

June 21, 1898.

W. T. BLANFORD, Esq., F.R.S., V.P., in the Chair.

Mr. J. Graham Kerr, F.Z.S., exhibited some specimens of *Lepidosiren* collected by him in the Gran Chaco of Paraguay during 1896-97. The adult males exhibited the characteristically varying appearances of the hind limb in the periods before, during, and after the breeding-season. Mr. Kerr also exhibited specimens of the young of *Lepidosiren*, illustrating especially the external gills and sucker, the disappearance of these organs, and the varying colour of the animal associated with the surrounding conditions of light or darkness.

A small collection of Teleostean Fishes, which had been obtained in the same region, and kindly identified by Mr. Boulenger, was also exhibited. Amongst its components the following species were interesting as characteristic inhabitants of the same range of swamps in which *Lepidosiren* was found :—

CICHLIDÆ.

Acara tetramerus Heck.

Crenicichla saxatilis L.

SILURIDÆ.

Callichthys asper Q. & G.

— *littoralis* Hancock.

Liposarcus pardalis Casteln.

CHARACINIDÆ.

Macrodon trahira Spix.

Erythrinus unitaeniatus Spix.

Xiphorhamphus ferox Gthr.

Serrasalmo serrulatus C. & V.

SYMBRANCHIDÆ.

Symbranchus marmoratus Bl.

The Secretary called the attention of the Meeting to the arrival in the Society's Gardens of four fine living specimens of the Australian Lung-fish (*Ceratodus forsteri*), being the first examples of this fish which had been imported alive to Europe. They had been captured in the River Mary in Queensland and brought home from Brisbane in the S.S. 'Duke of Devonshire' by Mr. D. O'Connor¹, who had been engaged by the Royal Society of Queensland to transfer this fish into other Australian rivers besides those (the Mary and the Burnett) in which it was already known to exist. The specimens were kept in hot-water tanks (temperature 70° to 80°) in the Tortoise House and were fed principally upon prawns and shrimps.

¹ See his letter in the 'Field,' June 11th, 1898, vol. xci, p. 899.

Mr. D. O'Connor had supplied the following information on the *Ceratodus* :—

“Some ten or twelve years ago the late Sir Ferdinand von Mueller and other scientific men of Australia were apprehensive that *Ceratodus* was likely to become extinct, mainly owing to their being largely destroyed by settlers and miners, who highly esteemed them as an article of diet. They were mostly killed by dynamite, a very destructive agent. The curious fact was also noted that no small specimens of *Ceratodus* were ever seen; two of those in your gardens are the smallest I ever met with, excepting a stuffed specimen which measured 21 inches. The Royal Society of Queensland, with a view to the preservation of *Ceratodus*, resolved to remove specimens to new habitats. I was asked to undertake the work. My first month's experience was very discouraging, resulting in only one live fish, but better success followed and in less than six months sixty-nine fishes were transported to six new localities. This success encouraged me to try the experiment of taking a few to England. I had some caught and kept in captivity a few weeks and fed mainly on prawns. They were shipped in the ‘Duke of Devonshire’ on the 15th April, and arrived in London on the 12th June, after a passage of eight weeks. My success was mainly owing to the exceptionally fine weather enjoyed throughout the voyage, there not being an hour rough between the Brisbane River and the Thames.

“The native name of *Ceratodus* is ‘Teebine’; the settlers on the Burnett call it salmon on account of its red flesh: on the Mary River it is known as ‘Barramundi’; but this name is incorrectly given to several species of large freshwater fishes, it belongs rightly to *Osteoglossum leichardti*.”

Mr. Boulenger exhibited specimens of *Polypterus lapradii* Stdr., from the Lower Congo, provided with much developed external opercular gills as first described by Steindachner. One of these specimens measured 260 millim., thus exceeding by 30 millim. the largest hitherto recorded with persistent external gills. Mr. Boulenger had previously shown that the presence of these gills was not actually dependent on age, still less confined to the “larva” as stated by Bashford Dean, since out of three quite young *Polypterus palmas* Ayres, of the same size, one only was possessed of them. The fact that they persisted in what might be described as half-grown specimens rendered it probable that they were retained throughout life in certain individuals, as we know to be the case in some of our common Newts.

Mr. R. E. Holding made some remarks on some interesting animals he had observed during a recent visit to the Zoological Gardens at Belle Vue, Manchester.

Prof. Howes exhibited, on behalf of Mr. E. W. L. Holt, a

specimen of a new British Fish (*Argentina silus*), obtained 80 miles south-west of the Scilly Islands.

Mr. Abbott H. Thayer, of New York, explained his method of demonstrating, by actual experiments, the underlying principle of protective coloration in animals, and invited the Members present and their friends to witness an exhibition of his demonstrations which he had arranged with the Secretary to take place in the Society's Gardens next day, at 11.30 A.M.

Mr. Boulenger read a Report on the Fishes recently obtained by Mr. J. E. S. Moore in Lake Tanganyika. He gave a list of 35 species, belonging to the families *Serranidæ*, *Cichlidæ*, *Mastacembelidæ*, *Siluridæ*, *Cyprinidæ*, *Characinidæ*, *Cyprinodontidæ*, and *Polypteridæ*. The general character of the fish-fauna, so far as had been ascertained, did not differ from that of the fresh waters of Africa, but most of the species were distinct, and the family *Cichlidæ* had furnished types of 10 new genera.

This paper will be published entire in the Society's 'Transactions.' Diagnoses of the new forms are subjoined.

SERRANIDÆ.

Lates microlepis, sp. n.—D. VII, II 11; A. III 8; Sq. 100–110 $\frac{12-13}{29-30}$. Distinguished from *L. niloticus* Hasselq., by smaller scales, a higher spinous dorsal, a longer caudal peduncle, and a truncate caudal fin.

CICHLIDÆ.

LAMPROLOGUS Schilth.—Six new species, which may be distinguished by means of the following synopsis:—

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|---|----------------------------------|
| I. Caudal rounded or truncate. | |
| A. Anal with 10 spines. | |
| D. XIX 8; Sq. 46 $\frac{5}{10}$; depth of body 4 times in total length | <i>L. fasciatus</i> , sp. n. |
| D. XX–XXI; Sq. 32–33 $\frac{5}{12}$; depth of body 2 $\frac{3}{4}$ to 2 $\frac{3}{4}$ times in total length | <i>L. compressiceps</i> , sp. n. |
| B. Anal with 7 or 8 spines; D. XIX–XX 8–9; | |
| Sq. 33–35 $\frac{5-7}{11-12}$; depth of body 2 $\frac{1}{2}$ times in total length | <i>L. moorii</i> , sp. n. |
| C. Anal with 5 spines. | |
| D. XX 8–9; Sq. 36–40 $\frac{5-6}{11-14}$; depth of body 3 $\frac{1}{4}$ to 3 $\frac{3}{4}$ times in total length | <i>L. modestus</i> , sp. n. |
| D. XVIII 10–11; Sq. 90–95 $\frac{10}{22-28}$; depth of body 4 times in total length | <i>L. elongatus</i> , sp. n. |
| II. Caudal deeply notched, crescentic; D. XX–XXI | |
| 7–8; A. VI–VII 6; Sq. 50–54 $\frac{6-7}{16-17}$ | <i>L. furcifer</i> , sp. n. |

TELMATOCHROMIS, g. n.—Body more or less elongate; scales ctenoid. Jaws with a series of conical teeth, followed by a broad band of minute tricuspid teeth; lateral teeth small, conical. Maxillary exposed. Dorsal with 20 to 22 spines, anal with 6 or 7.

T. vittatus, sp. n.—D. XXI-XXII 8; A. VII 5-6; Sq. 45-52 $\frac{6}{16}$; l. lat. $\frac{25-29}{13-15}$; depth of body $4\frac{1}{2}$ - $4\frac{2}{3}$ times in total length.

T. temporalis, sp. n.—D. XX-XXI 6-7; A. VI-VII 6-7; Sq. 43-46 $\frac{6}{12}$; l. lat. $\frac{25}{9-17}$; depth of body $3\frac{1}{4}$ to $3\frac{1}{2}$ times in total length.

JULIDOCROMIS, g. n.—Body elongate; scales ctenoid. Jaws very narrow, with a few curved canines in front, the outer of which are very large and tusk-like, followed on the sides and behind by minute conical teeth forming a narrow band. Maxillary exposed. Dorsal with 22 to 24 spines, anal with 8 or 9.

J. ornatus, sp. n.—D. XXII-XXIV 5; A. VIII-IX 4-6; Sq. 45-50 $\frac{6-7}{12-13}$; l. lat. $\frac{25-29}{10-15}$; depth of body 4 - $4\frac{1}{2}$ times in total length.

PARATILAPIA Blkr.—5 new species:—

I. Dorsal with 16 spines; caudal feebly emarginate.

D. XVI 8; A. III 7; Sq. 33 $\frac{3}{9}$; l. lat. $\frac{21-22}{12-13}$; depth of body $2\frac{3}{4}$ times in total length; diameter of eye $3\frac{1}{4}$ times in length of head *P. pfefferi*, sp. n.

D. XVI 10-12; A. III 6-7; Sq. 33-34 $\frac{3}{10}$; l. lat. $\frac{33}{15-17}$; depth of body 3 times in total length; diameter of eye $2\frac{3}{4}$ times in length of head *P. macrops*, sp. n.

II. Dorsal with 12 or 13 spines and 13 to 15 soft rays.

A. Caudal deeply emarginate, crescentic; A. III 9-10; depth of body $2\frac{3}{4}$ -3 times in total length.

Sq. 34-36 $\frac{4}{13-14}$; l. lat. $\frac{30-36}{10-16}$ *P. ventralis*, sp. n.

Sq. 60-63 $\frac{4-5}{16-17}$; l. lat. $\frac{54-55}{28-32}$ *P. furcifer*, sp. n.

B. Caudal feebly emarginate; A. III 10-12;

Sq. 39-40 $\frac{2-3}{11}$; l. lat. $\frac{27-31}{11-13}$; depth of body

4 - $4\frac{1}{2}$ times in total length *P. leptosoma*, sp. n.

BATHYBATES, g. n.—Body elongate, scales cycloid, small and irregular. Several rows of large fang-like teeth in the jaws. Maxillary exposed. Dorsal with 14 spines, anal with 3.

B. ferox, sp. n.—D. XIV 15; A. III 16; Sq. 68 $\frac{7}{38}$; l. lat. $\frac{68}{44}$; depth of body 4 times in total length.

ERETMODUS, g. n.—Body moderately elongate; scales ctenoid. Jaws with rather large spatulate teeth with truncate crowns disposed in oblique transverse rows of two or three. Lips much developed; maxillary entirely concealed when the mouth is closed. Dorsal

with 23 to 25 spines; soft rays reduced to 3 to 5; anal with 3 spines.

E. cyanostictus, sp. n.—Sq. 32–35 $\frac{3}{11-12}$; l. lat. $\frac{22-23}{6-9}$; depth of body 3 times in total length.

TILAPIA A. Smith.—A single species, remarkable for its very strongly developed lips, both produced into a large triangular lobe in front:—

T. labiata, sp. n.—D. XVIII 10; A. III 6–7; Sq. 33–35 $\frac{5-6}{12-13}$; l. lat. $\frac{22-25}{13-15}$; depth of body $2\frac{2}{3}$ – $2\frac{3}{4}$ times in total length.

TROPHEUS, g. n.—Body moderately elongate; scales ctenoid. Jaws angularly bent at the sides, with bands of minute tricuspid teeth, an outer row of bicuspid teeth, and enlarged conical teeth at the sides of the premaxillary; mouth transversely linear when closed; maxillary concealed under the præorbital. Dorsal with 21 spines, anal with six.

T. moorii, sp. n.—D. XXI 5–6; A. VI 5–6; Sq. 30–32 $\frac{3}{12}$; l. lat. $\frac{22-25}{11-12}$; depth of body $2\frac{1}{2}$ to $2\frac{2}{3}$ times in total length.

SIMOCHROMIS, g. n. for *Chromis diagramma* Gthr., differing from *Tilapia* in the sides of the præmaxillary being armed with a single series of conical teeth.

PETROCHROMIS, g. n.—Body moderately elongate; scales ctenoid. Jaws with very broad bands of minute bristle-like teeth, with bi- or tricuspid crowns; maxillary concealed under the præorbital. Dorsal with 17 or 18 spines, anal with 3.

P. polyodon, sp. n.—D. XVII–XVIII 8–9; A. III 7–8; Sq. 32–34 $\frac{3-4}{12-13}$; l. lat. $\frac{22-24}{13-17}$; depth of body $2\frac{1}{2}$ to $2\frac{2}{3}$ times in total length.

PERISSODUS, g. n.—Body elongate; scales cycloid. Teeth rather large, unequal in size, few, with swollen bases and low, compressed, and slightly notched crowns perpendicular to the axis of the jaws, disposed in a single series; maxillary exposed. Dorsal with 18 spines, anal with 3.

P. microlepis, sp. n.—D. XVIII 10; A. III 8; Sq. 65 $\frac{5}{20}$; l. lat. $\frac{44}{30-31}$; depth of body $3\frac{2}{3}$ times in total length.

MASTACEMBELIDÆ.

Mastacembelus moorii, sp. n.—D. XXV–XXVII 70–80; A. II 70–80. Vent equally distant from end of snout and base of caudal fin; length of head twice in its distance from the vent, and nearly $\frac{1}{3}$ in its distance from the first dorsal spine; no præopercular spine.

SILURIDÆ.

Clarias liocephalus, sp. n.—D. 70; A. 50. Caudal free. Head smooth, slightly longer than broad, 5 times in total length;

maxillary barbel as long as head. Vomerine teeth in a narrow band, without posterior process.

Synodontis multipunctatus, sp. n.—Mandibular teeth in a single series of 16, nearly straight, simple, measuring hardly $\frac{1}{3}$ diameter of eye; depth of body $3\frac{1}{4}$ in total length; snout rounded, twice as long as eye; maxillary barbel reaching a little beyond anterior third of pectoral spine; dorsal spine serrated behind; adipose fin a little shorter than the head, twice as long as its distance from the dorsal; humeral process sharply pointed.

CYPRINODONTIDÆ.

Haplochilus tanganicus, sp. n.—Body compressed, its depth 4 times in total length: D. 13; A. 26; Sq. 42; l. tr. 11.

Diagnoses of two new genera of *Cichlidæ* were also added, based on specimens forming part of a collection made in Tanganyika by Capt. Descamps, of the Congo Free State:—

Ectodus, g. n.—Teeth very small, conical, in two series in both jaws, the outer larger; outer mandibular teeth pointing outwards, perpendicular to the others; maxillary concealed under the præ-orbital when the mouth is closed. Scales rather large, ctenoid.

E. descampsii, sp. n.—D. XIV 14; A. III 8; Sq. $34\frac{3}{10}$; l. lat. $\frac{23}{15}$. Eye very large, $2\frac{4}{5}$ times in length of head.

E. melanogenys, sp. n.—D. XIV 16; A. III 13. Eye 4 times in length of head.

Plecodus, g. n.—Teeth large and few, in a single series, dilated at the base, truncated at the end, compressed, slightly grooved in front, curved and directed backwards; 14 teeth in upper jaw, 12 in lower; maxillary exposed. Scales moderate, cycloid.

P. paradoxus, sp. n.—D. XIX 14; A. III 12; Sq. $65\frac{6}{17}$; lat. l. $\frac{50}{40}$.

The following papers were read:—

1. On the Scorpions, Spiders, and Solpugas collected by Mr. C. Stuart Betton in British East Africa. By R. I. Pocock, of the British Museum of Natural History.

[Received May 28, 1898.]

(Plates XLI. & XLII.)

On his return to England in the summer of 1897, Mr. Betton, a member of the staff of engineers employed in the construction of the railroad now in process of being laid between Mombasa and Lake Victoria, brought home a valuable series of zoological specimens and generously presented them to the Trustees of the British Museum.



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