A new Eocene Teleost from Denmark

by

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Abstract

A new species, *Ramphosus rosenkrantzi n. sp.*, is described on the basis of a single, well preserved specimen from the Lower Eocene Mo Clay Formation in Northern Jutland.

The genus *Ramphosus* AGASSIZ was previously known only from two rare species from the Lower Eocene of Monte Bolca.

A very comprehensive material of fishes, mainly Teleosts, has been collected from the Lower Eocene marine mo clay deposits in Jutland, Denmark, but although much of this material is extremely well preserved, so far only two forms have been identified, viz.: a Zeomorph, *Palaeocentrotus böggildi* (W. A. KÜHNE 1941) and a Scombrid, *Pelamys sp.* (A. ROSENKRANTZ 1944).

Now a new form can be added to this short faunal list, for by perusing a collection of mo clay fossils made by Dr. W. A. KÜHNE in 1938 and now in the possession of the Mineralogical and Geological Museum of the University of Copenhagen I found a single specimen of the genus *Ramphosus* AGASSIZ previously known only from two rare species from the classical Lower Eocene deposits of Monte Bolca.

The mo clay specimen of *Ramphosus* represents a new species which I name *Ramphosus rosenkrantzi n. sp.* in honour of professor A. ROSENKRANTZ who, as mentioned above, has given the first Danish contribution to the knowledge of the fish fauna of the Mo Clay Formation.

The photographs and the drawing of the new form were made by Mr. CHR. HALKIER and Miss BETTY ENGHOLM, respectively. I express my best thanks for their carefull work.

Ramphosus AGASSIZ

The genus *Ramphosus* was erected by L. AGASSIZ (1835, p. 291 (name only); 1839–42, p. 270, pl. XXXII, fig. 7) for a small Teleost from Monte Bolca first described by A. VOLTA (1796, p. XXII, pl. V, fig. 4) as *Uranoscopus rastrum* and later referred by H. D. DE BLAINVILLE (1818, p. 339) to the genus *Centriscus*.

AGASSIZ and several later authors considered *Ramphosus* as closely related to *Centriscus*, thus TH. GILL (1884, p. 165) placed the genus in a distinct family, *Ramphosidae*, which he grouped together with the fami-

lies *Gasterosteidae*, *Aulorhynchidae*, *Aulostomidae*, *Fistulariidae*, *Macrorhamphosidae*, *Amphisilidae*, and *Urosphenidae* in his order *Hemibranchii*, and A. S. WOODWARD (1901, pp. 377–378) referred *Ramphosus* to the family *Macrorhamphosidae*. However, in 1940 L. S. BERG (p. 461) stressing the fact mentioned already by AGASSIZ and discussed at some length by CH. EASTMANN (1913–1914, pp. 318–321), that *Ramphosus* has an inferior mouth, maintained that "*Ramphosus* is neither a Gasterosteoid nor a Syngnathoid fish", but should be placed near the *Perciformes*, a point of view, in which I fully agree.

Ramphosus rosenkrantzi n. sp.

(Text-figs. 1–3)

Material and locality.—The material consists of a small, rather complete fish specimen preserved as a cast in a piece of mo clay, which has been split along a bedding plane in such a way that the impression of the left side of the fish is seen on one and the impression of the right side on the other of the two opposing slabs.

In addition to the impression of the articulated skeleton the exposed bedding plane presents impressions of a great number of isolated bones and scales. It is not impossible that some of the scales belong to the same specimen as the skeleton but as no part of the squamation is found in situ, any identification of the isolated scales remains open to doubt.

The specimen was collected by Dr. W. A. KÜHNE from the extensive mo clay quarry at "Skarrehage Molerværk" on the island of Mors. From which horizon in the mo clay series the fossil was collected is unknown.

Description.—The holotype and only specimen measures 46 mm in total length and 47 mm from the tip of the rostrum to the tip of the huge dorsal spine.

Its other dimensions are as follows:—

Length of rostrum	13 mm
Distance from tip of rostrum to base of dorsal spine	26 mm
Maximum height in head region (a short distance behind the orbits)	5 mm
Length of dorsal spine	25 mm
Distance from hind margin of dermal shoulder-girdle to base of caudal fin	about 18 mm
Length of caudal fin	6 mm
Distance from posterior end of base of dorsal spine to beginning of dorsal fin	7 mm
Distance from dermal shoulder-girdle to beginning of anal fin	about 10 mm

The head region, which even without the long, pointed rostrum, is of relatively very considerable size, is dorsally and laterally to a considerable extent armoured by ornamented dermal plates. Owing to the lateral compression of the head region the exact outlines of these dermal plates

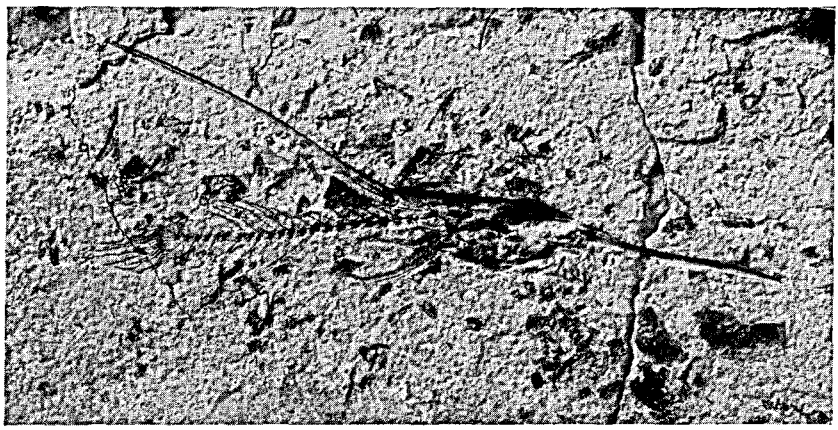

Fig. 1. *Ramphosus rosenkrantzi n. sp.* Impression of left side of the holotype (2×).

cannot be made out, but in several places parts of the plates have left very clear impressions showing the ornamentation to consist of rounded tubercles of varying size often arranged in mainly longitudinal series.

The long and straight rostrum which anteriorly tapers to a point shows a very distinct ornamentation of small tubercles arranged in straight longitudinal series separated by mainly longitudinal straight narrow furrows one of which on each side of the rostrum is especially conspicious. The rostrum is furthermore provided with a ventral series of densely set small denticulations the size of which decreases towards the anterior end of the rostrum.

The mouth opening is seen beneath the orbit, but as to the skeletal elements in the mouth region no details can be made out on account of the compression of the head region.

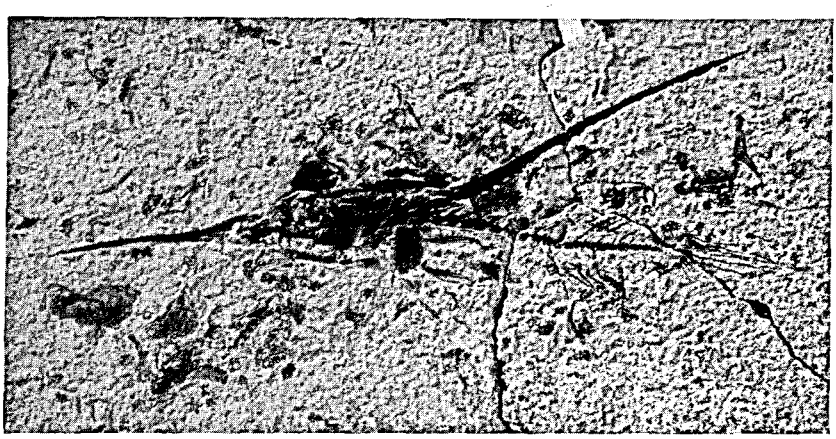

Fig. 2. *Ramphosus rosenkrantzi n. sp.* Impression of right side of the holotype (2×).

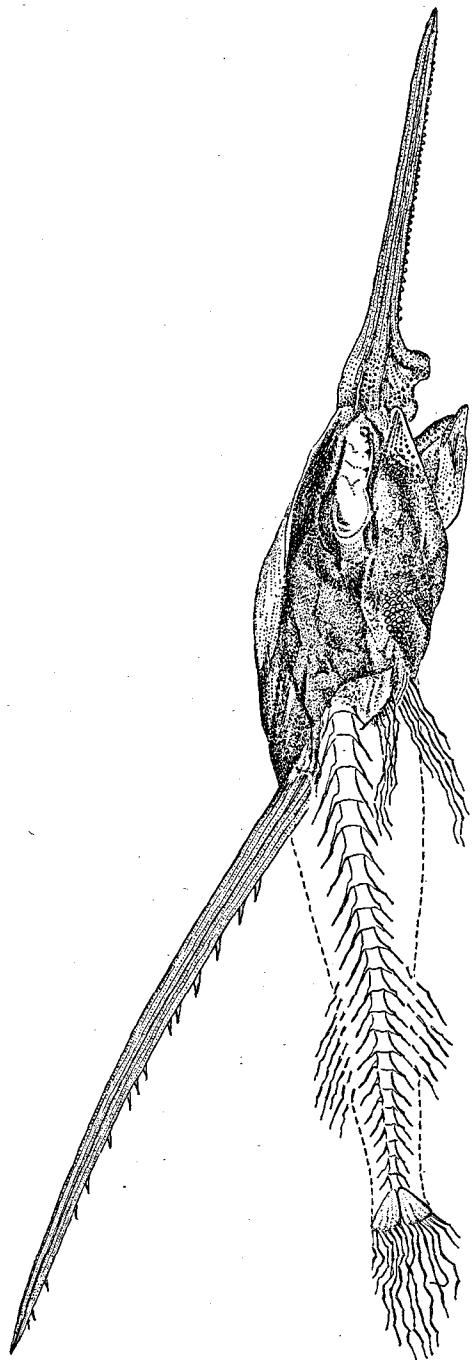

Fig. 3. *Ramphosus rosenkrantzi n. sp.* Attempted sketch based on the two impressions shown in figs. 1 and 2 (c. 4×).

The vertebral column consists of 23–24 vertebrae of which the 9–10 abdominal ones are slightly elongated. The paired fins are not quite satisfactorily preserved. Both of them are long and narrow, and as far as can be made out the pelvic fin is somewhat larger than the pectoral. The pectoral fin probably contains 5 lepidotrichia, and the pelvic fin, which is situated beneath the pectoral fin 6 or 7. The lepidotrichia in the paired fins seem to be very slender and are divided in rather few long segments.

The very long, much backwardly inclined and somewhat backwardly curving dorsal spine is ornamented in principally the same way as the rostrum, but the ornamentation is still more pronounced and especially the ventral or postero-ventral series of denticulations are strongly developed. The direction of these denticulations are not as in *Ramphosus rastrum* perpendicular to the longitudinal axis of the spine but forms a postero-dorsaly open angle of about 45° with the axis as clearly seen in the text-fig. 3.

The dorsal fin is placed far back, just above the anal fin, with which it rather closely agrees in size and appearance. The dorsal fin contains at least 8 lepidotrichia, while only 6 is seen in the somewhat damaged anal fin.

The rounded caudal fin which is supported by two large, triangular hypurals contains 14 lepidotrichia. The lepidotrichia of the unpaired fins seem to agree with those of the paired fins in being very slender and only sparsely segmented.

As to the squamation of *Ramphosus rosenkrantzi* nothing definite can be stated, as no scales are observed in situ.

Discussion.—In addition to the genotype of *Ramphosus*, *Ramphosus rastrum* (VOLTA), uncorrectly dealt with by AGASSIZ and several other authors as *Ramphosus* (*Rhamphosus*) *aculeatus*, F. BASSANI (1876, p. 151, pl. II, fig. 3) described another species, *Rhamphosus biserratus*, from Monte Bolca.

From both of the Monte Bolca forms *Ramphosus rosenkrantzi* is easely distinguishable by its longer and stronger dorsal spine and the upward direction of the ventral denticulations on this spine. As far as can be seen the mo clay species also differs from the two Monte Bolca forms in the slenderness of its lepidotrichia, their sparser number of segments and their smaller number at least in the caudal fin. It must, however, be remembered that the state of preservation of the fins in *Ramphosus rosenkrantzi* is not quite satisfactory.

Diagnosis.—Dorsal spine slightly longer than the distance from its base to the posterior end of caudal fin. The ventral denticulations on dorsal spine somewhat inclined toward distal end of spine. Both rostrum and dorsal spine ornamented with small tubercles arranged in mainly longitudinal series separated by narrow longitudinal furrows.

LITERATURE CITED

AGASSIZ, L., 1835: Neues Jahrbuch.
— 1839–42: Recherches sur les poissons fossiles. Tome IV.
BASSANI, F., 1876: Atti Soc. Veneto-Trent. Sci. Nat. Vol. V.
— 1898: Palæontogr. Italica. Vol. III.
BERG, L. S., 1940: Classification of fishes, both recent and fossil. Travaux de l'Institut Zoologique de l'Acad. des Sci. de l'URRS. Tome V, liv. II.
BLAINVILLE, H. D. DE, 1818: Nouv. Dict. d'Hist. Nat. Vol. XXVII.
EASTMAN, CH., 1913–14: Mem. Carnegie, Mus. VI. Part III.
GILL, TH., 1884: On the mutual relations of the Hemibranchiate fishes. Proc. Acad. Nat. Sci. Philad.
KÜHNE, W. A., 1941: A Zeomorph fish ... Ann. Magaz. Nat. Hist. (11) 7.
ROSENKRANTZ, A., 1944: En Scombride fra den eocæne Cementsten. Medd. fra Dansk Geol. Foren. Bd. 10, Hefte 4.
VOLTA, G. S., 1796: Ittiolit. Veronese.
WOODWARD, A. S., 1901: Cat. of fossil fishes.