34  $\frac{3-3\frac{1}{2}}{10}$ .L. 1.  $\frac{21-27}{12-18}$ .

Depth of body  $2\frac{3}{5}$  to  $2\frac{3}{4}$  times in total length, length of head 3 to  $3\frac{1}{4}$  times. Eye  $2\frac{2}{3}$  to 3 times in length of head, as long as or longer than snout, as long as postocular part of head; maxillary extending to between nostril and eye; lower jaw not projecting; teeth very small, in 3 or 4 series; 2 or 3 series of scales on the cheek; 17 to 20 gill-rakers on lower part of anterior arch. Dorsal spines increasing in length to the last, which measures  $\frac{2}{5}$  to  $\frac{1}{2}$  length of head; soft dorsal and anal pointed. Pectoral as long as or a little longer than head. Caudal fin feebly emarginate, feebly scaled. Caudal peduncle a little longer than deep. Scales finely denticulate. Female brownish above and silvery white beneath, with 3 black spots on each side; these spots less distinct in males, which are much darker, with the top of the head and back golden yellow, and the dorsal and anal yellow, usually black at the base.

Numerous specimens, measuring 70 to 130 mm.

Closely allied to *P. intermedia*, Gthr.

*Paratilapia rhoadesii*.D. XVI-XVII 12. A. III 10-11. Sc. 37-38  $\frac{4-5}{12-14}$ .L. 1.  $\frac{25-26}{15-17}$ .

Depth of body equal to length of head, 3 times in total length. Eye 5 to  $5\frac{2}{3}$  times in length of head, 2 to  $2\frac{1}{2}$  times in length of snout; maxillary extending to between nostril and eye; lower jaw not or but slightly projecting; teeth in 4 or 5 series, outer largest; 5 series of scales on the cheek; 11 gill-rakers on lower part of anterior arch. Dorsal spines equal from 8th or 9th, not quite  $\frac{1}{3}$  length of head. Pectoral a little shorter than head. Caudal fin deeply emarginate and densely scaled. Caudal peduncle  $1\frac{1}{2}$  to  $1\frac{2}{3}$  times as long as deep. Scales finely denticulate. Dark green above, pale green or silvery below, with 7 or 8 ill-defined darker vertical bars on the body; fins edged with yellow.

Total length 360 mm. Two specimens.

Closely allied to *P. dimidiata*, Gthr.



*Paratilapia compressiceps.*D. XV 12. A. III 11. Sc. 35  $\frac{4}{11}$ . L. 1.  $\frac{22}{16}$ .

Depth of body 3 times in total length, length of head  $2\frac{3}{5}$  times. Head very strongly compressed; eye  $5\frac{1}{2}$  times in length of head,  $2\frac{1}{2}$  times in length of snout; maxillary widely separated from vertical of anterior border of eye; chin pointed, projecting; teeth in 3 series, outer large and widely spaced; 4 series of scales on the cheek; 10 gill-rakers on lower part of anterior arch. Dorsal spines increasing in length to the last, which measures  $\frac{1}{3}$  length of head. Pectoral  $\frac{2}{3}$  length of head. Caudal fin truncate. Caudal peduncle  $1\frac{1}{2}$  times as long as deep. Scales finely denticulate. Brownish above, silvery white beneath; three dark bands on each side, one along the upper outline of head and body, the other above the upper lateral line, and a third from the præorbital to the base of the caudal, passing through the eye.

A single specimen, 165 mm. long.

Allied to *P. serranus*, Hilg., and *P. prognatha*, Pellegr.

*Paratilapia cœrulea.*D. XVI 13. A. III 10. Sc. 38  $\frac{4-5}{12}$ . L. 1.  $\frac{23}{17}$ .

Depth of body 4 times in total length, length of head  $3\frac{1}{4}$  times. Eye 6 times in length of head,  $2\frac{1}{2}$  times in length of snout; maxillary widely separated from vertical of anterior border of eye; lower jaw slightly projecting; teeth in 4 series, outer large and widely spaced; 5 series of scales on the cheek; 11 gill-rakers on lower part of anterior arch. Dorsal spines increasing in length to the last, which measures  $\frac{1}{3}$  length of head. Soft dorsal, anal, and ventrals much produced, ending in a filament. Pectoral  $\frac{3}{4}$  length of head. Caudal fin scaled, with deep crescentic emargination. Caudal peduncle nearly twice as long as deep. Scales finely denticulate. Blue or greenish blue, darker above; dorsal and anal fins edged with orange, the former and the caudal with small round brown spots edged with red.

A single specimen, measuring 255 mm.

*Paratilapia esox.*D. XVIII-XIX 12-13. A. III 10-11. Sc. 43-45  $\frac{5-6}{12-13}$ .  
L. 1.  $\frac{24-27}{16-22}$ .

Depth of body  $4\frac{3}{4}$  to  $5\frac{1}{4}$  times in total length, length of



head 3 times. Head strongly compressed; eye 7 to 8 times in length of head,  $3\frac{1}{2}$  to 4 times in length of snout; maxillary widely separated from vertical of anterior border of eye; chin projecting; teeth in two series, few, outer large and widely spaced; 5 or 6 series of scales on the cheek; 15 or 16 gill-rakers on lower part of anterior arch. Dorsal spines weak, increasing in length to the last, which measures  $\frac{1}{5}$  length of head. Pectoral  $\frac{1}{2}$  length of head. Caudal fin distinctly emarginate, greater part scaled. Caudal peduncle 2 to  $2\frac{1}{2}$  times as long as deep. Scales finely denticulate. Bright silvery white, except on the base, which is dark green; fins bluish grey, dorsal and anal edged with orange.

Total length 370 mm. Three specimens.

Allied to *P. longiceps*, Gthr.

*Haplochromis venustus.*

D. XVI 10-11. A. III 10. Sc. 32-35  $\frac{4-5}{14-16}$ . L. 1.  $\frac{19-23}{15-16}$ .

Depth of body  $2\frac{1}{2}$  to  $2\frac{2}{3}$  times in total length, length of head 3 times. Eye 4 to  $4\frac{1}{2}$  times in length of head, about twice in length of snout; maxillary extending to between nostril and eye; lower jaw not projecting; teeth in 4 to 6 series, outer largest, all conical or some of the outer bicuspid; 3 or 4 series of scales on the cheek; 11 or 12 gill-rakers on lower part of anterior arch. Dorsal spines increasing in length to the last, which measures  $\frac{1}{2}$  or a little less than  $\frac{1}{2}$  length of head. Soft dorsal, anal, and ventrals prolonged, acutely pointed. Pectoral as long as head. Caudal fin truncate or slightly emarginate, scaled. Caudal peduncle a little longer than deep. Scales finely denticulate. Peacock-blue, with large deep-blue spots, dotted with red; top of head and a broad edge to the fins orange.

Total length 195 mm. Five specimens.

Closely allied to *H. livingstonii* (*Hemichromis livingstonii*, Gthr.).

*Tilapia auromarginata.*

D. XVII-XVIII 11. A. III 10. Sc. 33-35  $\frac{4}{12-13}$ .  
L. 1.  $\frac{18-24}{15-17}$ .

Depth of body  $2\frac{1}{2}$  times in total length, length of head  $3\frac{1}{3}$  to  $3\frac{1}{2}$  times. Eye  $3\frac{1}{2}$  to 4 times in length of head,  $1\frac{1}{3}$  to  $1\frac{1}{2}$  times in length of snout; maxillary extending to between nostril and eye; lower jaw not projecting; teeth small, in 4



or 5 series ; 3 or 4 series of scales on the cheek ; 15 or 16 gill-rakers on lower part of anterior arch. Dorsal spines increasing in length to the last, which measures a little less than  $\frac{1}{2}$  length of head. Pectoral as long as head. Caudal fin densely scaled, distinctly emarginate. Caudal peduncle  $1\frac{1}{4}$  to  $1\frac{1}{3}$  times as long as deep. Scales cycloid or very finely denticulate. Dark blue above, bluish white beneath ; dorsal and caudal with small round red spots ; dorsal and anal edged with bright yellow.

Three specimens, measuring 200–240 mm.

Closely allied to *T. lateristriga*, Gthr.

*Tilapia inornata.*

D. XVI–XVII 11–12. A. III 9. Sc. 34–36  $\frac{3\frac{1}{2}-4}{11-12}$ .

L. 1.  $\frac{25-28}{16-18}$ .

Depth of body equal to length of head,  $3\frac{1}{4}$  to  $3\frac{1}{3}$  times in total length. Eye  $2\frac{3}{4}$  to 3 times in length of head, as long as or longer than snout ; maxillary extending to between nostril and eye ; lower jaw not projecting ; teeth very small, in 3 series ; 2 or 3 series of scales on the cheek ; 15 or 16 gill-rakers on lower part of anterior arch. Dorsal spines increasing in length to the last, which measures a little less than  $\frac{1}{2}$  length of head. Pectoral as long as head. Caudal fin with crescentic emargination. Caudal peduncle  $1\frac{2}{3}$  times as long as deep. Scales finely denticulate. Silvery, back olive.

Total length 95 mm. Two specimens.

Allied to *T. kirkii*, Gthr.

*Tilapia macrophthalma.*

D. XV–XVII 10–11. A. III 8–9. Sc. 32–34  $\frac{3}{12}$ .

L. 1.  $\frac{23-29}{13-17}$ .

Depth of body equal to length of head, 3 times in total length. Eye  $2\frac{1}{2}$  times in length of head ; snout with very convex upper outline,  $\frac{2}{3}$  diameter of eye ; maxillary extending to between nostril and eye ; lower jaw not projecting ; teeth very small, in 2 series ; 2 or 3 series of scales on the cheek ; 11 or 12 gill-rakers on lower part of anterior arch. Dorsal spines increasing in length to the last, which measures about  $\frac{1}{2}$  length of head. Pectoral a little longer than head. Caudal fin with crescentic emargination. Caudal peduncle



$1\frac{1}{3}$  to  $1\frac{1}{2}$  times as long as deep. Scales finely denticulate. Brownish above, silvery white beneath, uniform or with very indistinct numerous darker vertical bars; spinous dorsal with a dark and light edge.

Total length 80 mm. Six specimens.

Allied to *T. johnstonii*, Gthr.

*Tilapia brevis.*

D. XV 12. A. III 9. Sc. 31-32  $\frac{3}{12}$ . L. 1.  $\frac{22-25}{16-17}$ .

Depth of body  $2\frac{1}{2}$  times in total length, length of head  $2\frac{2}{3}$  times. Eye  $2\frac{1}{3}$  times in length of head; snout with very convex upper outline,  $\frac{2}{3}$  diameter of eye; maxillary extending to below anterior border of eye; lower jaw not projecting; teeth very small, in 2 or 3 series; 3 series of scales on the cheek; 8 gill-rakers on lower part of anterior arch. Dorsal spines increasing in length to the last, which measures about  $\frac{1}{2}$  length of head. Pectoral as long as head. Caudal fin with crescentic emargination. Caudal peduncle as long as deep. Scales finely denticulate. Silvery, back brownish; a dark brown band on each side, from the nape to the root of the tail; a dark brown opercular spot.

Total length 70 mm. Two specimens.

Allied to *T. johnstonii*, Gthr.

CHILOTILAPIA, gen. nov.

Teeth in several rows, with obtuse or rounded crowns; maxillary exposed; lips thick. 3 anal spines.

*Chilotilapia rhoadesii.*

D. XV 10. A. III 9. Sc. 34  $\frac{4}{13}$ . L. 1.  $\frac{21}{18}$ .

Depth of body  $2\frac{1}{4}$  times in total length, length of head 3 times. Snout short, upper profile descending abruptly; eye  $4\frac{1}{2}$  times in length of head; maxillary extending to below nostril and eye; teeth in 5 irregular series, outer largest; 4 series of scales on the cheek; 11 gill-rakers on lower part of anterior arch. Dorsal spines increasing in length to the last, which is a little less than  $\frac{1}{2}$  length of head. Pectoral as long as head. Caudal fin densely scaled, feebly emarginate. Caudal peduncle  $1\frac{1}{2}$  times as long as deep. Scales finely denticulate. Dark blue; dorsal and anal fins broadly edged with orange.

Total length 220 mm. A single specimen.



Boulenger, George Albert. 1908. "Diagnoses of new fishes discovered by Capt. E. L. Rhoades in Lake Nyassa." *The Annals and magazine of natural history; zoology, botany, and geology* 2, 238–243.

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