ON TWO NEW GASTROMYZONID FISHES FROM BORNEO.

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The specimens under report formed part of a collection of fishes and other animals made by Mr. J. A. Griswold Jr. in the mountain streams of British North Borneo. The material is now preserved in the Museum of Comparative Zoology at Harvard, Cambridge Mass., U.S.A. The circumstances under which these Gastromyzonid fishes were found in this collection have been described by Hora,[1] with brief comments on the forms already known to science. On the basis of this material, the systematic positions of *Protomyzon* Hora and *Glaniopsis* Boulenger have been elucidated by Hora and Jayaram[2] in two short articles. Two specimens were found in the lot which appeared to represent new species, one belonging to *Protomyzon* and one representing a new genus allied to *Gastromyzon* Günther. These species are of great interest for the study of the phylogeny of the Gastromyzonidae and, therefore, they are described here inspite of the fact that each is represented by a single specimen.

We wish to record here our sincerest thanks to Dr. Henry B. Bigelow and Dr. W. C. Schroeder for making the entire collection of Gastromyzonid fishes available to us in Calcutta for detailed study.

Progastromyzon, gen. nov.

The new genus comprises small, flattened fishes, in which the snout is broad and rounded and is provided on the dorsal surface with short tubercles. The mouth is broad and transverse, and is bordered by fleshy lips. The posterior lip is fimbriated. The anterior lip is covered by a rostral hood which is notched in four places to accommodate the four short rostral barbels. There are two short maxillary barbels also, one at each corner of the mouth. The gill-openings are restricted to the dorsal surface, just extending to the bases of the pectoral fins. The paired fins are well-developed and horizontal. The pectorals possess 22 rays each, of which only one is unbranched. The pelvics have 10 rays each, of which only one is unbranched; they are converging but not united to form a disc as in *Gastromyzon* and *Neogastromyzon*. Some of the anterior rays in both the fins are provided with adhesive pads. The body is covered with small scales which are much reduced on the ventral surface and are absent altogether between the bases of the pectoral fins. Behind the bases of the pectoral fins, there are narrow lateral extension of the body which are so characteristic of *Gastromyzon* and *Neogastromyzon*.

The new genus, as constituted above, represents a stage in the evolution of *Gastromyzon*; their close similarity is evident from the form and

[1]Hora, S. L. *Rec. Ind. Mus.* XLVIII, p. 50 (1950).
[2]Hora, S. L. & Jayaram, K. C., *Rec. Ind. Mus.* XLVIII, pp. 61-68; 85-88 (1950).

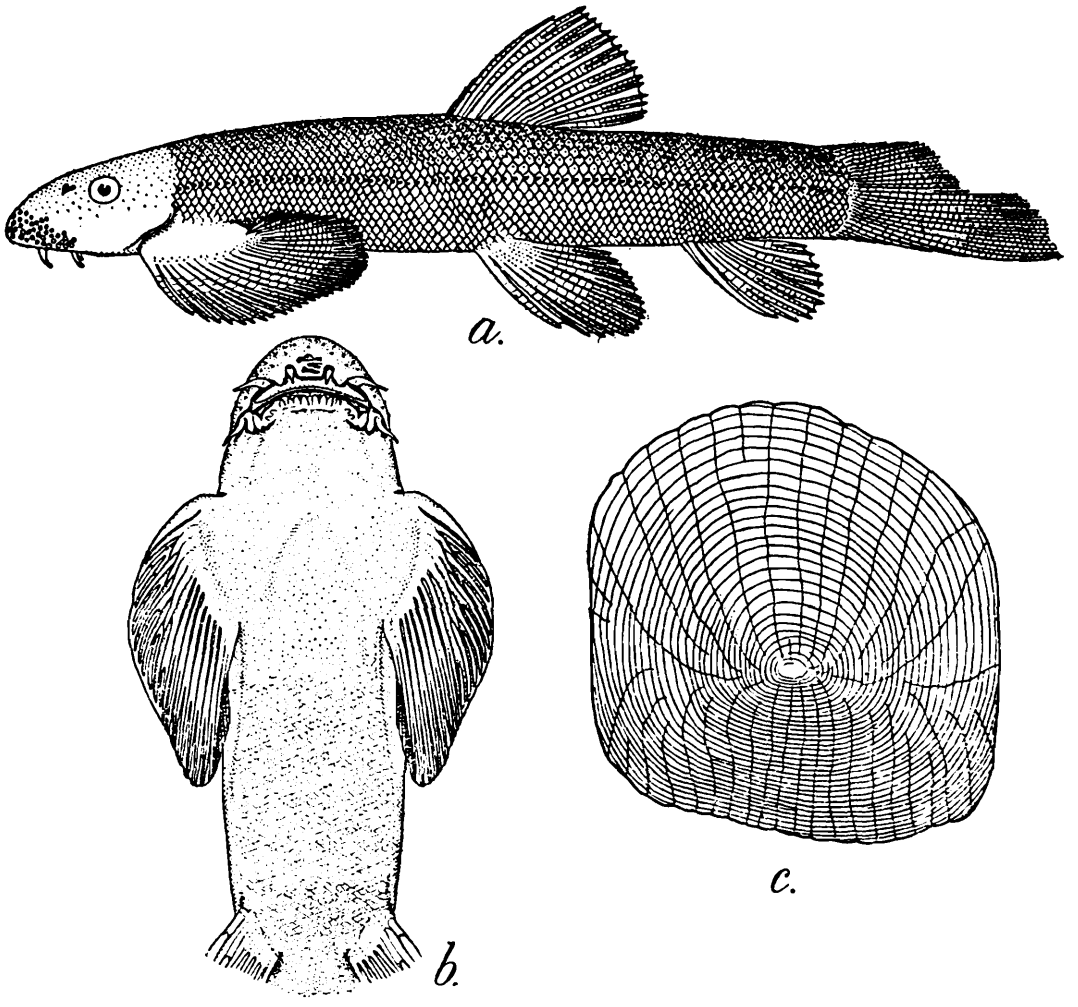
structure of the mouth parts. The differences lie in the disposition of the pelvic fins and the relative development of the lateral skin flaps.

Genotype.—Progastromyzon griswoldi, gen. *et.* sp. nov.

Progastromyzon griswoldi, gen. *et.* sp. nov.

D.3/8 ; A.2/5 ; P. 1/21 ; V. 1/9 ; C.18 (damaged).

For a description of the general features of the species, reference may be made to the description of the genus given above.



TEXT-FIG. 1.—*Progastromyzon griswoldi*, gen. *et* sp. nov.

a. Lateral view : × 1½ ; *b*. Ventral surface of head and body : × 2 ; *c*. Scale from below the dorsal fin : × 45.

The length of the head is contained 4·5 times and the depth of the body 6 times in the standard length. The height of the head is equal to the length of the snout. The eyes are dorso-lateral in position and are equal to one-third the length of the snout. The interorbital distance is equal to 2·5 times the diameter of the eye. The nostrils are situated close to the eyes and are fairly conspicuous.

The origin of the dorsal fin is slightly in advance of that of the pelvics and is nearer to the base of the caudal fin than to the tip of the snout. The pectorals are provided with muscular bases, which are devoid of scales ; they are separated from the pelvics by a distance nearly equal to half of their length. The pelvics are almost as long as the head and do not extend as far as the anal fin which just misses the caudal fin. The caudal peduncle is almost as long as high.

The lateral line is complete. There are 79 scales along it, 9 above it to the base of the dorsal fin and 9 below it to the insertion of the pelvic fin. A scale from below the base of the dorsal fin and above the lateral line is slightly longer than broad with a horizontal basal portion and a rounded apical portion. The nucleus is small and well-defined ; it is considerably nearer the base than the apex. There are 36 circuli and 38 radii, of which only 17 reach the centre. In general structure, the scale is similar to that of *Gastromyzon borneensis*[1] though the latter is more elongated with the apex more conical.

The colour in spirit is olivaceous brown above and yellowish below. The upper surface of the head is greyish and the fins light grey.

Locality.—Kina Balu Mountain, British North Borneo.

We have great pleasure in naming this species after Mr. J. A. Griswold Jr., whose collection has enabled us to elucidate several points in the taxonomy and systematics of the Gastromyzonid fishes of Borneo.

Holotype.—No. CMZ 34806, Museum of Comparative Zoology, Harvard College, Harvard, Cambridge Mass., U.S.A.

Protomyzon borneensis, sp. nov.

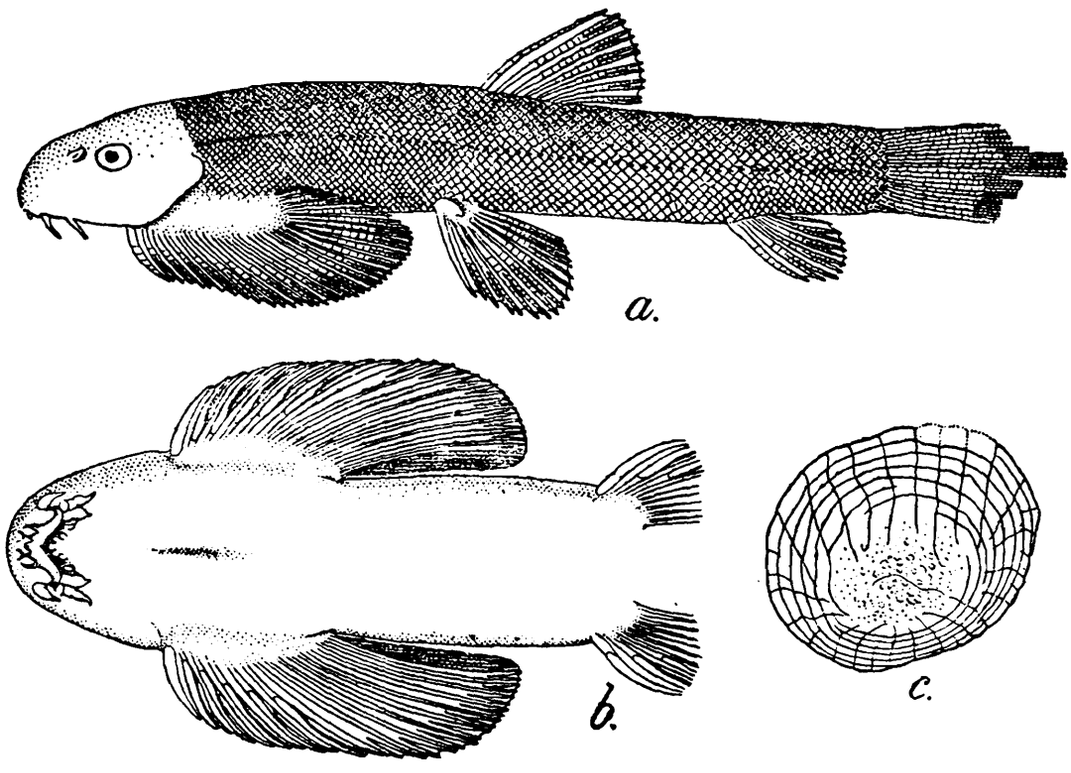
D. 1/6 ; A. 2/4 ; P. 1/22 ; V. 1/8 ; C. 18 (damaged).

Protomyzon borneensis is a small, loach-like Gastromyzonid fish in which the dorsal profile is only slightly arched and the ventral profile is horizontal throughout. The head and the anterior part of the body are greatly depressed and flattened. The length of the head is contained 4·5 times and the depth of the body 8 times in the standard length. The head is not as high as the length of the snout. The snout is smooth and broadly pointed. The eyes are small and dorso-lateral in position ; the diameter of the eye is contained 2 times in the length of the snout and 1·5 times in the interorbital width. The nostrils are prominent and are situated just before the eyes. The mouth is small and lunate ; it is situated on the ventral surface considerably behind the tip of the snout. The lips are fleshy and continuous ; the upper lip overhangs the mouth and is papillated. The rostral fold does not cover the anterior lip and is produced into finger-like processes. There are two pairs of short, stumpy rostral barbels and a pair of maxillary barbels at each corner of the mouth. The gill-openings are restricted to the dorsal surface and extend as far as the bases of the pectoral fins.

The origin of the dorsal fin is slightly behind that of the pelvics and is nearer the base of the caudal than the tip of the snout. The pectorals are well-developed, are longer than the head and are provided with strong muscular bases ; they are horizontal with several anterior rays acting as organs of adhesion. They are separated from the pelvics by a considerable distance. The pelvics have converging bases but are not united to form a disc-like structure. Only one ray of the paired fins is simple. The pelvics extend beyond the anal opening but are separated from the anal fin by a great distance. The anal fin misses the base of the caudal. The caudal peduncle is slightly longer than deep.

[1]Law, N. C. *Rec. Ind. Mus.*, XLVIII, p. 81, pl. iv, fig. 10(1950).

The scales are small and closely set. There are about 77 scales along the lateral line and 11 rows above and 14 rows below it. The ventral surface in front of the anal opening and the fleshy bases of the pectoral fins are devoid of scales. The structure of a scale from below the dorsal fin and above the lateral line is very different from that described by Law[1] for *Protomyzon whiteheadi*. The scale is small and more or less rounded, but the nuclear area is disorganised and there are only 6-7 circuli. There are 30 radii of which only 15 reach the disorganised central mass. Law has regarded this disorganization of the scales as a character of specialization. On this criterion, *Protomyzon borneensis* would appear to be more specialized than its only other congener *P. whiteheadi*. This state of affairs is parallelled by the scale structures of *Balitora brucei brucei* (disorganized scale) and *B. b. burmanicus* (less specialized with well-defined scale structures). It may here be noted that the scale of *Parhomaloptera* of Borneo (*vide* Law, *loc. cit.*, p. 79, pl. iv, fig. 12) shows great affinity to the disorganised scale of *P. borneensis*. In the structure of the mouth and its associated parts, the two forms show great resemblance and it is likely, therefore, that *Parhomaloptera* and *Protomyzon* are derived from the same ancestral stock.



TEXT-FIG. 2.—*Protomyzon borneensis*, sp. nov.

a. Lateral view: ×2 ; *b*. Ventral surface of head and body. ×2½ ; *c*. Scale from below the dorsal fin: ×62.

The colour in spirit is olivaceous grey above with the head portion somewhat darker. The ventral surface is pale olivaceous. The fins are greyish.

Locality.—Kina Balu Mountain, British North Borneo.

Holotype.—No. CMZ 34801, Museum of Comparative Zoology, Harvard College, Harvard, Cambridge Mass., U.S.A.

[1]Law, N. C. *Rec. Ind. Mus.* XLVIII, p. 80, pl. iv, fig. 6 (1950).

Relationships.—The new species can be readily distinguished from *P. whiteheadi* by the possession of two barbels at each corner of the mouth (*versus* one), by the absence of scales on the ventral surface in front of the anal fin (*versus* scales extending upto a short distance behind the bases of the pectorals) and by the structure of the scales (compact and well-defined in *P. whiteheadi versus* disorganised in *P. borneensis*). All these features and better developed paired fins indicate that the new species is more specialized than its only other known congener *P. whiteheadi.*