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ON THE FISHES OF THE GENUS *CTENOPS* McCLELLAND, 1845

(FAMILY: BELONTIIDAE)

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(With 4 Text-figures)

INTRODUCTION

In the classification of the teleostean fishes, Regan (1909) and Weber & de Beaufort (1922) placed Anabantoidei as a suborder of the order Labyrinthici. Berg (1940) and Greenwood *et al.* (1966) considered that the association of these two groups was unnatural and their resemblance was simply because of convergence; they, therefore, transferred Anabantoidei as a suborder under the order Perciformes. The anabantid fishes of the family Belontiidae have been known for their beauty and many of them have been kept as pets in the aquaria. *Ctenops* McClelland, 1845 is one of the Indian representatives of the family Belontiidae and the only species of this little-known genus, *Ctenops nobilis* McClelland, recorded so far from North-east Bengal, Bihar, Assam, Sikkim and Bangla Desh, is rather rare and has, therefore, not been able to catch the imagination of aquarists to acquire them as pets or of the department of Health to exploit its larvivorous habit. Since the description of this species by McClelland (1845), only little attention seems to have been paid to it. Even the status of this genus has been doubtful for quite some time. In the past many years, collection of this species has been made from many different localities and the material is available in the National Zoological Collections of Zoological Survey of India, Calcutta. In the present paper, therefore, it is proposed to give a detailed description of the species based on that material.

TAXONOMY

McClelland (1845) proposed the genus *Ctenops* for an elegant anabantid fish from the rivers of Sikkim, passing on the northern frontiers of Bengal and described under it a species, *Ctenops nobilis* McClelland. Day (1877) did not recognise the genus *Ctenops* McClelland and referred *nobilis* to the genus *Osphronemus* (Commerson) Lacépède, 1801 (Day changed the spellings to *Osphromenus*). Day (1877) and Regan (1909) considered *Trichopsis* (Kner) Canestrini, 1860 as a junior homonym of *Ctenops* McClelland, 1845 and the latter author described under the

genus *Ctenops* two species, *nobilis* and *vittatus*. Same has been the opinion of Weber and deBeaufort (1922) and Bertin and Arambourg (1958).

Fowler (1934) and Innes (1935) used the generic name *Trichopsis* distinct from *Ctenops*. However, Myers (in Herre and Myers, 1937) pronounced that the species *nobilis* and *vittatus* have generic differences, and proposed to resurrect the generic name *Trichopsis* (Kner) Canestrini for the latter species. Holly *et al.* (1932), Arnold (in Ahl, 1937), Smith (1945), Axelrod and Schultz (1955), Forselius (1957) and Sterba (1962) thought it more appropriate to describe the Indian genus, *Ctenops*, as monospecific and the genus *Trichopsis* with three species, *vittatus*, *harrisi* and *pumilus*.

Liem (1965) has reffered to the personal communication from Myers, who recognised *Ctenops* and *Trichopsis* as distinct genera, based on the shape of the lacrymal. Liem (*op. cit.*) has, however, added a few more points of their distinction, based on the study of radiographs of *C. nobilis* and three species of the genus *Trichopsis*.

Ctenops was earlier included under the family Osphronemidae. Recently, Liem (1963) has erected a family name, Belontiidae, for all the genera of Osphronemidae of Jordan (1923) except *Osphronemus*. This was necessary according to the International Rules of Zoological Nomenclature because Myers (1923) proposed a new generic name, *Belontia* in place of *Polyacanthus* (Family Polyacanthidae). In Belontiidae, *Ctenops* falls under the subfamily Macropodinae of Liem (1963) and the closest ally of this genus is *Trichopsis*.

Genus **Ctenops** McClelland, 1845

1845. *Ctenops* McClelland, *Calcutta J. nat. Hist.*, **5** : 281.

(Type-species: *C. nobilis* McClelland).

Description: Body oblong, compressed. Head acute. Snout longer than diameter of eye. The cleft of mouth horizontal. The lower free margin of the enlarged lacrymal and the angle and lower margin of the preoperculum rectilinear, finely denticulated. The premaxillaries and the dentaries with bands of conical teeth; the peripheral teeth being enlarged (Text-fig. 3A). No teeth on the prevomer and the palatines. The upper jaw protrusible. The dorsal fin with 4-6 spines and 6-8 rays and inserted against nearly the middle of the soft anal. The anal with 4-5 spines and 23-28 rays. Median fins scaly at the base. The ventral inserted a little in advance of the pectorals, each with a strong spine and 5 rays; the first ray produced into a filament. Scales arranged in regular rows. Transverse scales 17-18. Body scales ciliated (Text-fig. 3B) while those on the head may or not be ciliated (Text-fig. 3C). Lateral line vestigeal. The swim-bladder extends into caudal region. Vertebral column sinuous.

This genus is monotypic.

Distribution: North-east Bengal, Assam, Purnea and Champaran districts of Bihar; Dacca and Jessore Jheel in Bangla Desh; Sikkim.

Ctenops nobilis McClelland

1845. *Ctenops nobilis* McClelland, *Calcutta J. nat. Hist.*, **5**: 281, pl. 21, fig. 1 (Type-locality: Rivers of Sikkim, passing on northern frontiers of Bengal).

1849. *Trichopsis nobilis:* Cantor, *J. Asiat. Soc. Bengal,* **18**: 1074.

1869. *Osphromenus nobilis:* Day, *Proc. zool. Soc. London*: 519.

1877. *Osphromenus nobilis:* Day, *Fishes of India:* 372, pl. LXXVIII, fig. 5.

1909. *Ctenops nobilis*: Regan, *Proc. zool. Soc. London,* **2**: 777.

1922. *Ctenops nobilis:* Weber & de Beaufort, *Fish. Indo- Austr. Archipel.*, **4**: 352.

1937. *Ctenops nobilis:* Shaw & Shebbeare, *J. Asiat. Soc. Bengal,* **3**: 113. text-fig. 118.

1965. *Ctenops nobilis*: Liem, *Copeia,* No. **2**: 207.

Material studied: (1) one example (53 mm. standard length), Purnea, Bihar, Dr. Jerdon, Z.S. I. Reg. No. Cat. 333.

(2) One example (57 mm. standard length), Dacca, Mus. Collector, Z.S.I. Reg. No. Cat. 334.

(3) One example (60 mm. standard length), Assam, purchased from Dr. F. Day (Original of Pl. LXXVIII, fig. 5, *Fishes of India*), Z.S.I. Reg. No. 1565.

(4) Three examples (41-66 mm. standard length), Jessore Jheel, Bangla Desh, J. Wood-Mason and Alcock, Z.S.I. Reg. No. 13343-45.

(5) Two examples (42-56 mm. standard length), Dibrugarh, Assam, Dr. S. W. Kemp, Z.S.I. Reg. No. 7866-67/1.

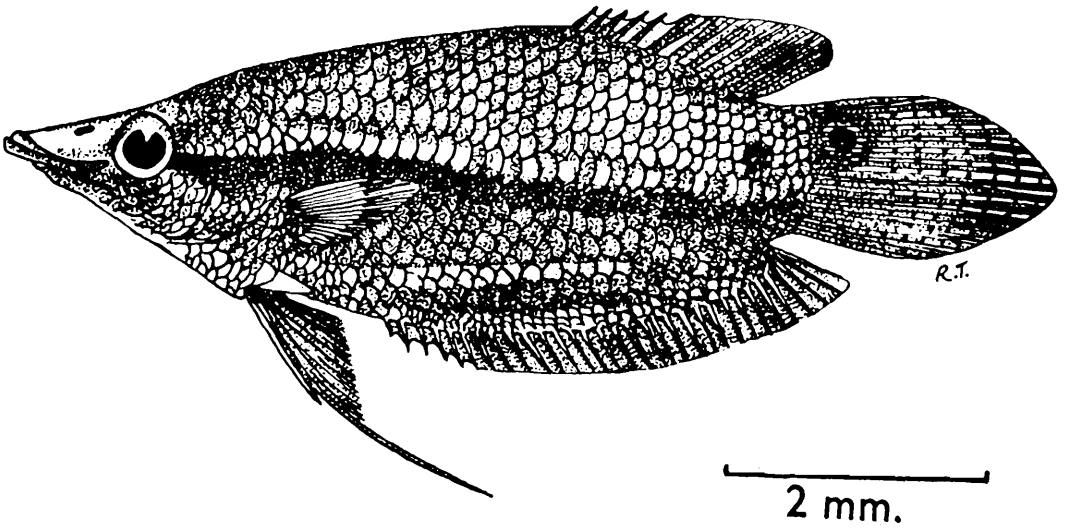
(6) One example (60 mm. standard length), Siliguri, N. Bengal, Messers G. E. Shaw and E. O. Shebbeare, Z.S.I. Reg. No. 11425/1.

(7) One example (57 mm. Total length, 43 mm. standard length), Bettiah, Dist. Champaran, Bihar.

Description: B. VI, D. IV-VI/6-8, P. 13, V I/5, A. IV-V/23-28, C. 16 Lat. l. 28-34, Lat. tr. 6/12.

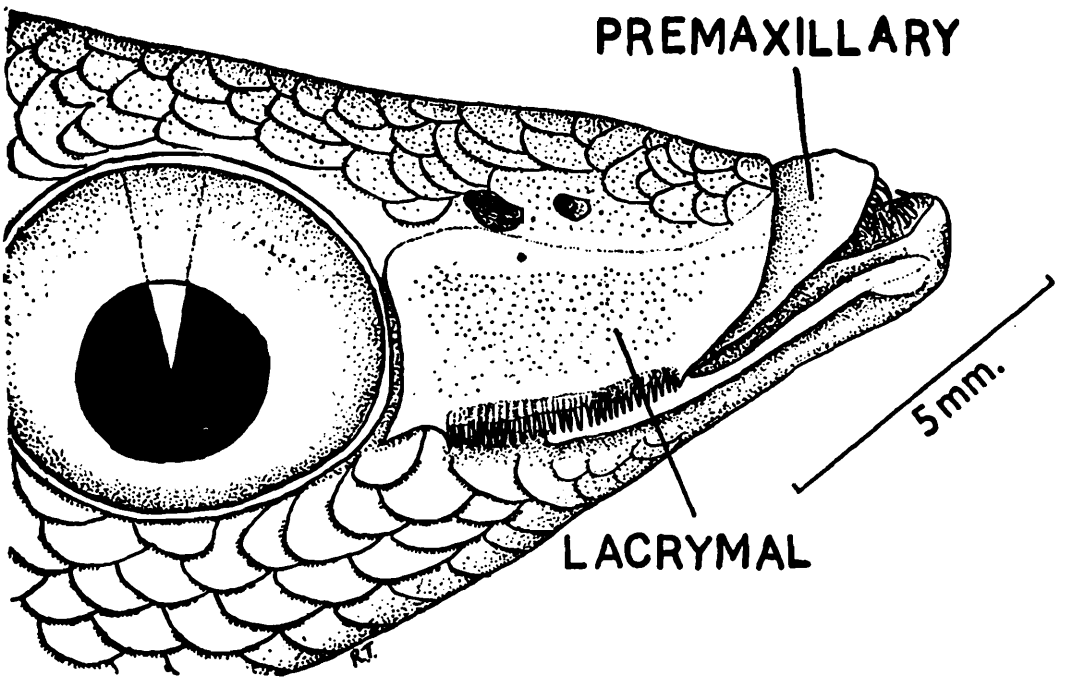
It is a small elegant anabantid with body laterally flattened. The dorsal profile rises immediately behind the nape to the origin of the dorsal after which it descends down to the base of the caudal. The ventral profile likewise descends sharply from the mandibular edge to the origin of the anal fin after which it ascends gradually upto the base of the caudal. The length of the head is contained from 2.62-3.0 in the standard length. The eyes are prominent and situated laterally. The diameter of the eye lies 3.2-3.8 times in the length of the head. Because of the enlarged lacrymal, the snout is longer than the diameter of the eye. The snout is dorsally convex and anteriorly blunt. The diameter of eye is contained 0.75-0.98 times in the snout length. The interorbital space is nearly flat and its width is more than the length of the snout. The nostrils are paired and separated by a flat internarial membrane. They are nearer to the eye than the tip of the snout. The cleft of the mouth is horizontal and wide. The upper and lower jaws

are elongated to form a somewhat pipe-shaped mouth. The lower jaw is longer than the upper jaw which is protrusible.



Text-fig. 1. *Ctenops nobilis* McClelland.

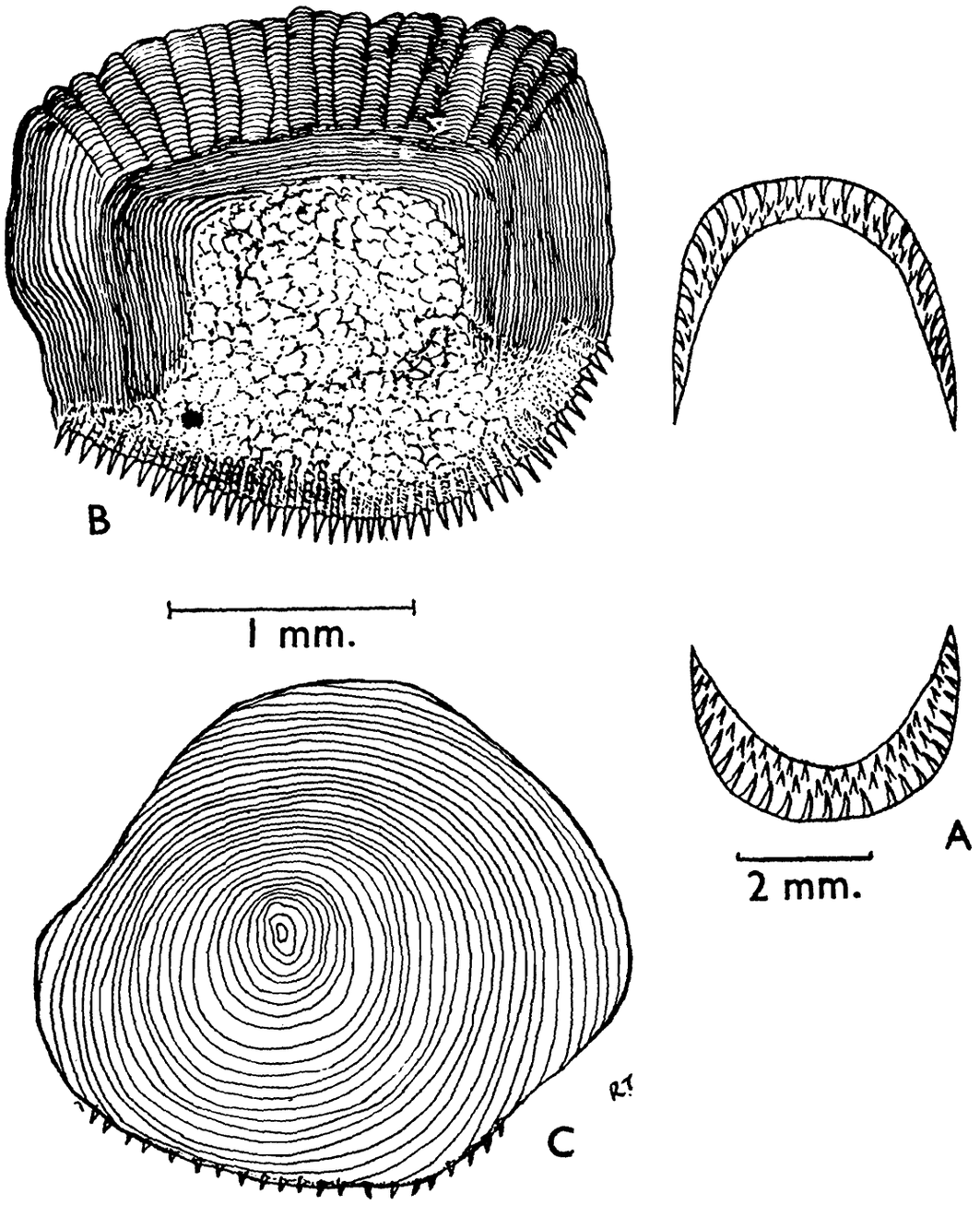
Day (1877), Weber and de Beaufort (1922) and Liem (1965) stated that the end of the premaxillaries extend opposite the front border of the orbit. The premaxillaries do not extend to opposite the front border of the orbit. The premaxillaries form the upper jaw and each is medially broad and distally narrow. The broad medial end is produced backwards into a rod-like bony process; the two processes of either side



Text-fig. 2. Lateral view of the anterior part of the head of *Ctenops nobilis* McClelland.

lie apposed to each other and conjointly form a medio-posterior process of the upper jaw. These processes lie beneath the nasals. The under

side of the premaxillaries bears a wide band of villiform teeth which are enlarged on the periphery (Text-fig. 3A). The maxillaries are toothless. The distal ends of the premaxillaries and the maxillaries lie close to each other, that of the latter being on the outer side. The distal tip of maxillary is flattened. The whole of the maxillary and the distal part of the premaxillary lie in a groove, formed below the enlarged lacrymal (preorbital of Day, 1877; Regan, 1909; Weber & de Beaufort, 1922). The free outer border of the lacrymal is finely toothed (Text-fig. 2). The tooth-band on the mandibles is of a similar nature as that of the upper jaw and has a series of enlarged peripheral teeth (Text-fig. 3A). The groove below the lacrymal extends on the underside of



Text-fig. 3A. The dentition of jaws of *C. nobilis*
B. A scale from the lateral line of *C. nobilis*
C. A scale from the head of *C. nobilis*

the mandibles. The lower lip is enlarged on the lateral side where it covers the retracted medial part of the premaxillary.

The angle and the lower border of the preoperculum are denticulated. The dorsal is short and its origin lies above nearly the middle of the soft portion of the anal. The length of the base of the dorsal fin lies 4.4-6.0 times in the standard length whereas that of the anal base lies 1.7-2.1 times. The length of the pectoral fin is equal to half of head length or in some examples even somewhat less. The pelvics are inserted a little in advance of the pectorals (Text-fig. 1). The spine of the ventral fin is strong and the outer most ray is prolonged to varying lengths in all the examples studied here. The length of the pelvic spine is contained from 2.0-2.48 times in the length of the head.

Except the naked part of the upper lip and the ventral side of the lower jaw, the whole body is covered by scales. The scaly sheath extends to the basal part of each of the median fins. The lateral line is but slightly visible and irregularly pierces the scales. The scales of the body are more or less rectangular with the posterior margin convex and beset with ctenii (Text-fig. 3B). The scales on the head may be smooth or minutelyc iliated (Text-fig. 3C). There are 28-34 scales on the lateral line and in the transverse series, there are 6 scales above the lateral line and 12 below it.

Colouration: The colour of the spirit-preserved specimens is brownish. A white band extends from behind the posterior border of the orbit and runs uninterrupted below the lateral line upto opposite the end of the spiny portion of the anal fin and thenceafter upto the base of the caudal in the form of white patches. Another uninterrupted white band originates from the area between the bases of the pectoral and the pelvic fins and extends to the middle of the soft portion of the anal. A third similar band extends along the base of the anal fin. At the upper part of the base of the caudal, there is a light-edged dark brown ocellus. The ventral side of the head and abdomen are banded alternately with brown and white.

Remarks: Mr. T. Mackessack sent a specimen of *C. nobilis* from Sarayaman Lake, Bettiah (Dist. Champaran, Bihar) to Zoological Survey of India on the basis of which Menon (1962) extended the range of distribution of this species further westwards to Champaran (Bihar) and gave a photograph of the specimen. A comparison of this specimen, measuring 57 mm. total length, with specimens of similar length from Dibrugarh (Assam) and Jessore Jheel (BanglaDesh) shows that the specimen from Bihar (Champaran district) is somewhat different in the following morphological characters:

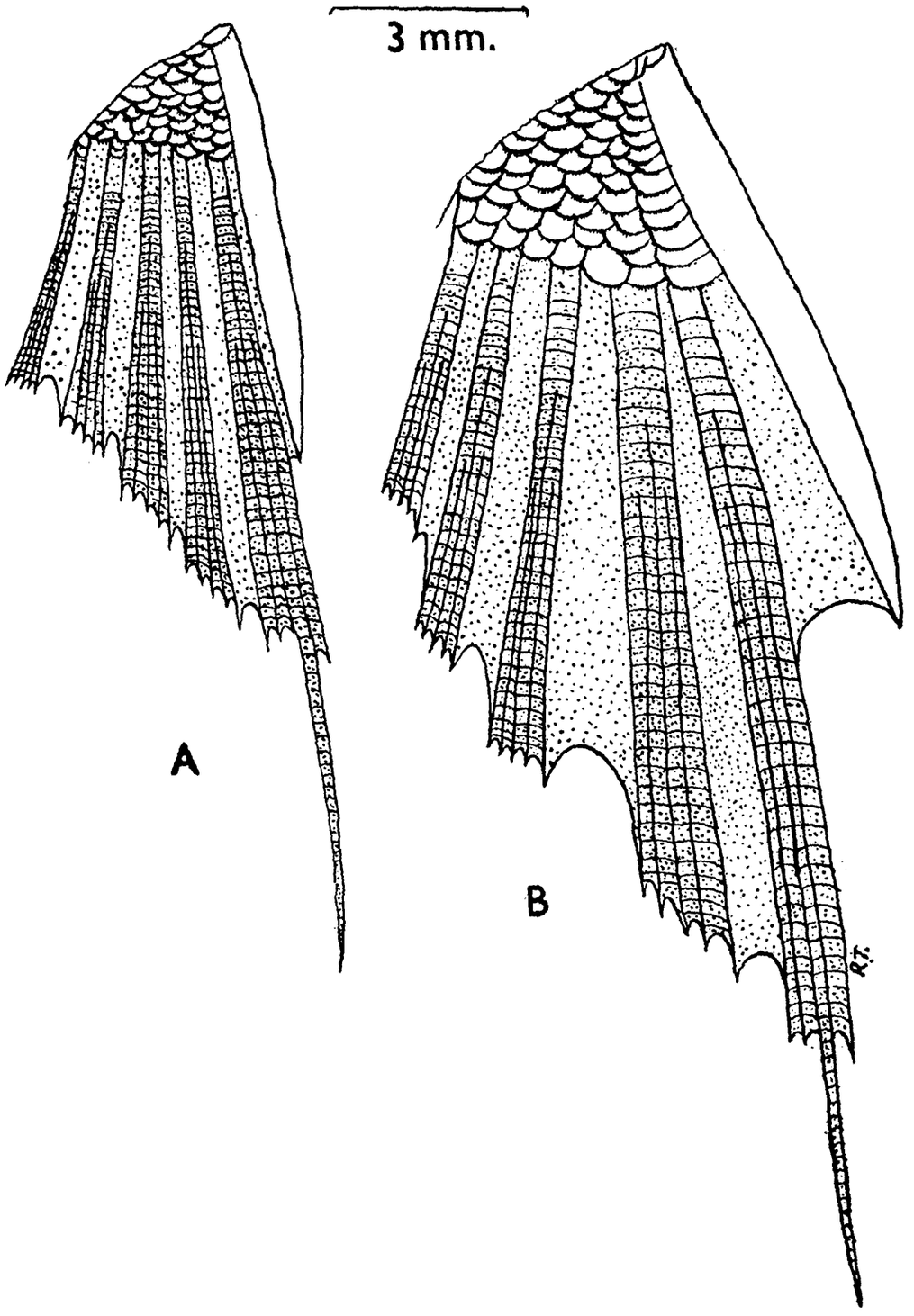
(1) The depth of the body is less than the length of head (being 1.2 times in head length *Versus* 0.88-1.0 times).

(2) The depth of body lies 3.4 times in the standard length (*Versus* 2.6-3.0 times).

(3) The height of the caudal peduncle is contained 1.8 times in the height of the body (*Versus* 2.0-2.6 times).

(4) The height of the head at the occiput is contained 1.1 times in the depth of the body (*Versus* 1.3-1.9 times).

(5) The length of the pelvic spine goes 1.87 times in the length of the head (*Versus* 2.0-2.78 times) (Text-figs. 4A, 4B).



Text-fig. 4. A. Pelvic fin of a specimen of *C. nobilis* from Bettiah, Bihar.
4. B. Pelvic fin of a specimen of *C. nobilis*.

The morphometric differences shown by the specimen from Bettiah (Dist. Champaran, Bihar) are interesting from taxonomic point of view and could be of subspecific level if they are further confirmed from more examples from the same area. Because of the single specimen, it is kept here as *C. nobilis* and naming it as a new taxon should be kept in abeyance till more material of the same is available from its locality.

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