

34. New Species of Fish from the Albert Nyanza and Lake Kioga. By  
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(Text-figures 1-9.)

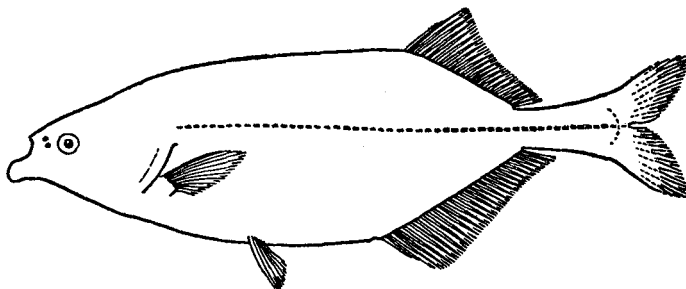
The present paper contains descriptions of seven new species of fish from a collection made by me while undertaking a fishing survey of Lakes Albert and Kioga, on behalf of the Uganda Government, from February to July 1928. Of these species the *Gnathonemus* was known formerly from Lake Victoria, but included with *G. macrolepidotus* Blgr. A *Mormyrus* and three species of *Barbus* are from Lake Kioga, being the first endemic fishes to be described from that lake, with the exception of two species of *Haplochromis* in the same collection described recently by Mr. Tate Regan (6). The two species of *Lates* are the first endemics from Lake Albert, with the exception of *Haplochromis albertianus* Regan and *H. avium* Regan (6).

I am indebted to Mr. J. R. Norman for allowing me every facility while working at the Natural History Museum, where the collection is now deposited, and for advice in the preparation of this paper; also to Mr. C. Tate Regan, F.R.S., for advice in discriminating between certain of the species.

*GNATHONEMUS VICTORIÆ*, sp. n. (Text-fig. 1.)

Depth of body 3 to  $3\frac{2}{3}$  in the length †, length of head  $4\frac{1}{3}$  to 5 times. Head nearly as long as deep, usually with straight or slightly concave upper

Text-figure 1.



*Gnathonemus victoriæ*. × about  $\frac{1}{2}$ .

profile behind the eye; snout about  $\frac{1}{4}$  length of head, equal to or greater than width of mouth; chin with a globular dermal appendage; teeth as in *G. macrolepidotus*; diameter of eye  $2\frac{1}{3}$  to  $2\frac{3}{4}$  in interorbital width. Dorsal 22-25,

\* Communicated by J. R. NORMAN, F.Z.S.

† The length is measured from tip of snout to root of caudal fin.

originating above 2nd to 8th ray of anal, its length 2 to  $2\frac{1}{4}$  times in its distance from the head. Anal 28-31, a little nearer base of caudal than base of pelvic. Pectoral obtusely pointed, shorter than head, reaching nearly as far as or a little beyond base of pelvic. Caudal peduncle 2 to  $2\frac{1}{3}$  times as long as deep,  $\frac{3}{4}$  to once as long as head. Scales 63-69 in lateral line,  $\frac{15-19}{19-23}$  in transverse series on body,  $\frac{14-16}{14-16}$  in transverse series between dorsal and anal, usually 16 round caudal peduncle (18 in three specimens, 14 in one, and 12 in two).

The description is based on the following 19 specimens in the British Museum:—

1. (142 mm. in length).	Entebbe, Lake Victoria.	Pitman
4. (151 to 170 mm.).	Lake Victoria.	Graham
14. (146 to 193 mm.).	Lake Kioga, L. Kwania, and Victoria Nile above the Murchison Falls.	Worthington.

The specimens from L. Victoria were formerly identified provisionally as *Gnathonemus macrolepidotus* by Mr. J. R. Norman. The series of specimens from Lake Kioga has, however, allowed of the description of this new species.

*G. victoriæ* differs from *G. macrolepidotus* Blgr. in the shape of the head, which tapers to a narrower mouth. The width of the mouth is not given in Boulenger's description, but measurements of the type and other specimens in the British Museum showed this to be always greater than the length of the snout in *G. macrolepidotus*. In addition to this character, the eye of *G. victoriæ* is rather smaller, the distance between dorsal fin and head is not so great, and the pectoral is rather shorter. The most satisfactory distinctions, however, are scale counts, which are tabulated below for all specimens in the Museum:—

	Lateral line.	Transverse series in front of pelvic.	Transverse series between dorsal and anal.	Round caudal peduncle.
<i>G. victoriæ</i> (19 specimens).	63-70	$\frac{15-19}{19-23}$	$\frac{14-16}{14-16}$	16 (18, 14, 12)
<i>G. macrolepidotus</i> (Zambesi watershed, 15 specimens).	50-59	$\frac{10-14}{14-18}$	$\frac{8-12}{8-12}$	12-14 (16)
<i>G. macrolepidotus</i> (Rovuma, 1 young specimen).	63	$\frac{14}{18}$	$\frac{12}{14}$	12
<i>G. macrolepidotus</i> (L. Bangweolo, 4 specimens).	60-65	$\frac{12-15}{15-19}$	$\frac{11-12}{11-12}$	12

The four specimens from Lake Bangweolo differ from the Zambesi specimens in having a rather more slender caudal peduncle as well as smaller scales; so it seems that these specimens from the Congo watershed may be of a distinct species. Since, however, they are otherwise so like those from the Zambesi, it seems inadvisable to separate them until additional material is available for examination.

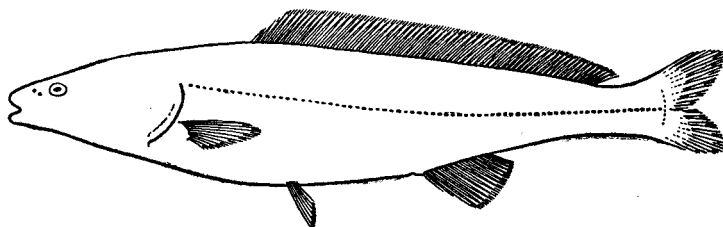
#### MORMYRUS MACROCEPHALUS, sp. n. (Text-fig. 2.)

Depth of body 4 to 5 times in the length; length of head  $3\frac{1}{2}$  to 4 times. Head  $1\frac{2}{3}$  to nearly twice as long as deep, with straight or slightly convex upper profile; snout  $\frac{1}{2}$  or a little less than  $\frac{1}{2}$  as long as postocular part of head,

projecting a little beyond the mouth; teeth notched, 8-12 in upper jaw, 12-16 in lower; diameter of eye (measured from anterior to posterior border) twice in interorbital width. Dorsal 64-70, originating well in advance of pelvic, 4-5 times as long as anal. Anal 17-20. Pectoral  $1\frac{3}{4}$  to twice in length of head. Caudal peduncle 1 to  $1\frac{1}{2}$  as long as deep, its length  $2\frac{1}{2}$  to 3 times in that of head. Scaling on body as in *M. hasselquistii*, but 30 to 34 scales round caudal peduncle. Colour brown above, pale beneath.

This species is described from 17 specimens, mostly adult, ranging in length

Text figure 2.



*Mormyrus macrocephalus*. × about  $\frac{1}{4}$ .

from 205 to 320 mm., all from Lakes Kwania, Kioga, or the Victoria Nile between Namasagali and Atura. It is closely related to *Mormyrus hasselquistii* from the Lower Nile, Niger, and Volta, but differs in the greater length of the head, and the shorter and deeper caudal peduncle with more series of scales round it. The same characters separate the new species from the other nearly-related species, *M. anchietæ* from Angola, although in certain respects, such as the number of dorsal fin-rays and the size of the pectoral, it occupies an intermediate position between *M. hasselquistii* and *M. anchietæ*.

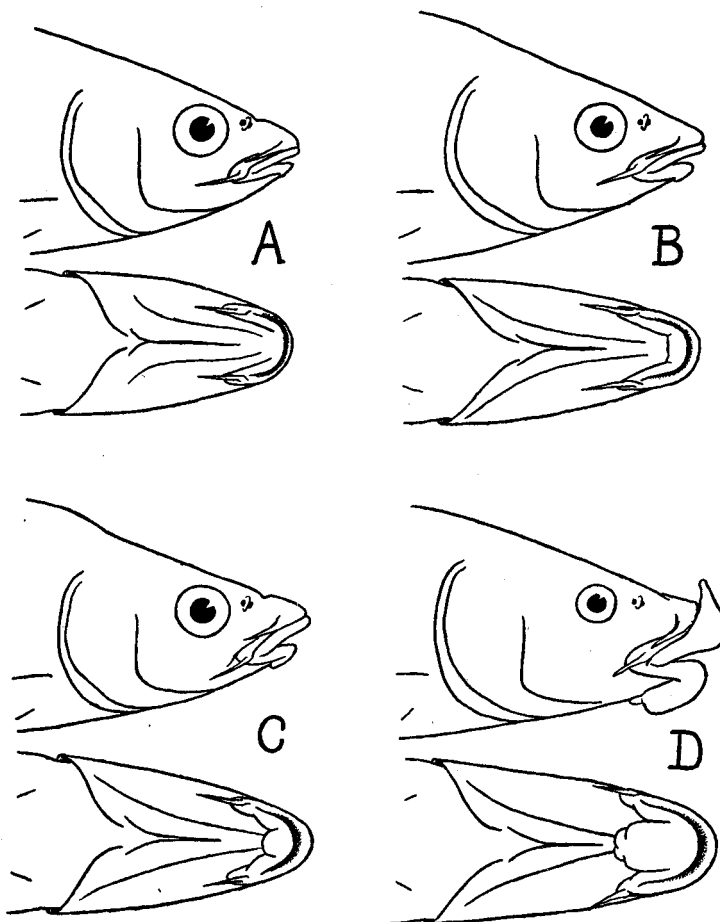
**BARBUS RADCLIFFII** Boulenger. (Text-fig. 3.)

*Barbus lobogenys* Boulenger.

*Barbus bayoni* Boulenger.

Mr. J. R. Norman (5) has concluded, from the examination of ten half-grown specimens of this species collected from Lake Victoria by Michael Graham, that Boulenger's *B. radcliffii* and *B. lobogenys* are one and the same species. This conclusion is now further supported by a series of 25 specimens, young, half-grown, and adult, ranging in length from 160 to 570 mm., collected from Lake Kioga and the Victoria Nile. Boulenger (1) described *B. lobogenys* as very closely related to *B. radcliffii*, differing only in the more prominent snout and in the presence of one more series of scales between the lateral line and pelvic fin. The specimens now available include otherwise typical *B. radcliffii*, with the extra row of scales and every gradation in the prominence of the snout. Furthermore, the specimens from Lake Kioga prove Boulenger's *B. bayoni* to belong to the same species. *B. bayoni* was described (2) from one adult from Jinja and two young from the Victoria Nile, one of the types being now in the British Museum (Nat. Hist.). Boulenger considered it to be very closely related to *B. intermedius*, a species from Lake Tsana, the Upper Blue Nile, and Omo River, but in his description the only essential difference from *B. radcliffii* is the discontinuity of the lower lip across the chin, a character which is used as a major division of the genus in his key for the identification of the African species. The new series of specimens show a gradation in this character from no

Text-figure 3.

*Barbus radcliffei* Blgr.

Lateral and ventral views of the heads of four specimens, illustrating the variation of lip-development in the species.

- A. With the lip discontinuous across the chin (Boulenger's *Barbus bayoni*).
- B. With the lip continuous, but not developed into lobes (Boulenger's *Barbus radcliffei*).
- C. An intermediate form.
- D. With highly-developed lips (Boulenger's *Barbus lobogenys*). A and C are from Lake Kioga; B from Masindi Port, Victoria Nile, half-grown specimens about 250 mm. long (figures about  $\frac{1}{2}$  natural size); D is from the Ripon Falls (Dr. van Someren, 1912), adult specimen 490 mm. long (figure  $\frac{1}{4}$  natural size).

continuous lip across the chin to the grossly-developed lips of *B. lobogenys* (see text-fig. 3). The cause of this variation is obscure, but the possibility of its being a secondary sexual character is precluded, since both mature males and females as well as immature fish were found with large lips. That such a variation

within a single species is not improbable in the genus *Barbus* was shown by Boulenger himself in the case of *B. gorguari* from Lake Tsana, in which he showed some specimens with the lower jaw strongly projecting to be the same species as others with the mouth terminal.

From these considerations it is advisable to publish here a new description of the species *Barbus radcliffii*\*, which is essentially Boulenger's original description with slight alterations to include the extremes of variations which were described by him as *B. lobogenys* and *B. bayoni*:—

Depth of body equal to or a little greater than length of head, 3 to  $4\frac{1}{8}$  times in length of fish. Snout rounded,  $2\frac{2}{3}$  to  $3\frac{1}{2}$  times in length of head; mouth subinferior; lips subject to great variation in size, lower discontinuous across the chin, simply continuous, or produced into lobes, often a very large lobe medially; upper slender or thick, sometimes with a large medial lobe; in specimens with well-developed lips the snout is often fleshy and projects considerably beyond the mouth, which is then inferior in position; width of mouth 3 to 4 times in length of head; diameter of eye  $3\frac{1}{3}$  (young) to 7 times, interorbital width  $2\frac{1}{2}$  to 3 times; two barbels on each side, anterior  $\frac{2}{3}$  to once diameter of eye, posterior as long as eye or slightly shorter. Dorsal III or IV 8-9, equidistant from occiput and root of caudal, border feebly concave; last simple ray strong, bony, not serrate,  $\frac{1}{2}$  to  $\frac{3}{4}$  length of head (or a little less in very large specimens). Anal III 5, nearly reaching caudal when laid back. Pectoral  $\frac{2}{3}$  to  $\frac{5}{8}$  length of head, not reaching pelvic; base of latter below anterior ray of dorsal. Caudal peduncle  $1\frac{1}{3}$  to  $1\frac{3}{4}$  times as long as deep. Scales longitudinally striate, 32-36  $\frac{5\frac{1}{2}-6\frac{1}{2}}{4\frac{1}{2}-5\frac{1}{2}}$ ,  $2\frac{1}{2}$ - $3\frac{1}{2}$  between lateral line and base of pelvic, 12-14 round caudal peduncle. Colour variable, brown, coppery-brown, or green above, pale beneath, scales darker at the base.

Total length 650 mm.

Abundant all round Lake Victoria, in Lakes Kioga and Kwania, and in the Victoria Nile as far down-stream as the Murchison Falls; particularly abundant immediately above and below the Ripon Falls.

#### BARBUS OBESUS, sp. n. (Text-fig. 4.)

Depth of body  $2\frac{4}{5}$  in the length; length of head  $3\frac{2}{3}$  times. Head  $1\frac{1}{4}$  times as long as deep, its upper profile concave; snout broad, rounded, 3 times in length of head; eye  $5\frac{1}{2}$  times in length of head, interorbital width  $2\frac{2}{3}$  times. Mouth wide, its width 3 times in length of head, inferior, the snout projecting well beyond lower jaw; lips moderate, lower interrupted on the chin; two rather short barbels on each side, anterior  $\frac{1}{2}$ , posterior  $\frac{3}{4}$  diameter of eye. Dorsal III 9, equidistant from occiput and caudal, border concave; last simple ray strong, bony, straight, and unserrated, not quite  $\frac{1}{2}$  length of head. Anal III 5, nearly reaching caudal when laid back. Pectoral  $\frac{2}{3}$  length of head, not reaching pelvic, base of latter below anterior ray of dorsal. Caudal peduncle  $1\frac{1}{4}$  times as long as deep.

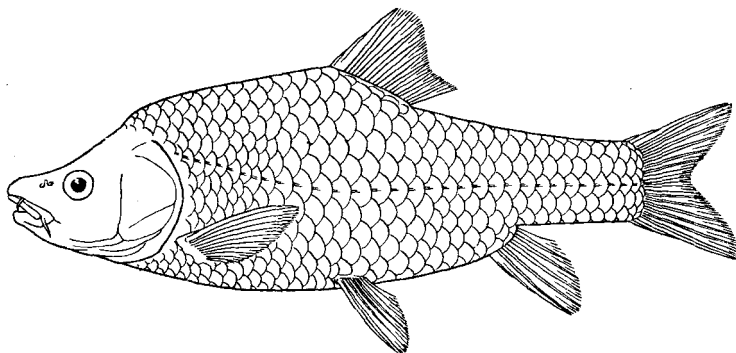
Scales longitudinally striate, 31  $\frac{6\frac{1}{2}}{5\frac{1}{2}}$ ,  $3\frac{1}{2}$  between lateral line and base of pelvic fin, 12 round caudal peduncle. Dark greenish-brown above, yellow beneath. Body fat, with a slight hump at the nape.

This species is described from a single adult specimen, 400 mm. in length,

\* Mr. Norman (4) has suggested, as the result of the examination of four specimens from Lake Edward, that *Barbus altianalis* Blgr. is identical with *B. radcliffii*. If this is so, the former should stand as the specific name, owing to precedence. I have examined these specimens, and, though in some ways intermediate between the two species, they differ slightly from *B. radcliffii* in the form of the head. Accordingly the two are regarded here as distinct until a larger series of specimens from L. Edward is available for study, and the description given is intended to include only those specimens from the Nile system above the Murchison Falls

taken from the Victoria Nile at Masindi Port. According to Boulenger's key for the determination of species, it falls in the *B. bynni* group of the genus, and in

Text-figure 4.

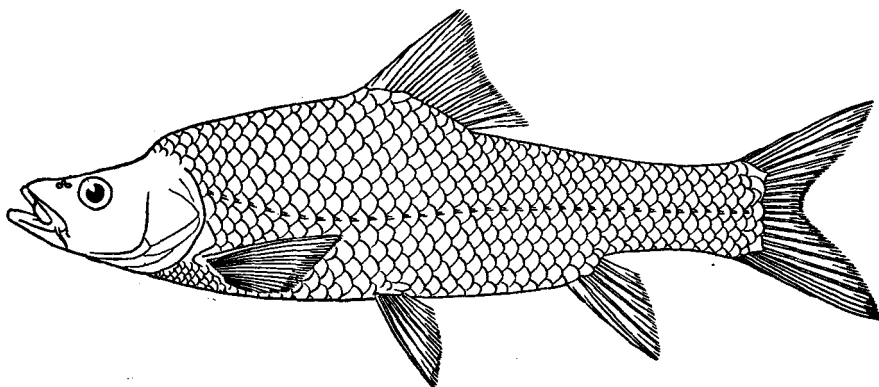
*Barbus obesus*. × about  $\frac{1}{2}$ .

the section characterized by the interrupted lower lip, inferior mouth, and very deep body, including *B. surkis* from Lake Tsana, Abyssinia, to which, however, *B. obesus* is not very closely related.

**BARBUS KIOGÆ, sp. n.** (Text-fig. 5.)

Depth of body 3 to  $3\frac{2}{3}$  times in the length; length of head  $3\frac{2}{3}$  to 4 times. Upper profile of head slightly concave; snout rounded, a little more than 3 times in length of head; eye 4 (young) to  $5\frac{1}{4}$  times in length of head, interorbital width 3 to  $3\frac{1}{3}$  times. Mouth terminal or lower jaw slightly projecting; lower lip

Text-figure 5.

*Barbus kiogæ*. × about  $\frac{1}{4}$ .

interrupted on chin; two barbels on each side, as long as or a little shorter than eye. Dorsal IV 8-9, border concave; last simple ray strong, bony, not serrated, its length  $\frac{1}{2}$  to  $\frac{2}{3}$  that of head. Anal III 5, not quite reaching caudal when laid back. Pectoral  $\frac{2}{4}$  to  $\frac{4}{5}$  length of head, not reaching pelvic. Caudal peduncle

$1\frac{1}{3}$  to  $1\frac{2}{3}$  times as long as deep. Scales 33-38  $\frac{5\frac{1}{2}-6\frac{1}{2}}{5\frac{1}{2}-6\frac{1}{2}}$ ,  $3\frac{1}{2}$  between lateral line and pelvic fin, 12-14 round caudal peduncle. Colour variable, dark above and pale beneath; adults usually with pronounced hump at the nape.

This species is described from three adult specimens, 370 to 420 mm. in total length, and four young specimens, 200 to 295 mm., all from Lake Kioga near the following villages:—Bugondo (2 specimens), Kagwara (1), Namasali (3), and one young specimen of 190 mm. from Namasagali on the Victoria Nile. The species is fairly common in Lake Kioga, but is greatly outnumbered by *Barbus radcliffei*.

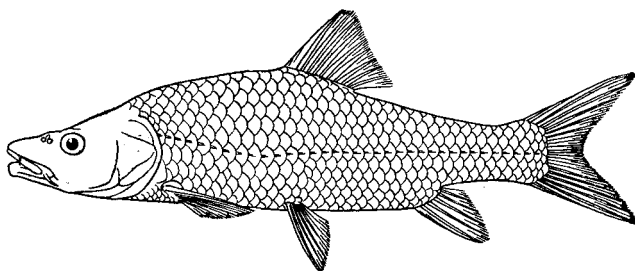
*BARBUS LONGIROSTRIS*, sp. n. (Text-fig. 6.)

Depth of body  $3\frac{1}{2}$  to 4 times in the length; length of head  $3\frac{1}{3}$  to  $3\frac{2}{3}$  times. Upper profile of head markedly concave. Snout rounded, long and narrow, less than 3 times in length of head; eye  $5\frac{3}{4}$  to  $6\frac{1}{2}$  times (adult) in length of head, interorbital width  $3\frac{1}{4}$  to  $3\frac{1}{2}$  times. Mouth terminal; lower lip interrupted on the chin; two barbels on each side, each one-third to once the diameter of eye. Dorsal III or IV 9, border straight or very slightly concave; last simple ray strong, bony, not serrated, its length about  $\frac{1}{2}$  that of head. Anal III 5, not or only just reaching caudal when laid back. Pectoral not quite  $\frac{2}{3}$  length of head, not reaching pelvic. Caudal peduncle  $1\frac{1}{4}$  to  $1\frac{1}{2}$  times as long as deep. Scales 33-35  $\frac{5\frac{1}{2}-6\frac{1}{2}}{5\frac{1}{4}}$ ,  $3\frac{1}{2}$  between lateral line and pelvic fin, 12-14 round caudal peduncle. Colour brownish above, pale beneath. Adults not humped at the nape or only very slightly humped.

This species is described from two adult specimens 400 and 440 mm. in total length, both from Kagwara on Lake Kioga. The species was taken at other places round the lake, but not so frequently as *Barbus kioge*.

Both the above new species of *Barbus* belong to the *B. bynni* group of Boulenger,

Text-figure 6.



*Barbus longirostris*.  $\times$  about  $\frac{1}{2}$ .

and fall in the section characterized by the interrupted lower lip and terminal mouth, including *B. rhoadesii* from Lake Nyassa, *B. oxyrinchus* from the Pangani River, E. Africa, *B. platystomus*, *zaphiri*, and *gorguari* from the Upper Blue Nile and Lake Tsana. In this group as it now stands with the addition of the two new species, *B. oxyrinchus* is quite distinct in the possession of larger scales than the others, and *B. rhoadesii* in having smaller scales and very small maxillary barbels. The other five species, 3 from the Upper Blue Nile system and 2 from Lake Kioga, in the upper waters of the other main tributary of the Nile, form a closely-related group of species, distinguishable only by the size and shape of

parts of the head, caudal peduncle, etc. Accordingly a table is given below to show these characters :—

Character.	<i>Barbus platystomus.</i>	<i>Barbus zaphiri.</i>	<i>Barbus gorguari.</i>	<i>Barbus kiogæ.</i>	<i>Barbus longirostris.</i>
Total length. Depth.	$3\frac{1}{2}$ – $3\frac{4}{5}$	$3\frac{3}{5}$	$3\frac{3}{2}$ – $4\frac{1}{2}$	$3$ – $3\frac{2}{3}$	$3\frac{1}{2}$ – $4$
Total length. Length of head.	$4$ – $4\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{2}$ – $3\frac{2}{3}$	$3\frac{2}{3}$ – $4$	$3\frac{1}{3}$ – $3\frac{2}{3}$
Length of head. Length of snout.	More than 3	$3\frac{1}{2}$	$2\frac{1}{2}$ – $2\frac{2}{3}$	More than 3	Less than 3
Length of head. Diam. of eye.	$5$ – $6$	$6$	$4$ (young) to $8$	$4\frac{1}{2}$ – $5$	$6$ – $6\frac{1}{2}$
Length of head. Interorbital width.	$2\frac{3}{4}$ – $3$	$4$	$3\frac{2}{3}$ – $4$	$3$ – $3\frac{1}{3}$	$3\frac{1}{4}$ – $3\frac{1}{2}$
Length of head. Length of longest bony ray of dorsal.	$1\frac{1}{2}$ – $1\frac{2}{3}$	$1\frac{1}{2}$	$1\frac{1}{2}$ – $2\frac{1}{2}$	$1\frac{3}{4}$ – $2$	$2$ – $2\frac{1}{4}$
Length of pect. Length of head.	Nearly 1	$\frac{2}{3}$	$\frac{2}{3}$ – $\frac{4}{5}$	$\frac{3}{4}$ – $\frac{4}{5}$	$\frac{2}{3}$
Length of caudal Depth peduncle.	$1\frac{1}{4}$	$1\frac{2}{3}$	$1\frac{2}{3}$ – $2$	$1\frac{1}{2}$ – $1\frac{2}{3}$	$1\frac{1}{4}$ – $1\frac{1}{2}$

In this table it is shown that the two new species are both distinct from the previously known members of the group in the somewhat shorter caudal peduncle, and in the interorbital width which is included 3 to  $3\frac{1}{2}$  times in the length of the head, as opposed to less than 3 or more than  $3\frac{2}{3}$  in the other species. From each other the new species are distinguished by the general shape of the body and the long head and especially long snout in *B. longirostris*.

*LATES MACROPHthalmus*, sp. n. (Text-fig. 7.)

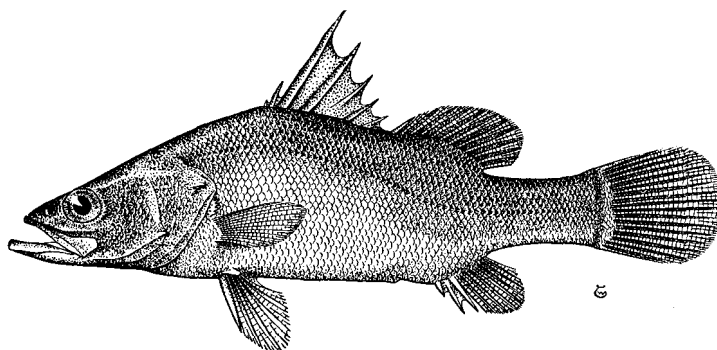
Depth of body 3 to  $3\frac{1}{3}$  in the length; length of head\* 3 times (a little less than 3 in very young specimens). Upper profile of head straight or very slightly concave. Snout rounded, its length equal to diameter of eye in adult (considerably less in very young); eye much larger than in *Lates niloticus*: 5 times (specimens of 300 mm.), 4 times (specimens of 150 mm.), or 3 times (specimens of less than 100 mm.) in length of head, a little less than  $\frac{1}{2}$  to  $\frac{2}{3}$  in interorbital width. Maxillary not extending to below posterior border of eye, or only just (in large specimens), the width of its distal extremity  $\frac{1}{2}$  to  $\frac{2}{3}$  diameter of eye; lower jaw projecting. Præ- and suborbitals finely serrated; cheek, gill-cover, and occiput scaled. Præoperculum and operculum as in *L. niloticus*, former finely serrated on vertical limb, with 3 or 4 strong spines on lower, and with a still stronger spine at the angle; a single opercular spine; clavicle with some strong denticulations above the base of the pectoral fin. Gill-rakers 15 to 17 (including knob-like rudiments) on lower part of anterior arch. Dorsals VII, I–II 10–13, hardly connected at the base or quite separate; spines strong, first and second short, third much the longest,  $\frac{2}{3}$  to  $\frac{3}{4}$  length of

\* Length of head is measured from the tip of the snout to the posterior extremity of the opercular spine.



head,  $1\frac{1}{3}$  to  $1\frac{1}{2}$  as long as fourth spine, much longer than longest soft rays. Anal III 7-9; spines short, second and third subequal. Pectoral longer than  $\frac{1}{2}$  the length of the head. Caudal peduncle  $1\frac{1}{2}$  to nearly twice as long as deep. Scales smaller than in typical *L. niloticus*, 75 to 85  $\frac{10-12}{22-24}$ .

Text-figure 7.

*Lates macrophthalmus*.  $\times$  about  $\frac{1}{4}$ .

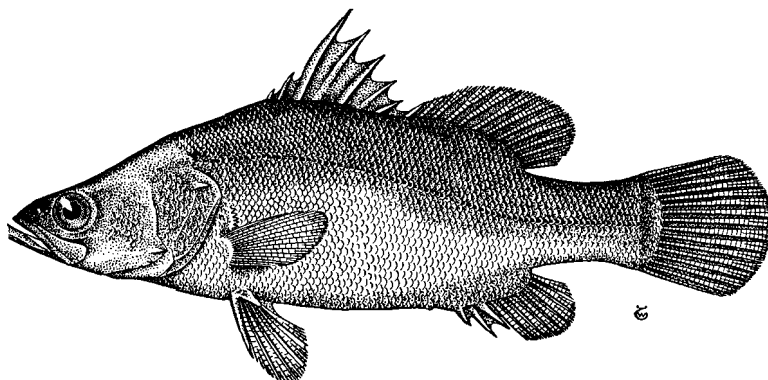
Adult silvery, back brownish-grey; very young specimens not mottled or banded, but of uniform pale grey above, white beneath, a brownish spot on the operculum.

The description is based upon the examination of 11 adult and half-grown specimens, ranging from 150 to 290 mm., taken from 20 to 40 metres depth in the open water of the Albert Nyanza. Also five very young specimens (40 to 30 mm.) taken from 27 metres, Albert Nyanza. Though allied to *L. niloticus* and occurring in the Nile system, this species approaches the Tanganyikan *L. microlepis* in the form of the dorsal fin and caudal peduncle and in the size of the eye.

*LATES ALBERTIANUS*, sp. n. (Text-figs. 8 & 9.)

Depth of body 3 to  $3\frac{1}{2}$  in the length; length of head a little more than 3 times a little less than 3 in specimens under 80 mm. long). Upper profile of head

Text-figure 8.

*Lates albertianus*.  $\times$  about  $\frac{1}{4}$ .

distinctly concave (straight in very young). Snout rounded, its length a little greater than diameter of eye (equal to or less in very young specimens). Lower

**jaw projecting**; eye larger than in *L. niloticus*, 6 or more times (in large specimens, longer than 1 metre), 5 times (specimens of about 300 mm.), or  $3\frac{1}{2}$  times (specimens less than 100 mm. long) in length of head; eye  $\frac{1}{2}$  to  $\frac{2}{3}$  in interorbital width. Maxillary reaching to or a little beyond vertical from posterior border

Text-figure 9.



*Lates albertianus*. A specimen which measured about 120 cms. in length and weighed 31 kilograms. The species is known to grow to more than three times this size in Lake Albert.

of eye (not reaching in very young), the width of its distal extremity  $\frac{2}{3}$  to  $\frac{3}{4}$  diameter of eye. Præ- and suborbitals finely serrated; cheek, gill-cover, and occiput scaled; spines and serrations on præoperculum and operculum as in *L. niloticus*. Gill-rakers 15 to 17 (including knob-like rudiments) on lower part of anterior arch. Dorsals VII-VIII, 1-11 11-12, connected at the base; spines

strong, first and second short, third a little the longest,  $\frac{1}{2}$  to  $\frac{2}{3}$  length of head ( $\frac{2}{3}$  length of head in very young), 1 to  $1\frac{1}{2}$  times as long as 4th spine. Anal III 8-9; spines short, second and third subequal. Length of pectoral equal to or a little less than  $\frac{1}{2}$  length of head. Caudal rounded. Caudal peduncle  $1\frac{1}{3}$  to  $1\frac{2}{5}$  as long as deep. Scales 75-80  $\frac{10-12}{22-24}$ . Adult brown or olive above, silvery beneath; specimens up to about 250 mm., marbled with brown; very young specimens marbled or almost uniform.

The description is based upon the examination of three half-grown specimens from 250 to 320 mm. in total length from the shallow inshore waters of Lake Albert, and of a single specimen 320 mm. long, collected at Butiaba, Lake Albert, by J. S. Budgett in 1903, and placed by Boulenger in the Linnean species *L. niloticus*; also of 46 very young specimens ranging from 25 to 80 mm. long, taken from 7 metres of water near the shore of Lake Albert, and photographs of adult specimens up to  $1\frac{1}{2}$  metres long from the same lake.

During the Lake Albert Fishing Survey numerous adult specimens were caught and examined (text-fig. 9), the largest measuring  $1\frac{1}{2}$  metres and weighing 53 kg. (116 lbs.); but the species grows to a size larger even than this, for a specimen was caught near Butiaba during 1927 which weighed  $200\frac{1}{4}$  lbs. Large specimens were not preserved during the survey, since the species was considered in the field to be identical with *L. niloticus*: it was not until comparison of the

Character.	<i>L. niloticus.</i>	<i>L. albertianus.</i>	<i>L. macrophabnus.</i>
Total length.			
Depth.	$2\frac{1}{2}$ -3	3-3 $\frac{1}{2}$	3-3 $\frac{1}{2}$
Length of snout compared with diameter of eye.	} Greater.	} Greater.	} Equal to.
Length of head.			
Diameter of eye.	$4\frac{1}{2}$ -7	$4\frac{1}{2}$ -6	4-5
Interorbital width.			
Diameter of eye.	$\frac{2}{3}$ -1 $\frac{1}{3}$	$\frac{1}{2}$ - $\frac{2}{3}$	$\frac{1}{2}$ - $\frac{2}{3}$
Backward extension of maxillary compared with vertical of posterior border of eye.	} Well behind.	} A little behind.	} { Not or only just reaching.
Length of longest dorsal spine.			
Length of head.	$\frac{1}{3}$ - $\frac{2}{3}$	$\frac{1}{2}$ - $\frac{2}{3}$	$\frac{2}{3}$ - $\frac{2}{3}$
Longest dorsal spine.	$1\frac{1}{2}$ -1 $\frac{1}{2}$	1-1 $\frac{1}{2}$	$1\frac{1}{2}$ -1 $\frac{1}{2}$
Next longest dorsal spine.			
Length of head.	$1\frac{1}{3}$ -2 $\frac{1}{4}$	More than 2	} { Considerably less than 2
Length of pectoral fin.			
Length of caudal peduncle.			
Depth	1-1 $\frac{1}{4}$	$1\frac{1}{2}$ -1 $\frac{1}{2}$	$1\frac{1}{2}$ -2
Scales in longitudinal series on body.	} 60-80	} 75-80.	} 75-85

NOTE.—The above table only applies to specimens whose total length is greater than 200 mm.

preserved specimens with typical *L. niloticus* in the Natural History collection at the British Museum that the differences which warrant the description of this new species became apparent.

This fish is in all probability the most important food fish in Lake Albert. It is known to the Banyoro tribe by the name of "Mputa," to the Jonam as "Gurr."

The differences between *L. niloticus*, *L. albertianus*, and *L. macrophthalmus* are shown in the table on page 439.

The form of the caudal peduncle is the most satisfactory character for the distinction of the three species, as its proportions do not alter with the age of the individual. The size of the eye and of the dorsal spines are also good, but in these cases account must be taken of the size of the specimen.

Specimens of *L. niloticus* in the British Museum (Nat. Hist.) from the Chad basin approach *L. albertianus* much more nearly than do specimens from the River Nile. These Chad fish differ from the typical Nile fish in the possession of larger eyes and narrower interorbitals, and in one or two instances in having a rather longer caudal peduncle; these characters are not, however, so well marked as in *L. albertianus*.

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