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SILUROID FISHES OF INDIA, BURMA AND CEYLON. 18. SYSTEMATIC POSITION OF THE GENUS *LAGUVIA* HORA AND ITS RELATIONSHIPS

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(With 1 Text-figure)

INTRODUCTION

Hora (1921) established the genus *Laguvia* to accommodate *Pimelodus asperus* McClelland and two new species *L. ribeiroi* and *L. shawi*. The first species the type, was originally described by McClelland (1844) from Chusan, China and later its distribution was extended to Burma by Chaudhuri (1919). Günther (1864) and Bleeker (1873) referred it to *Hara* Blyth, whereas Chaudhuri (1919) described it under *Erethistes* Müller and Troschel.

Laguvia was characterised by Hora (1921) as comprising small fishes inhabiting "rapid running waters at the base of mountains" It was differentiated from *Erethistes* by its wide gill openings ; from *Glyptothorax* by possession of scapular processes, free bony tubercles on sides of body and in the absence of a well marked adhesive apparatus on thorax. Menon (1954) while revising the fishes of the genus *Glyptothorax* considered these differentiating characters of *Laguvia* as falling within the range of variation of *Glyptothorax* and accordingly synonymised it.

SYSTEMATIC POSITION

The apparent similarity exhibited by *Laguvia* to *Hara*, *Erethistes* and *Glyptothorax* is the main cause of confusion in determining its exact systematic position and relationships. *L. shawi* and *L. ribeiroi* are known by many examples and have been collected from different streams at the base of

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Eastern Himalaya and also from the plains of North Bengal, Bihar and Uttar Pradesh. *L. asperus* is known only by its type and the subsequent record from Burma of two specimens by Chaudhuri (1919). These are all small sized fishes, very distinct and characteristic of the streams in which they live.

The chief characters of *Laguvia* are as below :—

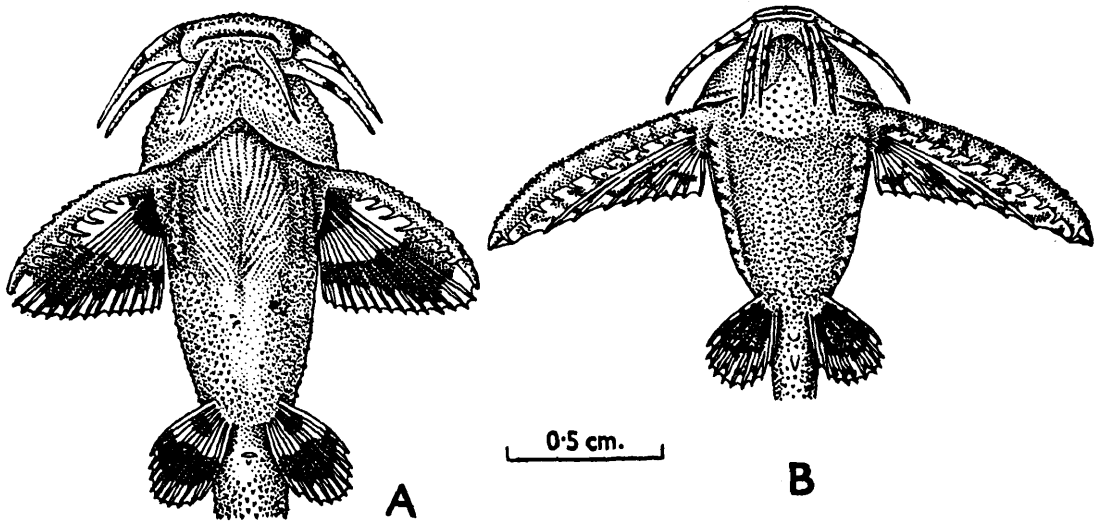
1. Thoracic adhesive apparatus faintly developed.
2. Barbels with annulated markings.
3. Mandibular barbels placed not in a transverse line but at different levels (see Text-fig. 1A).
4. Labial fold interrupted.
5. Caudal fin truncate, semicircular or emarginate, but not forked.
6. Pectoral spine serrated along inner edge with antrorse teeth, outer edge roughened or smooth.
7. Gill membranes wide, free from each other and narrowly united with isthmus.
8. Paired fins not plaited below.
9. Humeral processes along side of body on ventral surface slightly conspicuous and long.

Laguvia differs from *Glyptothorax* in the possession of long humeral processes, annulated barbels, position of mandibular barbels and the shape of the caudal fin. The first two characters may be shared by some species of *Glyptothorax* such as *G. tuberculatus* Prashad & Mukerji, but the position of the mandibular barbels and above all, the shape of the caudal fin have been found to be constant in *Laguvia*. No species of *Glyptothorax* has the caudal fin shaped as in *Laguvia*. The shape of the caudal fin has been utilised in classifying Bagrid genera (Jayaram, 1968) and is a valuable character showing no variations. Menon (1954) seems to have not observed these important differentiating characters of *Laguvia*.

The genus is more closely related to *Hara* than any other genera. However, it differs from *Hara* in having an interrupted labial fold, wider gill openings, arrangement of mandibular barbels, and in the presence of an adhesive apparatus on thorax, however faint or ill-developed it may be.

The nature of serrations of the pectoral spine at once distinguishes *Laguvia* from *Erethistes* in which the serrations are divergent along the outer edge. Besides this feature, the

position of mandibular barbels and the presence of an adhesive apparatus differentiates *Laguvia* from *Erethistes*.



Text-fig. 1A—Ventral view of *Laguvia ribeiroi* Hora;
1B—Ventral view of *Hara hara* (Hamilton).

Thus, *Laguvia* is distinct with characteristic features of its own and as such should be considered as a separate genus. The four inter-related genera can be identified by the following key :—

1.	Serrations on pectoral spine arranged in a divergent manner along outer edge. ...	*Erethistes*
	Serrations on pectoral spine arranged not in a divergent manner, but either retrorse or rough or smooth.	2
2.	Caudal fin forked.	*Glyptothorax*
	Caudal fin not forked, but truncate, emarginate, or semicircular.	3
3.	Mandibular barbels inserted along a transverse line on ventral surface. Labial fold continuous.	*Hara*
	Mandibular barbels inserted not in a transverse line, but at different levels. Labial fold not continuous.	*Laguvia*

RELATIONSHIPS

Hora (1921) thought *Laguvia* as intermediate between *Erethistes* and *Glyptothorax*. Günther (1864), and Bleeker (1873) referred *Pimelodus asperus* McClelland aptly to *Hara*. *Laguvia* resembles *Hara* to a greater extent than the other two genera. The shape, size and other external features tend to

identify these fishes as belonging to *Hara* outwardly, but closeer examination of the gill membranes, position of barbels and pectoral spine serrations reveal the true identity.

It would seem that *Laguvia* is a transition stage from *Hara* and *Erethistes*-like fishes leading to the specialised *Glyptothorax* group. *Glyptothorax* is better adapted for a life in swift streams than *Hara, Erethistes* and *Laguvia*. It is of interest to note here that these fishes are also obtained in still waters overgrown with thick vegetation. Hora (1950, p. 190) stated in regard to the habitat of *Erethistes* that it inhabits "sluggish deep waters overgrown with vegetation. In such habitats, their spider-like appearance and strongly pectinated spines presumably provide them with anchorage to the vegetation, among which they live fairly well protected from their enemies".

During a collection tour of North Bengal in 1970, the writer also similarly obtained examples of *Hara, Erethistes* and *Laguvia* from similar habitats. *Laguvia ribeiroi* was collected from the Dharla river, Mainaguri in Jalpaiguri district which at the time of visit was very sluggish with a depth of hardly 2 to 2.5 metres of water. The fish was collected by trap-net. Similarly *Erethistes montana* and *Hara hara* were collected from shallow sluggish rivers of the Teesta drainage system.

Glyptothorax on the other hand lives generally in swift streams with clear water and a rocky or stony bed.

Hora and Silas (1952) while discussing the evolution and distribution of Glyptosternoid fishes considered the following characters as less specialised.—

1. Pectoral and pelvic fins separated by a considerable distance.
2. Pectoral fins with fewer number of branched rays.
3. Paired fins not plaited on ventral surface.
4. Lips not continuously reflected round the mouth (*i.e.*) possession of an interrupted labial fold.
5. Absence of an adhesive apparatus on thorax.

Considering the above characters, *Laguvia, Erethistes* and *Hara* are much less specialised than *Glyptothorax,* and as such can be stated to be more primitive than *Glyptothorax*. The presence of a faintly developed adhesive apparatus on thorax in *Laguvia* would however place it above *Erethistes* and *Hara*. *Erethistes* appears to be the most primitive of the four and *Laguvia* the most specialised with *Hara* inbetween. *Laguvia-*

like ancestors may have given rise to the widely distributed *Glyptothorax*.

SUMMARY

Laguvia Hora was synonymised by Menon (1954) with *Glyptothorax* Blyth. The genus has been shown to be a less specialised form than *Glyptothorax* with close affinity to *Hara*, but possessing distinguishing features of its own. It is resurrected as a separate genus. Its close affinity to *Hara* is brought out and the probable phylogeny of these fishes is discussed.

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