

THE NEOTROPICAL MAILED CATFISHES OF THE GENERA  
*LAMONTICHTHYS* P. DE MIRANDA RIBEIRO, 1939  
AND *PTEROSTURISOMA* N. GEN.,

INCLUDING THE DESCRIPTION OF *LAMONTICHTHYS STIBAROS* N. SP. FROM  
ECUADOR (PISCES, SILURIFORMES, LORICARIIDAE)

by

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ABSTRACT

Descriptions and illustrations are given of four species of mailed catfishes belonging to the subfamily Loricariinae, tribe Harttiini. Two species are assigned to *Lamontichthys* P. de Miranda Ribeiro, 1939: *Lamontichthys filamentosus* (La Monte, 1935) (type-species, of which *Harttia filamentissima* C. H. Eigenmann & Allen, 1942, is provisionally considered a junior synonym), based on a total of thirteen specimens, including all type-specimens, from Brazil, Bolivia, Peru, and Ecuador (all from tributaries of the Río Amazonas system), and *Lamontichthys stibaros* n. sp., based on two specimens from Ecuador, sympatric with the former species.

*Harttia microps* C. H. Eigenmann & Allen, 1942, is redescribed from three out of the five type-specimens, originating from Iquitos, Peru (Río Amazonas system). It is designated as type-species of *Pterosturisoma* n. gen., which superficially resembles *Lamontichthys*.

*Sturisoma brevirostre* (C. H. Eigenmann & R. S. Eigenmann, 1889), type-species of *Parasturisoma* A. de Miranda Ribeiro, 1911 (= *Sturisoma* Swainson, 1838), which was poorly described previously, is redescribed from its unique holotype, primarily to indicate the generic distinction from both *Lamontichthys* and *Pterosturisoma*, the species of which have been recently referred to *Parasturisoma*.

INTRODUCTION

P. de Miranda Ribeiro (1939: 12) diagnosed the genus *Lamontichthys* as: "Forma menos deprimida que *Harttia*; comprimento da cabeça, o dobro da sua maior altura; dentes setiformes; a segunda série de escamas, carenadas; superfície ventral recoberta de escamas espiculadas até à margem do beicho inferior. Maior altura do corpo, sete vezes no comprimento total (sem a caudal). Dorsal implantada à frente da ventral com o acúleo prolongado em filamento, o mesmo acontecendo com os peitorais e os caudais. Espécie-tipo: *Lamontichthys filamentosa* (La Monte, 1935) n. comb."

Subsequently, *Lamontichthys* was accepted by all but one author, Boeseman (1971: 6), who stated: "In the original diagnosis I find no reasons for separating this genus from *Parasturisoma*. Most

of the characters given are rather specific than generic." However, re-examination of the holotype of the type-species of the genus *Parasturisoma* A. de Miranda Ribeiro (1911: 109), originally described as *Loricaria brevirostris* (in the subgenus *Rineloricaria* Bleeker, 1862) by C. H. Eigenmann & R. S. Eigenmann (1889: 35), demonstrated that this species is a representative of the genus *Sturisoma* Swainson (1838: 337).

Three species of the tribe Harttiini Boeseman (1971: 10, originally proposed as a subfamily, Harttiinae) share the peculiar shape of body, head, and caudal peduncle; they are somewhat intermediate between species of *Sturisoma* and of *Harttia* Steindachner (1876b: 110-111). Two of these species are assigned to *Lamontichthys*: *Lamontichthys filamentosus* (La Monte, 1935), and *Lamontichthys stibaros* n. sp. *Harttia filamentissima* C. H. Eigenmann & Allen (1942: 211) is included provisionally in the synonymy of *Lamontichthys filamentosus*. *Lamontichthys* differs from all other members of the subfamily Loricariinae Bonaparte, 1831, in having seven rather than six branched pectoral fin rays.

*Pterosturisoma* is here established for the reception of *Pterosturisoma microps* (originally described as *Harttia microps* by C. H. Eigenmann & Allen, 1942: 211-212). Superficially, the body and fin shape of *Pterosturisoma microps* is reminiscent of *Lamontichthys* species, but the former has the "normal" number of six branched pectoral fin rays.

ABBREVIATIONS

- AMNH American Museum of Natural History, New York, N. Y.  
BMNH British Museum (Natural History), London.

CAS	California Academy of Sciences, San Francisco, Calif.
FMNH	Field Museum of Natural History, Chicago, Ill.
IU	Indiana University, specimens in CAS.
MCZ	Museum of Comparative Zoology, Cambridge, Mass.
USNM	former United States National Museum, specimens in National Museum of Natural History, Smithsonian Institution, Washington D. C.
ZMA	Institute of Taxonomic Zoology (Zoölogisch Museum), Amsterdam.
ZSM	Zoologische Sammlung des Bayerischen Staates, Munich.
sl	standard length.

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## METHODS

The methods of taking morphometric and meristic data are the same as those employed in our recent studies on Loricariinae, see e.g. Isbrücker & Nijssen (1978: 180-182). We follow Ørvg (1977, also 1967) in adopting the term "odontode" for teeth-like structures occurring on dermal ossifications covering head and body, and on fin spines and rays.

**Lamontichthys** P. de Miranda Ribeiro, 1939

*Lamontichthys* P. de Miranda Ribeiro, 1939: 12 (original diagnosis; type-species, by original designation and monotypy, *Lamontichthys filamentosus* (La Monte, 1935) = *Harttia filamentosa* La Monte, 1935).

**Diagnosis.** — *Lamontichthys* belongs to the tribe Harttiini of the subfamily Loricariinae. It is the

only genus of this subfamily having seven rather than six branched pectoral fin rays. Together with *Pterosturisoma* it is intermediate in general body and head shape between *Sturisoma* and *Harttia*. *Lamontichthys* resembles the genus *Sturisoma* more than *Harttia*, on account of the relatively deeper body and the larger fins. Like the other genera of Harttiini, *Lamontichthys* has I,6 dorsal fin rays, last one split to its base; I,4 anal fin rays, last one split to its base; I,5 pelvic fin rays; I,12,I caudal fin rays.

Lateral line weakly developed. Dorsum of cleithrum broad. Further characters are described for the two species below.

**Lamontichthys filamentosus** (La Monte, 1935)  
(Figs. 1-7, 10a-c, 14; tables Ia-b, IIa-h, IIIa)

*Harttia filamentosa* La Monte, 1935: 5-6, fig. 4 (original description; type-locality: Brazil, Est. Amazonas, "Rio Jurua: collected in the vicinity of the mouth of Rio Embira, a tributary of Rio Tarauaca, which, in turn, is a tributary of Rio Jurua (70°15' W 7°30' S)"; also listed on p. 7).

*Lamontichthys filamentosa*; P. de Miranda Ribeiro, 1939: 12 (type-species of new genus); Gosline, 1945: 108 (listed; Rio Jurua).

*Lamontichthys filamentosus*; Fowler, 1954: 90, fig. 690 (references; figure from Zizka, in La Monte; Alto Amazonas); Ovchynnyk, 1968: 258 (listed; eastern Ecuador, upper Amazon basin; based on personal communication with G. Orcés); Isbrücker & Nijssen, 1976: 121-122 (discussion; *Harttia filamentissima* presumed to be conspecific).

*Parasturisoma filamentosa*; Boeseman, 1971: 6, 9, table 1 (cited as *Harttia filamentosa*, type-species of *Lamontichthys*, considered a junior generic synonym of *Parasturisoma*; morphometric data listed in table).

*Harttia filamentissima* C. H. Eigenmann & Allen, 1942: 211, pl. VIII figs. 1-2 (original description; type-locality: Peru, "Rio Huallaga"; paratype from "Lago Cashiboya"; also listed on p. 47 and 49); Fowler, 1945b: 109 (listed; Perú, Río Huallaga, Lago Cashiboya); Gosline, 1945: 108 (listed; Huallaga e Ucayali); Fowler, 1954: 88 (references; Alto Amazonas, Peru); Tovar Serpa, 1967: 222 (listed; after Fowler, 1945b); Ovchynnyk, 1968: 258 (listed; Ecuador, Chicherota near mouth of Rio Bobonaza, tributary of Rio Pastaza, Prov. Napo-Pastaza; USNM 177215).

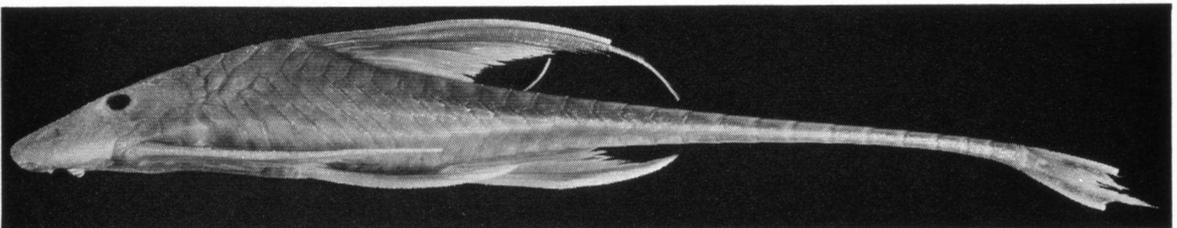


Fig. 1. *Lamontichthys filamentosus* (La Monte, 1935), holotype in lateral view.

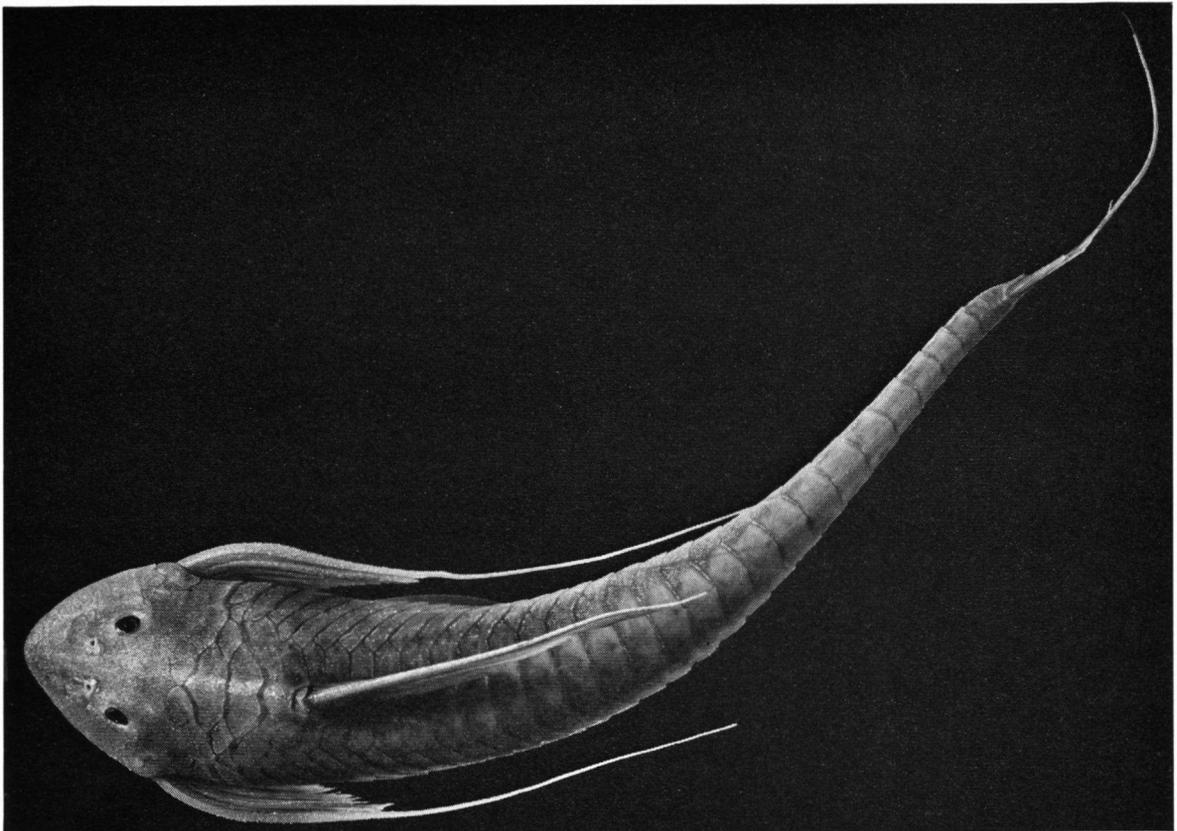


Fig. 2. *Lamontichthys filamentosus* (La Monte, 1935), paratype in dorsal view.

*Parasturisoma filamentissima*; Boeseman, 1971: 9, table 1 (listed).

Specimens examined. —

**Brazil:**

AMNH 12616 (holotype), sl 142 mm, AMNH 26941 (paratype), sl 161 mm, Est. Amazonas, Rio Amazonas system, near the mouth of Rio Envira, a tributary of Rio Tarauacá, which itself is a tributary of Rio Juruá, at 07°30' S 70°15' W, coll. B. A. Krukoff, 1934.

**Bolivia:**

ZSM 23876 (six, one of which is deposited in ZMA 111.205), sl 120.7 to 133.8 mm, all males, Prov. Cochabamba, Rio Amazonas system, Rio Chapare drainage, coll. O. Schindler, XI-1953.

**Peru:**

CAS 28541, ex IU 15378 (holotype of *Harttia filamentissima*), sl 160 mm, male, Prov. Loreto, Rio Amazonas system, Rio Huallaga, coll. W. R. Allen, XI-1920; CAS 28542, ex IU 15379 (paratype of *Harttia filamentissima*), sl 111.3 mm, Prov. Loreto, Rio Amazonas system, Lago Cashiboya, cutoff lake of Rio Ucayali, communicating with the latter by a narrow channel, above Contamana, which is 07°19' S 75°04' W, coll. W. R. Allen, VIII-1920.

**Ecuador:**

USNM 167913 (two), sl 71.7 and 167.3 mm, largest a male; USNM 177215 (one, recorded as *Harttia filamentissima* by Ovchynnyk, 1968), sl 154 mm, Prov. Pastaza, Rio Amazonas system, Rio Bobonaza at Chicherota, 02°25' S 76°38' W, altitude approximately 260-280 m, upper Rio Pastaza, coll. R. Olalla, I-1954.

**Description. —**

Morphometric and meristic data are given in tables Ia-b, IIa-h, and IIIa and are not repeated here. General shape of body, head, and fins are illustrated in figs. 1-7.

The following description of the various scutes is mainly based on the largest specimen available (in USNM 167913), but it is representative of the other specimens since there is only slight variation.

— Mediodorsal scutes. There is a complex series of scutes stretching between the supraoccipital process and the dorsal fin spine, around the posterior margin of the cranium and the posttemporal. Their arrangement can be described as follows: (1) a transverse pair of three relatively small

scutes, decreasing in size ventrally, (2) two large, unpaired scutes, reaching laterally a moderately large, polygonal scute, which itself reaches ventrally a much smaller polygonal scute, (3) a large, broad predorsal scute which is firmly fused with a scute anteroventrolaterally extending into an oblong section, (4) an inconspicuous predorsal scutelet in front of the dorsal fin spine base, just broader than this base.

There are four scutes at either side of the dorsal fin base, followed by a scute enclosing the dorsal fin base posteriorly. Posterior to this there are 20 "unpaired" mediodorsal scutes (each consisting of a medially firmly fused right and left half), followed by 2 transverse series of 3 small scutes, the lateroposterior of which reaches the dorsal triangular scute on the caudal fin base.

— Medioventral scutes. Posterior to the anus there is a large plate consisting of two firmly fused triangular scutes having a long transverse posterior base. In front of the base of the anal fin spine is an oblong unpaired median scute reaching the large plate just mentioned, at either side contacted by two oblong transverse scutes, continuing as two other transversely arranged oblong scutes, which reach the anal fin base. These are followed by an oblong transverse scute enclosing the anal fin base posteriorly. Posterior to this scute are 17 "unpaired" medioventral scutes; anterior to the lower caudal fin spine there are 3 minute median scutelets, with at either side 2 small scutelets, the posterior of which reaches the ventral triangular scute on the caudal fin base.

— Lateral scutes. Posterior to the cleithrum are the lateral scutes, linking the dorsal and ventral scutes. Although faint fusion lines on the scutes are visible under magnification, the lateral scutes appear to be extremely oblong compared to other Loricariinae, increasing in length from the posterior part of the cleithrum to the fifth lateral scute, and gradually decreasing in length from the sixth coalesced to the last parallel scute. There is a small, triangular naked area (containing dorsally a bifurcate canal of the lateral line system), just posterior to the posttemporal and just dorsal to the first lateral scute.

— Abdominal scutes. The abdomen is completely covered with scutelets, arranged into three com-

plexes: (1) Anterior to the anus is a complex of relatively large but graded polygonal scutelets which laterally extend to the anterior base of the pelvic fin spine and posteriorly reach the last thoracic scutes, thus forming an inflexible plate. (2) Between the ventral part of the thoracic scutes is a flexible complex of smaller, rhomboidal scutelets reaching to about the transverse line marked by the posterior edge of the covered coracoid. In a transverse series there are about 5 such scutelets posteriorly and about 8 anteriorly, whereas in a median series there are about 13. (3) Anterior to this second complex but not sharply defined, is the third group, consisting of mostly smaller scutelets. These form an inflexible plate which covers part of the ventral part of the head from the outer medial margin of the lower lip to the lower lateral part of the exposed cleithrum. In a juvenile in USNM 167913 (sl 71.7 mm) the abdominal scutelets are not completely developed, although they are present in the same areas as in adults. The paratype of *Harttia filamentissima* (sl 111.3 mm), the second smallest specimen available, has the abdomen completely covered.

— Ventral head scutes. The ventral margin of the head consists of a rather broad ossified area. Anterior to the branchiostegal membrane is a large, roundish isolated plate reaching almost to the rictus of the lower and upper lips. This plate contacts a patch of three oblong scutelets in a more or less triangular arrangement.

Minute odontodes are present on dermal ossifications, fin spines and rays, giving a rather smooth appearance to the surface. The odontodes are generally acute, but those along the outer spines of the paired fins in adult specimens (probably not a secondary sexually dimorphic character) are much blunter, sometimes having a broad and roundish outline. These blunt odontodes are yellowish tan, whereas the acute odontodes are translucent.

Three coalescing rows of more prominent odontodes are present on the posterior edge of the lateral scutes. Those elsewhere on the body, head, and fins (except for a few along the outer edge of the marginal head scute anteroventral to the operculum) are weaker. The lower row commences with the first lateral scute and continues onto and

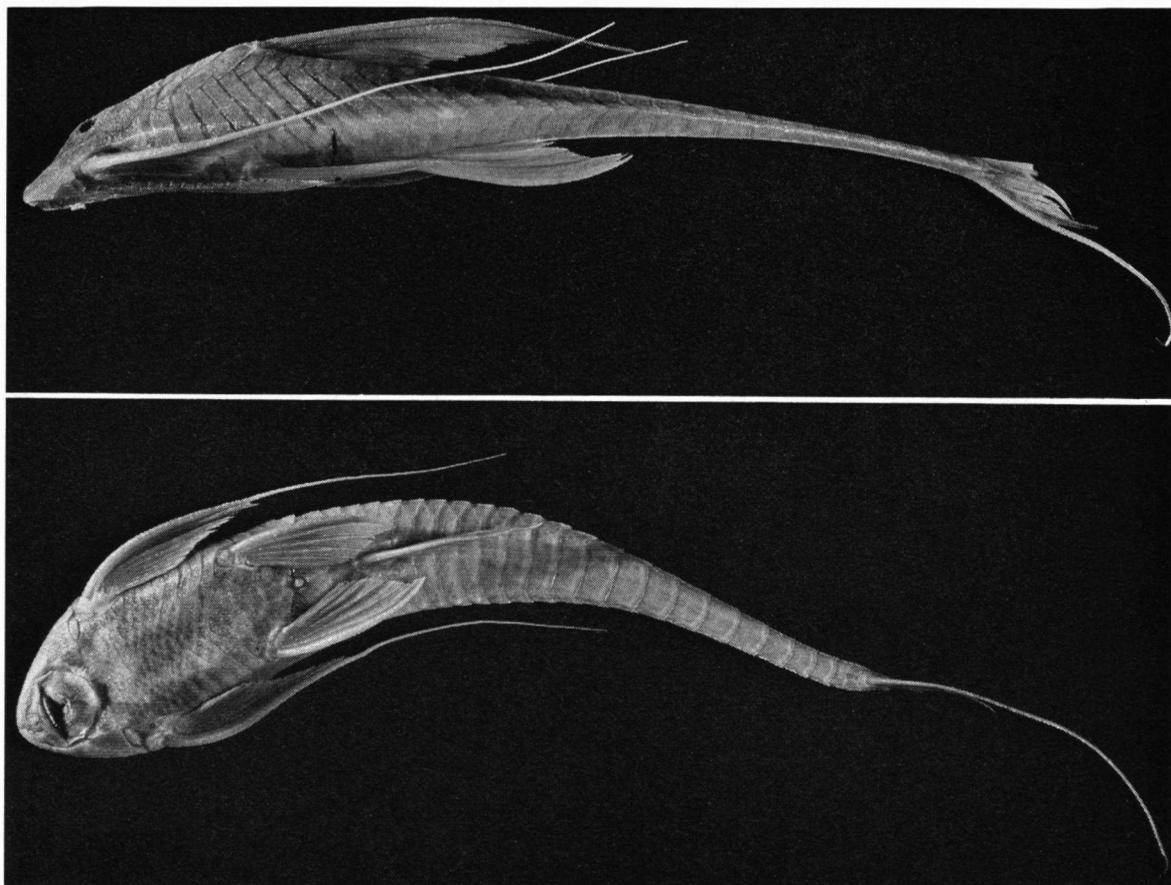


Fig. 3. *Lamontichthys filamentosus* (La Monte, 1935), paratype in lateral and ventral view.

includes the middle triangular scute on the caudal fin base. The middle row commences with the sixth lateral scute at a level with a line from the middle of the eye. The upper row commences with the eleventh lateral scute, somewhat dorsal to the middle row. The three rows meet on the scute anterior to the last coalescing scute, run as two rows on the two last coalescing scutes, and continue as a single row posteriorly.

There are no odontodes in a narrow area along dorsal and anal fin bases, on the scutes posterior to the base of the last pelvic fin ray, and on the "unpaired" mediodorsal and medioventral scutes, except for those occurring just along the posterior edge of each scute.

There are no orbital notches, the orbital rim being almost round. The holotype of *Harttia filamentissima* has an aberrant left orbital rim (fig. 5), being rather triangular in shape; its

greatest diameter is 3.2 mm. Part of the left eye seems to be covered with regenerated skin.

A minute pectoral pore is present just below the ventroposterior tip of the cleithrum. No pores are visible on the dorsum of the head. There are only a few, weakly developed pores (some of them at the distal parts of a bifurcate canal) situated on the lateral scutes, at the level of the middle row of odontodes, posterior to the small naked area.

Ventral side of upper lip narrow, covered with numerous small, low papillae. Dorsum of upper lip broad, reaching to tip of snout. This surface is covered with numerous small, roundish and rhomboidal scutelets, which are rugose because of the presence of close-set odontodes. Lower lip semicircular in shape, its ventral surface almost completely covered with small, low papillae, developed into minute fringe-like marginal extensions, like those on the upper lip. Rictal barbels

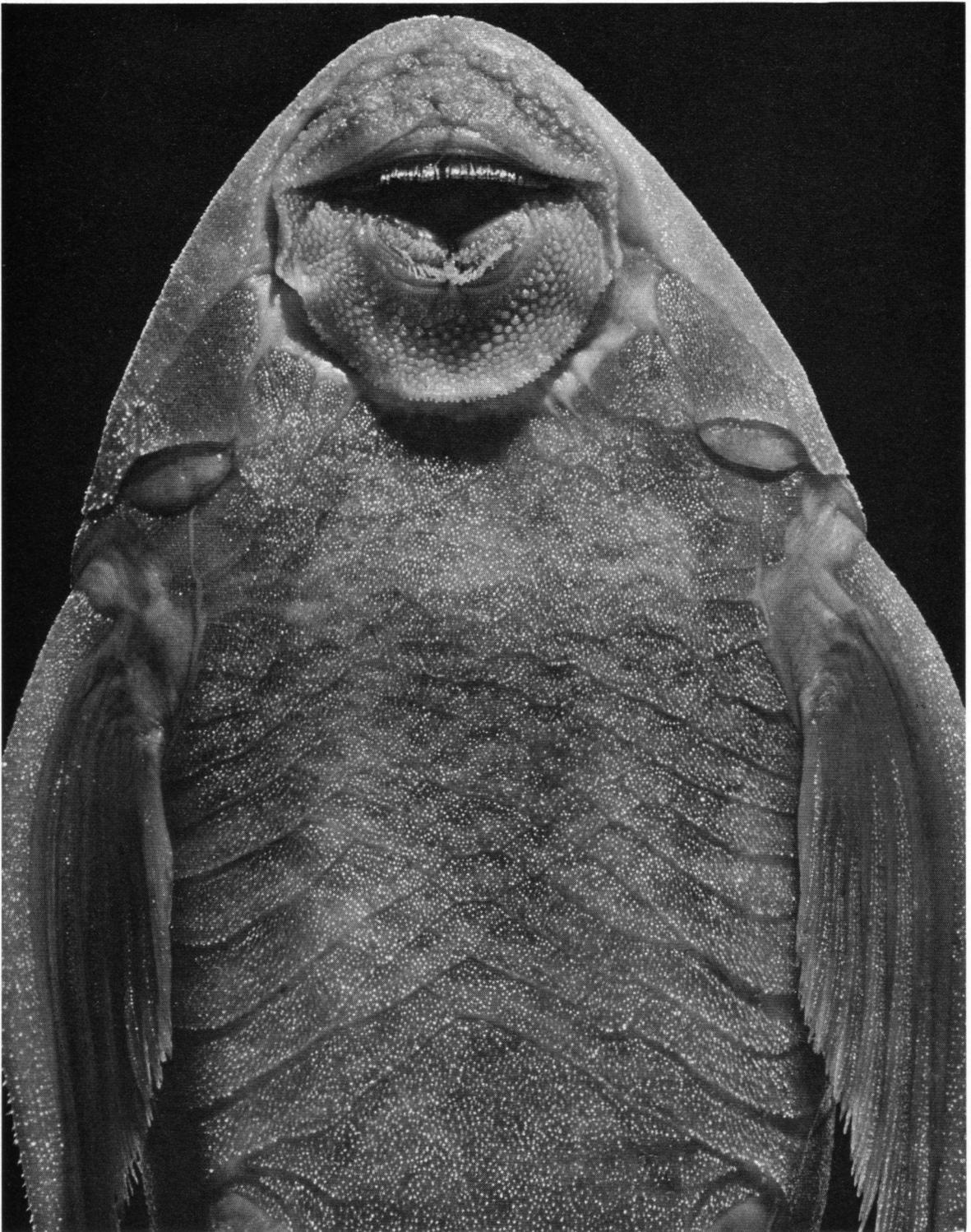


Fig. 4. *Lamontichtys filamentosus* (La Monte, 1935), detail of paratype, anterior part in ventral view.

extremely short and small, visible as a smooth narrow line.

Buccal cavity almost smooth, except for a small triangular flap of skin lying medial to the inner side of each upper jaw, and for the presence of rather inconspicuous papillae on the gums beyond the tooth bases. These papillae cover the narrow fleshy lamellae present in the jaws. Replacement teeth gradually arise from between these lamellae,

until they have reached their functional position.

The teeth are long and slender, with a bifurcated lobate tip (fig. 10a-c). They are very numerous, irregularly arranged into two (crowded) rows and difficult to count exactly. The dentition is similar to that found in all Harttiini, except for *Metaloricaria paucidens* Isbrücker, 1975 and *Metaloricaria nijsseni* (Boeseman, 1976) (see Isbrücker & Nijssen, 1978: 178). Like most species

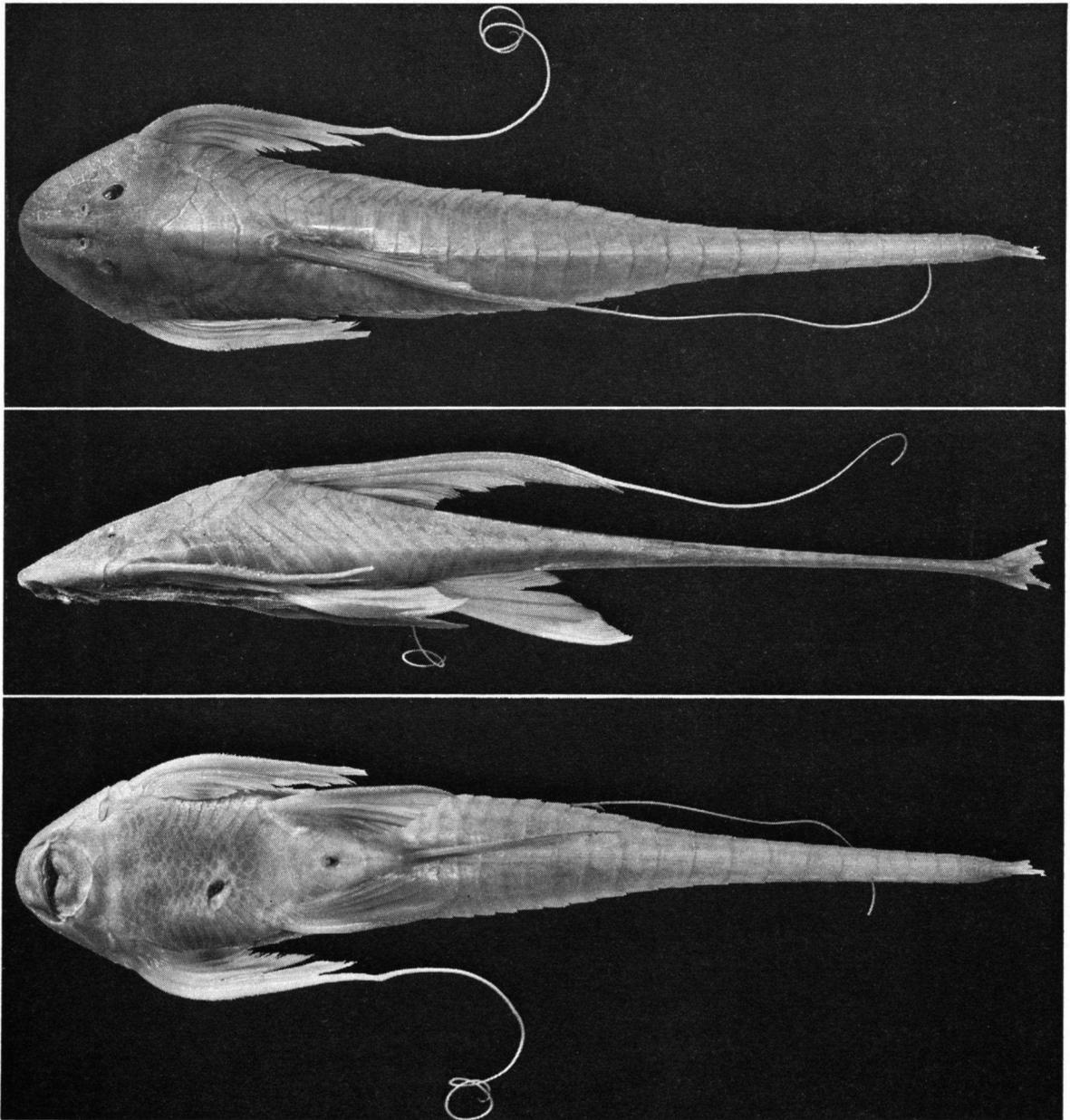


Fig. 5. *Lamontichthys filamentosus* (La Monte, 1935), holotype of *Harttia filamentissima* C. H. Eigenmann & Allen, 1942, in dorsal, lateral and ventral view.

of the Loricariidae, all Harttiini except for the two species just mentioned, possess a peculiar kind of rasping dentition.

Tip of supraoccipital process acute. Dorsum of eye with a narrow flap of skin with pale pigment. Pupil partly covered dorsally with a small rounded flap originating from the iris.

*Lamontichthys filamentosus* is unique among the Loricariinae for having its pectoral and dorsal fin spines with excessively filamentous extensions (*Pterosturisoma microps* agrees in having similar pectoral, but no dorsal filaments), just like the upper and lower caudal fin spines (which is a condition found in several species of the subfamily Loricariinae). According to La Monte (1935: 5): "The dorsal filament [of the holotype] reaches to beyond the base of the caudal; the pectoral filament reaches half the length of the longest anal ray beyond the anal; the caudal filaments, on both lobes, are four times the length of the longest caudal rays [which are now broken off shortly from the base]." C. H. Eigenmann & Allen (1942: 211) state for the holotype of *Harttia filamentissima*: "Fins all large, the dorsal, the pectorals, and caudal lobes with the first ray [which we call 'spine', although none are spiny] greatly prolonged; the dorsal filament 182 mm long, longer than the fish exclusive of the caudal lobes; lower caudal lobe with its filament 192 mm, the upper filament broken; the pectoral filaments reaching the antepenultimate scute; ventrals reaching a little beyond the base of the anal . . ." Like the filamentous extensions of the fins of other species of the subfamily, those in *Lamontichthys filamentosus* are very fragile and break off easily, a factor which accounts for the high variability of this character shown in tables presenting the morphometric data.

The subsidiary branches of the fin rays all stem from one side of the main (anterior) branch, except where the subsidiary branches are very long and only a single dichotomous branching occurs distally. As an example, we may record that the second dorsal fin ray in the paratype of *Lamontichthys filamentosus* has ten subsidiary branches.

Sexual dimorphism. — Nuptial males gradually develop "bristles" (consisting of large, protuberant

odontodes) on part of the dorsum of the pectoral fin spine. The largest specimen available (USNM 167913, sl 167.3 mm) is a male with fully developed "bristles" and the following notes are based on this specimen (fig. 7). The length from the ventroanterior base of the pectoral fin spine to the tip of the first branched ray is 37.3 mm. The anterior odontodes occur at 13.8 mm from the ventroanterior base. The entire denticulate area is 19.2 mm long, whereas the distal end of the spine is naked at a distance of 5.9 mm from the tip of the first branched ray. The bristled area is covered with a layer of thick, slimy tissue forming a rather long shaft enclosing the base of the odontodes. The long odontodes (about 3.3 mm long) look like translucent needles with the tip bending slightly towards the head. The tip of these odontodes is light yellowish in colour.

The holotype of *Harttia filamentissima* is a male having short (not completely developed) "nuptial bristles" on the pectoral fin spine, covering an area 14 mm long and commencing at about 13 mm from the base. The surface of the area covered with these bristles is somewhat thicker than the surrounding area. The longest (middle) bristles are about 0.6 mm long and are already somewhat curved towards the head.

Colour in alcohol. — La Monte (1935: 5-6) described the colour pattern of the holotype as follows: "Color in preservative light pinkish-brown on body; yellowish on head. There is a slightly curved, darker band about two orbits wide running from just below the posterior border of eye forward to below the rim of the snout. A round dark spot about an orbit in diameter lies in the center of the occipital process. A dorsal stripe begins behind the dorsal base and runs down the dorsal series of scutes; this is made up of a dark spot in the center of each [altogether 11] pinkish plate-scute; a median longitudinal stripe begins in the middle of the body about under the dorsal origin and runs down below the posterior base of the dorsal to the marginal scutes, and thence to the caudal base. The spine, filament, and first two and a half dorsal rays and their membranes are blackish. Pectoral spine and filament are unmarked, light, but there are dots or blotches on the upper half of

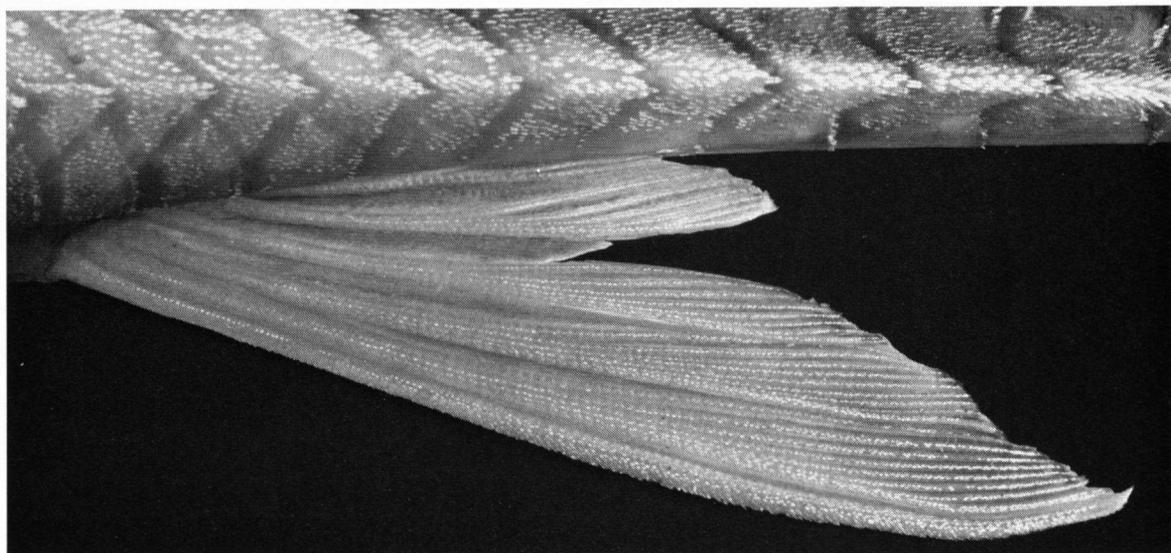


Fig. 6. *Lamontichthys filamentosus* (La Monte, 1935), detail of holotype of *Harttia filamentissima* C. H. Eigenmann & Allen, 1942, showing anal fin, branching of the rays.

the fin. The first branched anal ray is black. Caudal has one and a half rays next the outer black on both lobes."

The Bolivian specimens differ from all others in colour pattern (which generally is not quite well preserved) notably in having the dorsal fin spine and two to three adjacent rays and membrane mottled with small, light tan blotches and faint greyish brown pigment.

C. H. Eigenmann & Allen (1942: 211) describe their holotype having a "uniform sand colour", whereas they note for the paratype "a dusky stripe along the middle of the back, behind the dorsal, and a dusky stripe along the sides; similarly colored stripes on the dorsal, and within the outer rays of the caudal . . .". The holotype of *Harttia filamentissima* now has a greyish tan ground colour with the unossified parts whitish. There is a very faint greyish pigment on the dorsum of the pectoral fin rays and on the first two dorsal fin rays. The caudal fin is almost completely broken off. The paratype of *Harttia filamentissima* has a yellowish ground colour, and no pigmentation is visible.

The largest specimen from Ecuador has a darker tan ground colour, as compared to the other material. Faint, ill-defined, slightly darker brownish pigment occurs on the dorsal fin base, extending ventrally and covering coalescing scutes. The pig-

ment extends to along the dorsal snout margin below, and in front of the orbital rims and nostrils.

Dorsal fin spine and rays, including membrane are pigmented with an even greyish brown, except for a rather large, roundish area from base of fourth to base of last ray, and except for an unpigmented margin commencing at and running down from the ventral half of the second ray.

Caudal fin base dark. Upper and lower three rays with dark brown pigment forming a somewhat ill-defined longitudinal stripe.

Dorsum of paired fins pigmented with even brown, which is darker in the pectoral than in the pelvic fins.

Anal fin with a large, roundish, unpigmented basal area. The remainder of the fin, except for the spine, outer part of the first ray and distal ends of second to last ray, pigmented with greyish brown.

The juvenile in USNM 167913 (Ecuador) differs from the specimen just described in having the dorsal fin spine, two adjacent rays and membrane pigmented with dark brown, the remainder of the fin being unpigmented. The specimen in USNM 177215 has light brownish pigment on its dorsal fin. Anal fin with a light brownish pigmentation forming a longitudinal streak on the first and second branched rays. Dorsum of branched rays and membrane of pectoral and

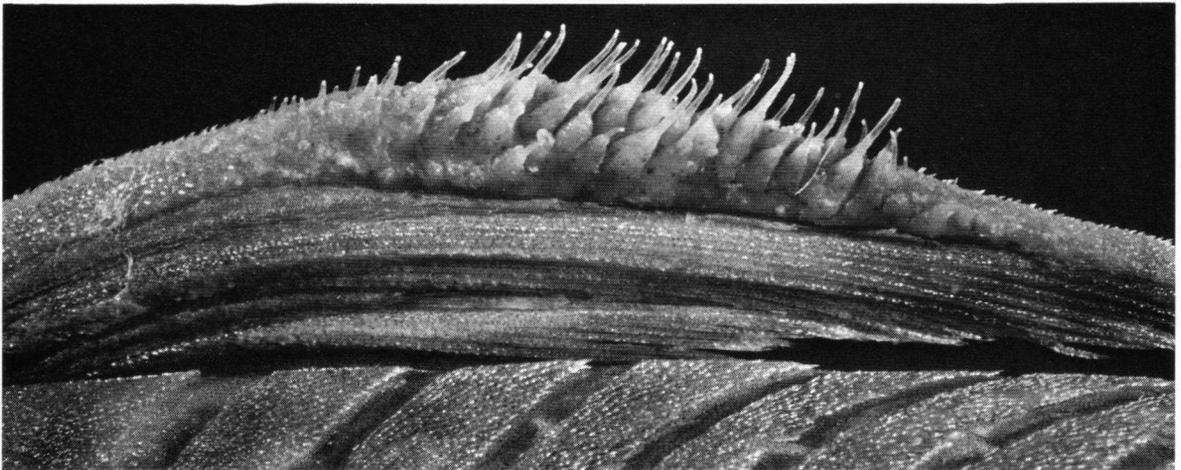


Fig. 7. *Lamontichthys filamentosus* (La Monte, 1935), detail of dorsum of pectoral fin spine, showing sexual dimorphism of the male in USNM 167913, sl 167.3 mm.

pelvic fins with light brownish pigment on posterior half except distal one-fifths of the length.

Epizoid invertebrate associates. — In the six male specimens from Bolivia (ZSM 23876, ZMA 111.205), the dorsum of each pectoral fin is occupied by one to four larval and pupal stages of a chironomid, possibly *Ichthyocladius neotropicus* Fittkau, 1974 (Diptera, Chironomidae, Orthocla-diinae). The larvae dwell on the branched rays, whereas the pupae are attached to the base of a needle-like odontode occurring only on the pectoral fin spine, their small, brown cocoon spun close to, or touching, the slimy shaft. If our tentative identification proves to be correct, it is the first record of the presence of *Ichthyocladius* on a representative of the subfamily Loricariinae. Previously, this insect was known only from Ancistrinae and Hypostominae (other subfamilies of the Loricariidae), and from Astroblepidae (Freihofer & Neil, 1967; Fittkau, 1974). Both the places of attachment to the host, and the geographical distribution (circum-Amazonian) agree with those described by these authors.

Discussion. — In addition to the two specimens described below as *Lamontichthys stibaros*, we assign the thirteen other known specimens of *Lamontichthys* (all originating from localities within the Rio Amazonas system) to *Lamontichthys filamentosus*. We have examined two specimens from Brazil (holotype and paratype of the

species), six from Bolivia, two from Peru (holotype and paratype of *Harttia filamentissima*, collected in different localities), and three specimens from Ecuador (fig. 14). As can be seen from both the above description and from the tabulated morphometric and meristic data, there is a great variability in several characters. With the small number of specimens from each of these few localities in mind, and considering the lack of material from connecting areas, it is impossible to interpret the significance of the various differences. Only when more samples will become available, a better judgement might be possible, as to whether our material consists of a single, phenotypically variable species, or represents a polytypic species. In our opinion, the differences seem too small to recognize the various samples as distinct species. If one regards *Harttia filamentissima* as specifically or subspecifically distinct from *Lamontichthys filamentosus*, then the Bolivian specimens likewise should be regarded as a separate species or subspecies.

#### *Lamontichthys stibaros* new species

(Figs. 8-9, 10d, 14; tables Ic, III-j, IIIb)

Specimens examined. —

#### Ecuador:

USNM 167914 (holotype), sl 242 mm, USNM 217423 (paratype), sl 213.3 mm, Prov. Pastaza, Río Amazonas system, Río Bobonaza at Chicherota, 02°25'S 76°38'W, altitude approximately 260-280 m, upper Río Pastaza, coll. R. Olalla, 1-1954.

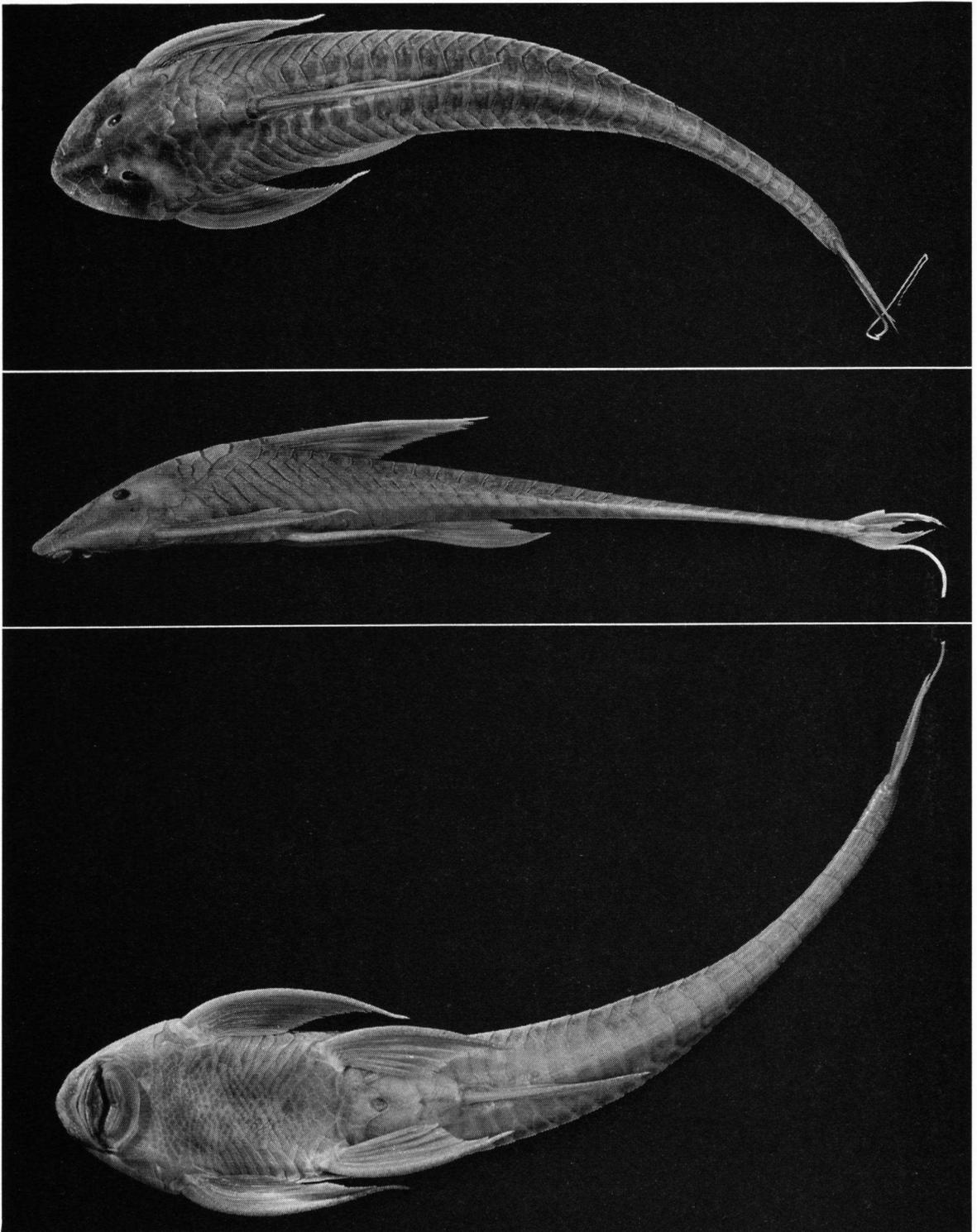


Fig. 8. *Lamontichthys stibaros* n. sp., holotype in dorsal, lateral, and ventral view.

## Description. —

Morphometric and meristic data are given in tables Ic, III-j, and IIIb, and are not repeated here. General shape of body, head, and fins are illustrated in fig. 8.

The holotype and paratype of this species have standard lengths of 242.0 and 213.3 mm, respectively (table II), thus are 74.7 and 46 mm longer than the largest known specimen of *Lamontichthys filamentosus*. The structure and distribution of the scutes are essentially similar in both species. However, *Lamontichthys stibaros* shows more conspicuous fusion lines on some of the more prominent scutes (viz., anterior to the two unpaired predorsal scutes, just anterior to anus, and between anus and unpaired preanal scute).

*Lamontichthys stibaros* has the lower lip in a somewhat (transversely) semi-oval, rather than in a semicircular shape.

Fortunately, the tips of dorsal and pectoral fins are undamaged in the two specimens, showing definitely no filamentous extensions as in *Lamontichthys filamentosus* (although the tips reach somewhat further than the adjacent ray, as usual in Loricariinae). Thus, the figures representing ratios standard length divided by dorsal spine length (and by length of first dorsal ray), and by pectoral spine length (tables II and III) indicate that these are much shorter than the same in *Lamontichthys filamentosus* (in which species the tips are often damaged, thus obscuring the extent of this difference).

Upper and lower caudal fin spines are probably filamentous. Only the lower caudal fin spine of the holotype bears a (damaged) filament. On unpacking the two specimens, two pieces of caudal filament, 61.2 and 153.2 mm long, were found. It is impossible to say whether these fragments are from a single filament, from a single specimen, or from either the upper or the lower caudal fin lobe.

In *Lamontichthys stibaros* the interorbital is narrower than that in adult *Lamontichthys filamentosus*; some Loricariinae are known to have an interorbital increasing in width with age, and therefore, the narrow interorbital of *Lamontichthys stibaros* is another indication of specific distinction. *Lamontichthys stibaros* has 19 to 21 coalescing scutes against 14 to 18 in *Lamontichthys filamen-*

*tosus*. The former species has 34 lateral scutes, a condition found also in one specimen of the latter species, which otherwise has 32 or 33 lateral scutes.

Secondary sexual dimorphism is not visible in the two specimens.

Colour in alcohol. — Ground colour of ossified parts (including fins) medium greyish tan dorsally, yellowish tan ventrally; unossified parts whitish.

Mediodorsal “unpaired” scutes posterior to base of last dorsal fin ray with a double series of rather inconspicuous, small, dark brown patches, one at either side of the midline near the free margin of 14 subsequent scutes. These markings consist of a very short line or triangle.

Fins almost completely plain, except for some indefinite brown pigment on dorsum of pectoral fin membrane between first and third ray.

The paratype has a dark brown, short line on the tip of the first dorsal fin ray, doubtless an artificial stain (both specimens are in a perfect state of preservation).

Etymology. — The trivial name is derived from the Greek *στειβαρός* meaning strong, sturdy. It is an allusion to the more robust appearance of this species when compared to *Lamontichthys filamentosus*.

Discussion. — Ovchynnyk (1968: 258), in his list of the freshwater fishes of Ecuador, records two nominal species: *Harttia filamentissima* and *Lamontichthys filamentosus*. We list both as references to a single species, under *Lamontichthys filamentosus*. We have re-examined Ovchynnyk's specimen of *Harttia filamentissima* (as well as two specimens collected at the same time and in the same locality, which bear also the same identification), and found them to represent *Lamontichthys filamentosus*. We have not encountered specimens identified as *Lamontichthys filamentosus*, indicated by Ovchynnyk as from “Eastern Ecuador, upper Amazon basin (Dr. G. Orces' information)”, but it is possible that this record pertains to *Lamontichthys stibaros*. The specimens we describe as *Lamontichthys stibaros* were previously identified (on label) simply as *Harttia* (the person responsible for this identification is not stated).



Fig. 9. *Lamontichthys stibaros* n. sp., detail of holotype, anterior part in ventral view.

That is why we have not indicated *Lamontichthys filamentosus* sensu Ovchynnyk as a likely previous record of the second Ecuadorian species of *Lamontichthys*.

The differences between *Lamontichthys filamentosus* and *Lamontichthys stibaros* in the relative dimensions of the maximal orbital diameter and cleithral width, and in the number of teeth, may indicate additional specific distinctions. They may also be either a function of size, or simply indicate individual variation. *Lamontichthys stibaros* was found to be sympatric with *Lamontichthys filamentosus*.

#### **Pterosturisoma** new genus

Type-species: *Pterosturisoma microps* (C. H. Eigenmann & Allen, 1942) = *Harttia microps* C. H. Eigenmann & Allen, 1942.

Diagnosis. — *Pterosturisoma* resembles *Lamontichthys* in general body and head shape, and

shares the peculiar filamentous extensions of the pectoral fin spine with *Lamontichthys filamentosus*. However, *Pterosturisoma* has six branched pectoral fin rays (seven in *Lamontichthys*), as in all other genera of Harttiini. *Pterosturisoma* has the dorsal fin with I,6 rays, last one split to its base; anal fin with I,4 rays, last one split to its base; pectoral fin with I,6 rays; pelvic fin with I,5 rays; and caudal fin with I,12,I rays (the paratype in CAS 28544, sl 156.5 mm, is aberrant in having the caudal fin with I,13,I rays).

Pores of the lateral line well-developed. Dorsum of cleithrum narrow. Median predorsal scutes with a horizontal flattening.

Etymology. — *Pterosturisoma* is derived from the Greek πτερόν, meaning feather, wing, and from *Sturisoma*, the earliest established genus of Harttiini, and alludes to the large fins of its only known species.

Discussion. — Together with the proposal of his subfamily Harttiinae, Boeseman (1971: 9) presented an almost complete enumeration of the nominal species he assigned to four of the five genera (the exception being *Farlowella*) he included in that taxon. Two species are referred to *Harttiella*, six to *Harttia*, nine to *Parasturisoma*, and thirteen to *Sturisoma*. Unfortunately, the value of Boeseman's attempts towards improvement of the classification of these fishes is greatly diminished by his reliance on previously published data instead of direct examination of specimens.

As stated above, we consider the type-species of the genus *Parasturisoma* as a representative of *Sturisoma*, thus the former becomes a subjective junior synonym of the latter.

In the present paper we have adopted *Lamontichthys* as the valid generic name for two species (one being treated as a junior synonym of the other) included in *Parasturisoma* by Boeseman, and we establish a new genus for another species referred to *Parasturisoma* by Boeseman. This action means that five other species assigned to *Parasturisoma* by Boeseman must be generically re-allocated. Isbrücker (1975: 9, fig. 4h), without comment,

transferred *Parasturisoma maculata* Boeseman, 1971, to *Harttia*. After examination of the type-specimens of species described originally as (1) *Loricaria platystoma* Günther, 1868, (2) *Oxyloricaria fowleri* Pellegrin, 1908, and (3) *Parasturisoma maculata* Boeseman, 1971, we conclude that these are congeneric. Boeseman (loc. cit.) also examined these specimens, but refers *O. fowleri* to *Harttia*, and the two other species to *Parasturisoma*.

The species of the tribe Harttiini not treated here, are presently subject of a revision in preparation by the first author. In the present paper we assign *Loricaria platystoma*, *Oxyloricaria fowleri*, and *Parasturisoma maculata* to *Harttia*. We also provisionally retain within *Sturisoma* the remaining three species that Boeseman assigned to the genus *Parasturisoma* (three species originally placed in the genus *Oxyloricaria*): *Sturisoma tamanae* (Regan, 1912), *Sturisoma leightoni* (Regan, 1912), and *Sturisoma citurense* (Meek & Hildebrand, 1913).

Boeseman inadvertently demonstrates his difficulty in separating *Parasturisoma* from *Harttia*, for one of the paratypes of *Harttia surinamensis*

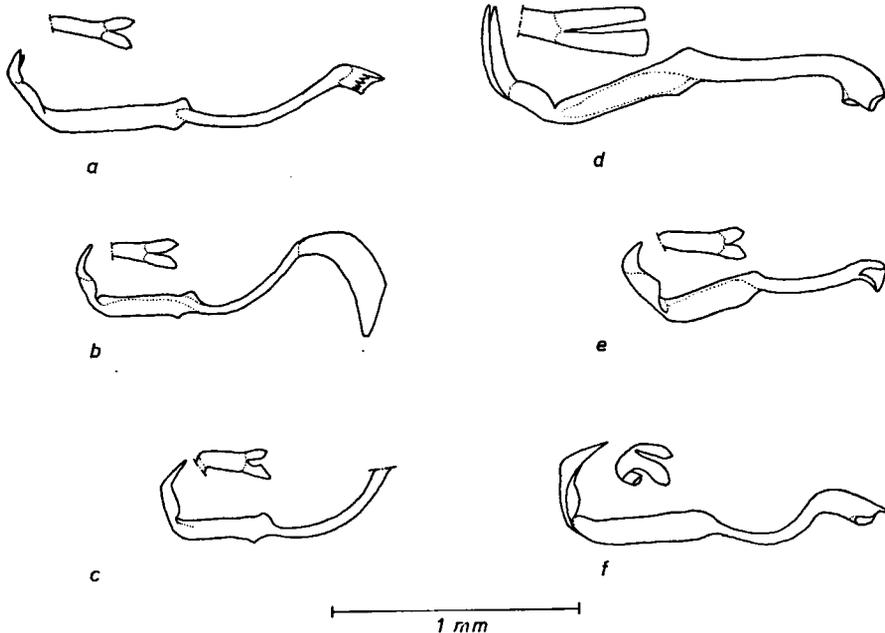


Fig. 10. Profiles of a tooth from the right lower jaw of a) *Lamontichthys filamentosus*, paratype; b) *Lamontichthys filamentosus*, holotype of *Harttia filamentissima*; c) *Lamontichthys filamentosus*, USNM 177215; d) *Lamontichthys stibaros*, paratype; e) *Pterosturisoma microps*, lectotype; f) *Sturisoma brevirostre*, holotype.

Boeseman, 1971 (ZMA 110.726, not 101.726 as published), actually represents *Harttia maculata* (Boeseman, 1971). The specimen was collected together with 14 conspecifics designated as paratypes of *Harttia maculata* from Kamaloea or Samaloea Creek (ZMA 106.522) and was separated with an inside label in Boeseman's hand: "*Harttia surinamensis* n. sp. (exceptionally pointed snout)." It has a lateral depression about the anterior part of the caudal peduncle, slightly more pronounced than is usual for *Harttia maculata*, and it seems that this misled Boeseman while identifying it (see fig. 1 in Boeseman, 1971).

**Pterosturisoma microps** (C. H. Eigenmann & Allen, 1942)

(Figs. 10e, 11, 14; tables Id-e, Ilk-m, IIIc)

*Harttia microps* C. H. Eigenmann & Allen, 1942: 211-212, pl. VIII figs. 3-4, pl. IX fig. 1 (original description; type-locality: Peru, "Iquitos"; also listed on p. 44, Lower Marañon); Fowler, 1945b: 109 (listed; Perú, Iquitos); Gosline, 1945: 108 (listed; Iquitos); Fowler, 1954: 89 (references; Alto Amazonas, Peru); Tovar Serpa, 1967: 222 (listed twice, after Fowler, 1945b).

*Parasturisoma microps*; Boeseman, 1971: 9, table 1 (listed; morphometric characters).

Specimens examined. —

Peru:

CAS 28543 ("type"/lectotype, by present designation; ex IU 15380), sl 161 mm, CAS 28544 (one "type"/paralectotype, and one paratype, both ex IU 15380), sl 141 and 156.5 mm, respectively, Prov. Loreto, Iquitos, 03°51' S 73°13' W, left bank of Rio Amazonas, about 2300 miles from its mouth, and less than 100 miles from the Brazilian border, coll. W. R. Allen, IX-1920.

Description. —

Morphometric and meristic data are given in tables Id-e, Ilk-m, and IIIc, and are not repeated here. General shape of body, head, and fins are illustrated in fig. 11.

Considering the great resemblance with *Lamontichthys filamentosus*, only those characters in which *Pterosturisoma microps* differs from that species are given in the following description.

— Mediodorsal scutes. Supraoccipital process and dorsoposterior rim of posttemporal are fused with an obliquely arranged row of three small anterior mediodorsal scutes, followed by three unpaired predorsal scutes, increasing somewhat in size posteriorly. The second of these scutes is connected with an oblong scute, obliquely running forward

and reaching the pores of the lateral line, whereas the third scute is likewise fused with two of such oblong scutes (more strongly with the posterior than with the anterior of these two). Five scutes posterior to this entire complex reach the dorsal fin base, a subsequent scute enclosing this base. These six scutes touch the dorsal fin base and gradually increase in width posteriorly, to continue as (medianly strongly fused) dorsal scutes like those in *Lamontichthys*.

— Lateral scutes. Much like those in *Lamontichthys*, except for the presence of more well-developed lateral line pores; somewhat more clearly visible fusion lines indicate a dorsal and a ventral section, and a faint curve on the first to twelfth scute is present just dorsal to the lateral line pores (counting the one posterior to the cleithrum as the first).

— Abdominal scutes. Essentially the same as in *Lamontichthys*, except for being slightly larger (and therefore somewhat less numerous).

Odontodes are present on all dermal ossifications, fin spines and rays, and occupying the entire dorsal and ventral part of the body. The odontodes are rather inconspicuous, giving a smooth appearance to the entire surface. There are two rows of slightly more conspicuous odontodes, viz., on the area where the lateral scutes bend dorsally, a row continues onto the last coalescing scute, and a second row marks the ventral side of the coalescing scutes; both rows continue on the parallel lateral scutes to reach the caudal fin base.

Orbital rim circular.

A minute pectoral pore is present. Pores of the lateral line are relatively well-developed and consist of bifurcate tubes on the coalescing scutes which continue as quite inconspicuous pores along the parallel lateral scutes, just posterior to the more prominent odontodes.

The morphology of the lips and rictal barbels, as well as of the buccal cavity is similar to that in *Lamontichthys filamentosus*.

Teeth essentially the same as in *Lamontichthys* (fig. 10e), but arranged in a single row, and relatively fewer in number than in that genus.

Tip of supraoccipital process moderately acute, or blunt. Eye very small, in our material withdrawn below orbital rim.

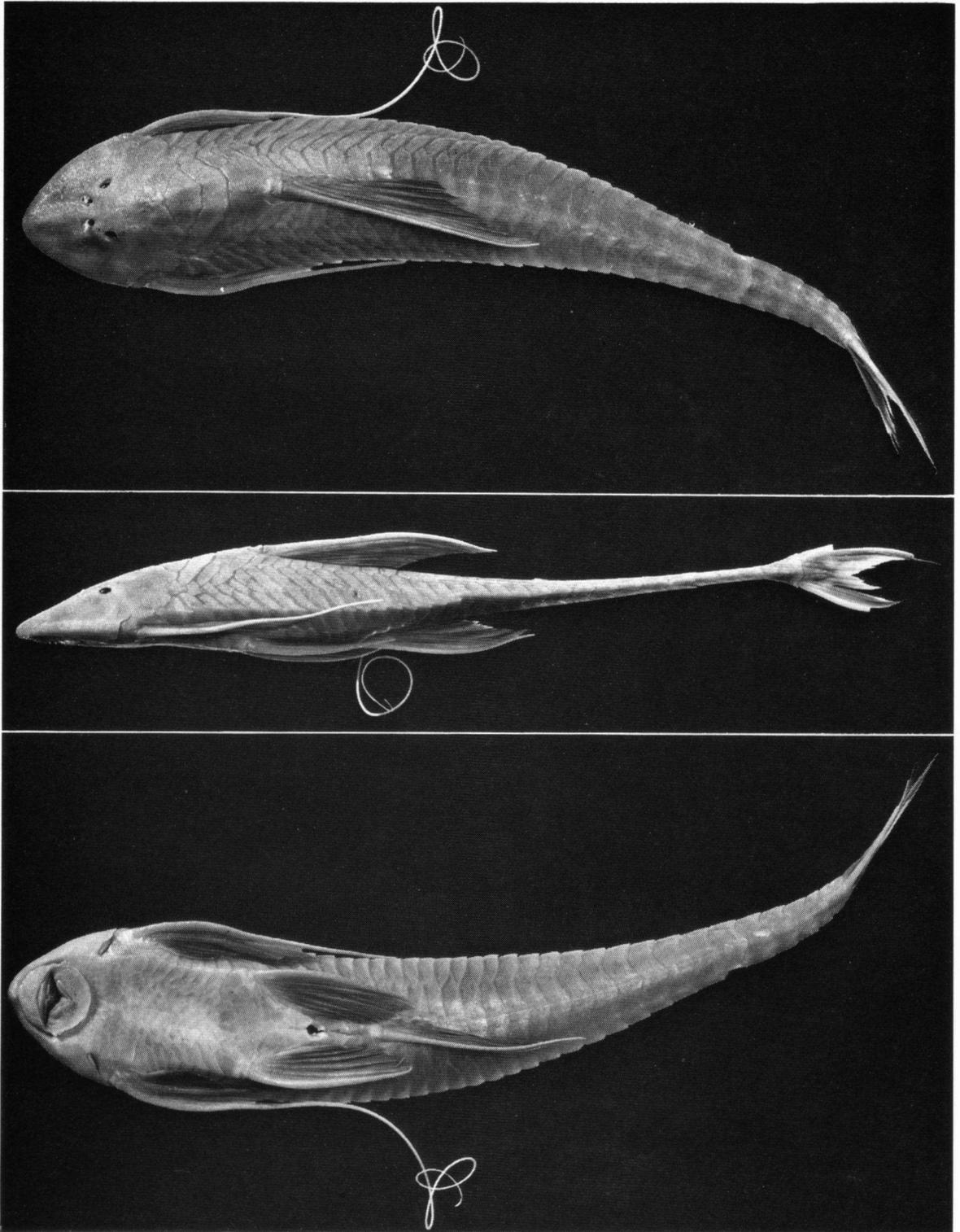


Fig. 11. *Pterosturisoma microps* (C. H. Eigenmann & Allen, 1942), lectotype in dorsal, lateral, and ventral view.

Pectoral fin spine with an excessively long, filamentous extension. Dorsal fin spine hardly longer than adjacent ray, not filamentous. C. H. Eigenmann & Allen (1942: 212) describe the outer caudal rays (= spines) as prolonged, "... the upper much longer (310 mm) than the lower (85 mm) in the specimen 150 mm long..." (sl 141 mm, as we measured this specimen).

Branching of fin rays as described above for *Lamontichthys filamentosus*.

Secondary sexually dimorphic characters are not visible in the type-specimens.

Colour in alcohol. — C. H. Eigenmann & Allen (1942: 212) describe the colour as: "Dusky; outer rays and ends of middle caudal rays light, the lobes of the caudal black; a pair of light spots at the bases continuous or not with the light margin of the middle rays; other fins uniform dark, the outer rays lighter." Now, the ground colour of body and head is evenly light brown, except for a pale yellowish brown ventral part of the body anterior to the anal fin origin. Dorsal, anal, pectoral, and pelvic fins are evenly coloured (except for the dorsal fin in some specimens) and somewhat darker brown than body and head; spine of each fin somewhat lighter than remainder of the fin.

Triangular scutes on caudal fin base and surrounding fin rays and membrane are darker brown than body and head. The two upper and lower branched caudal fin rays have a long, dark brown streak, separated from the pigmented area on and around the caudal scutelets by unpigmented, whitish pale areas. Some dark brown pigment connecting the dorsal and ventral streaks on the caudal fin is occasionally present.

Discussion. — C. H. Eigenmann & Allen (1942: 211) state: "[IU] 15380, 5, type and paratypes, 150-174 mm to end of middle caudal rays, Iquitos, Allen, September, 1920." The specimen illustrated on their pl. VIII figs. 3 and 4 (photographs) is indicated as: "*Harttia microps* Eigenmann & Allen, sp. nov. 15380, type, 150 mm,..." This specimen, however, is 161 mm in sl and 173 mm to end of middle caudal fin rays. The specimen of 141 mm sl (152 mm to end of middle caudal fin rays) bears the indication "figured" on a label, and

apparently is the one illustrated on pl. IX (a drawing) in C. H. Eigenmann & Allen (also this specimen is indicated, now more correctly, to be 150 mm to end of middle caudal fin rays), although the illustration is not individually recognizable as are the photographs. No doubt, Allen overlooked that he used two specimens for illustration, presenting both of them as "type" (= holotype, since he distinguished also paratypes). An incorrect length is given for one of the specimens and a single register number, which includes the paratypes. Subsequently, the specimen bearing the indication "figured" (i.e., the smaller one) was recatalogued as the holotype in CAS, but we think it more appropriate to regard that specimen which is individually recognizable (left pectoral fin filament partly broken, shape of cut in belly) as the primary type.

Two paratypes could neither be located in CAS, nor in FMNH. Miss P. Sonoda (in litt., 12-XII-1977) informed us: "I guess we'll have to say they are lost."

Recognition of *Pterosturisoma microps* as a species of the genus *Harttia* unavoidably raises the question whether *Harttia* is different from *Sturisoma*, since *Pterosturisoma microps* shares certain characters with both. In our opinion, *Harttia*, *Pterosturisoma*, and *Sturisoma* represent three distinct though closely related genera. Considering *Harttia* and *Sturisoma* as a single genus would reflect an unnatural classification within the tribe Harttiini, which now consists of the genera *Sturisoma* Swainson, 1838 (syn.: *Oxyloricaria* Bleeker, 1862, and *Parasturisoma* A. de Miranda Ribeiro, 1911), *Lamontichthys* P. de Miranda Ribeiro, 1939, *Pterosturisoma* n. gen., *Harttia* Steindachner, 1876a, *Harttiella* Boeseman, 1971, and *Metaloricaria* Isbrücker, 1975.

#### ***Sturisoma* Swainson, 1838**

*Sturisoma* Swainson, 1838: 337 (proposal of a new generic name; type-species, by monotypy, *Sturisoma rostratum* (Spix, in Spix & Agassiz, 1829) = *Loricaria rostrata* Spix, in Spix & Agassiz, 1829; also discussed on p. 335, 338 & 357); Swainson, 1839: 189 (discussion), 304 (diagnosis). *Oxyloricaria* Bleeker, 1862: 3 (original diagnosis; type-species, by original designation and monotypy, *Oxyloricaria barbata* (Kner, 1854) = *Loricaria barbata* Kner, 1854 [= *Sturisoma barbatum* (Kner, 1854)]). *Parasturisoma* A. de Miranda Ribeiro, 1911: 109 (original

diagnosis; type-species, by original designation and monotypy, *Parasturisoma brevirostris* (C. H. Eigenmann & R. S. Eigenmann, 1889) = *Loricaria (Rineloricaria) brevirostris* C. H. Eigenmann & R. S. Eigenmann, 1889 [= *Sturisoma brevirostre* (C. H. Eigenmann & R. S. Eigenmann, 1889)]).

Discussion. — We include some notes on the genus *Sturisoma* here primarily to emphasize the correct generic assignment of the type-species of *Parasturisoma*. Isbrücker & Nijssen (1974: 68; 1978: 178), after having studied the holotype of the type-species, synonymized this genus with *Sturisoma* without comment. We provide here the references pertaining to *Sturisoma brevirostre*, relevant illustrations, and a description of its holotype and, until now, only known specimen, thus illustrating the characters which distinguish *Sturisoma* from *Lamontichthys* and *Pterosturisoma*.

***Sturisoma brevirostre*** (C. H. Eigenmann & R. S. Eigenmann, 1889)

(Figs. 10f, 12-13, 14; tables If, IIn)

*Loricaria brevirostris* C. H. Eigenmann & R. S. Eigenmann, 1889: 35 (original description; type-locality: "Iça"; in subgenus *Rineloricaria*); C. H. Eigenmann & R. S. Eigenmann, 1890: 367-368 (description of holotype; in key on p. 362, in subgenus *Rineloricaria*); C. H. Eigenmann & R. S. Eigenmann, 1891: 39 (listed; Iça; in subgenus *Rineloricaria*).

*Oxyloricaria brevirostris*; Regan, 1904: 299 (description, after C. H. Eigenmann & R. S. Eigenmann; Iça, Peru; in distributional table on p. 197; in key on p. 297).

*Harttia brevirostris*; C. H. Eigenmann, 1910: 415 (listed; Iça); C. H. Eigenmann & Allen, 1942: 212 (listed; references; "Iça", Peru); Fowler, 1945a: 128 (comparison with *Harttia caquetae*; also named *Loricaria brevirostris* and misspelled as *H. breviorstris*); Fowler, 1945b: 109 (listed; Peru, Iça); Tovar Serpa, 1967: 222 (listed; after Fowler, 1945b).

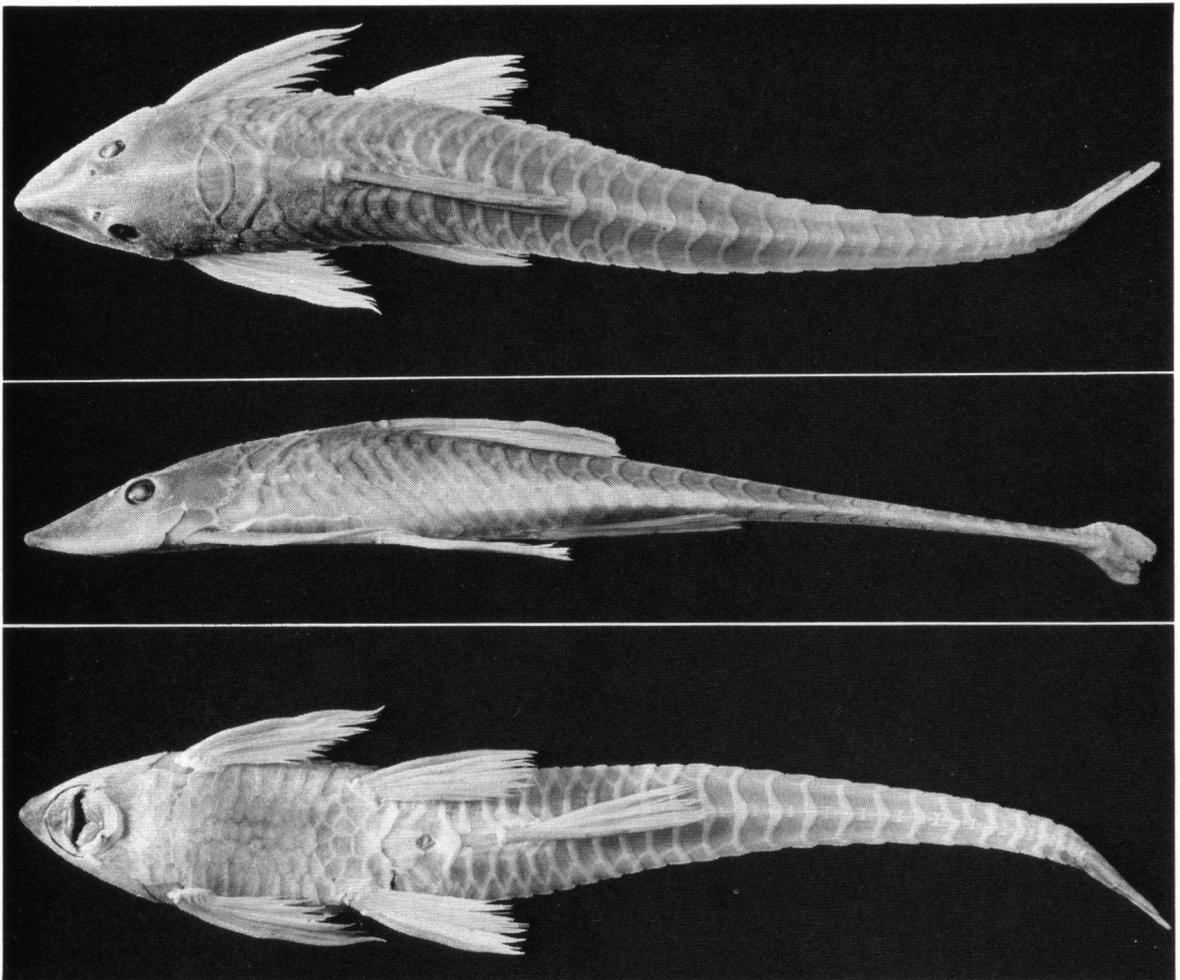


Fig. 12. *Sturisoma brevirostre* (C. H. Eigenmann & R. S. Eigenmann, 1889), holotype in dorsal, lateral, and ventral view.

*Parasturisoma brevirostris*; A. de Miranda Ribeiro, 1911: 109 (type-species of new genus; description, translated from C. H. Eigenmann & R. S. Eigenmann; Içá; references listed on p. 425); Gosline, 1945: 110 (listed; Içá, Peru); Fowler, 1954: 110-111 (references; Alto Amazonas, Peru); Boeseman, 1971: 10, table 1 (note; listed, with a morphometric character; cited on p. 5, as *Loricaria brevirostris*, being type-species of *Parasturisoma*).

Specimen examined. —

**Brazil:**

MCZ 8095 (holotype), sl 207 mm, said to be a male, Est. Amazonas, Rio Amazonas system, Rio Içá, a tributary of Rio Solimões, lower course of Rio Putumayo, coll. W. James [& Mr. Talisman], between 17-IX and 16-X-1865 (Thayer Expedition).

Description. —

Morphometric and meristic data are given in tables If and IIn, and are not repeated here. General shape of body, head, and fins are illustrated in fig. 12.

Mediodorsal scutes anteriorly well fused with posterior and lateral margin of the blunt supra-occipital process, otherwise essentially similar to those in *Pterosturisoma microps*. The lateral scutes resemble those of the latter species as well; however, they do not have a bend dorsal to the lateral line pores as in that species; they are rounded in transverse section. The abdominal scutes and those posterior to the margin of the lower lip (ventral head scutes) are comparable to those in *Lamontichthys* and *Pterosturisoma*, except for being much larger and therefore much less numerous: three to four are present in a transverse series between the thoracic scutes along the base of the pectoral fin spine.

Odontodes are present on all dermal ossifications (including mediodorsal and medioventral scutes posterior to the base of dorsal and anal fin, respectively); they are generally minute and inconspicuous, giving a smooth appearance to the entire surface. A double row of slightly more conspicuous odontodes mark the coalescing scutes, and run parallel along the remaining lateral scutes. The odontodes along the margin of the snout and on the outer edge of the pectoral fin spine are also slightly more prominent than the others.

Orbital rim circular, dorsally slightly raised, without a notch. Pupil covered by a very small, ventrally rounded flap.

Sensory canals present on head and between

coalescing ridges of odontodes, the latter are usually bifurcate. Pectoral pore not observed.

Lips papillose, reminiscent of those in *Lamontichthys* and *Pterosturisoma*, except for the presence of rictal barbels (devoid of papillae) that are relatively longer than in these genera. Lower lip semicircular, the edge, as in the upper lip, nearly smooth. Dorsum of upper lip (anteriorly reaching to posterior edge of ventrorostrum) covered with a close-set mosaic of rugose, rhomboidal and roundish scutelets.

Buccal cavity similar to that in *Lamontichthys* and *Pterosturisoma*.

The dentition of this specimen is rather badly damaged: the number of teeth must originally have been much higher than the number we counted. Shape and size of teeth (fig. 10f) similar to those in *Lamontichthys* and *Pterosturisoma*.

Shape and dimensions of the fins are like those in other species of *Sturisoma*. Tips of dorsal fin spine and some adjacent rays distally broken, but the spine is in living specimens probably without an excessively filamentous extension. C. H. Eigenmann & R. S. Eigenmann (1889: 35; 1890: 368) simply state: "First dorsal ray [= spine in our terminology] longer than the head." Branching of the fin rays (as far as can be observed) identical to that in *Lamontichthys* and *Pterosturisoma*.

Colour in alcohol. — The authors of this species (loc. cit.) describe only: "Rays of the dorsal and caudal faintly spotted, other fins plain." These brownish spots are still visible. However, the original colour pattern has faded considerably: the dorsum of head and body is greyish brown tan.

Discussion. — There is a controversy in the records referring to the type-locality of *Sturisoma brevirostre*. C. H. Eigenmann & R. S. Eigenmann (1889: 35; 1890: 367; 1891: 39) simply stated "Içá" as the type-locality, and "James" or "W. James" as the collector of the holotype. In their work of 1890, they included a map, and a geographical index (: 487-494), in which they refer to "... the pages of Professor and Mrs. Agassiz's 'A Journal in Brazil', where the given locality is discussed." On the map, they indicate the "R. Içá" at a spot well back about the Peruvian/Colombian



Fig. 13. *Sturisoma brevirostre* (C. H. Eigenmann & R. S. Eigenmann, 1889), detail of holotype, anterior part in ventral view.

border, where this part of the river is actually known as the Río Putumayo. On p. 490, Iça is listed, and reference is made to p. 201 in Agassiz & Agassiz, 1868. In their itinerary of the Nathaniel Thayer Expedition, these latter authors discussed (Agassiz & Agassiz, 1868: 201) the intention of "... sending Mr. James and Mr. Talisman to the river Putumayo [a river along the border between Peru and Colombia, lower Río Putumayo flows into upper Río Içá, the latter

being just a continuation of the former, before flowing into the Río Solimões], or Iça, and afterwards to the Hyutahy [= Río Jutái, between Santo Antônio do Içá and Foz do Jutái] ...", continuing (: 208-209): "... [we] dropped Mr. James and Mr. Talisman last evening at San Paulo [= São Paulo de Olivença, 03°34' S 68°55' W], where they are to get a canoe and Indians for their further journey to the Iça." (see also Dick, 1977: 7, and 36, fig. 10). They state on p. 241 (October 17th,

TABLE I

Morphometric data in mm to the nearest tenth, and meristic data of the primary type-specimens of a) *Lamontichthys filamentosus*, holotype; b) *Harttia filamentissima*, holotype; c) *Lamontichthys stibaros*, holotype; d) *Pterosturisoma microps*, lectotype; e) *Sturisoma brevirostre*, holotype; and the same data of e) *Pterosturisoma microps*, paralectotype.

specimen	a	b	c	d	e	f
mature male	-	+	-	-	-	?
standard length	142.0	160.0	242.0	161.0	141.0	207.0
axial length	-	-	258.2	173.0	152.0	-
total length	-	-	>365.0	-	-	-
head length	26.4	26.3	42.6	30.1	26.2	40.1
predorsal length	41.1	43.2	69.5	49.7	44.1	68.0
postdorsal length	89.6	107.1	158.9	96.6	85.2	122.5
postanal length	76.3	91.0	130.9	83.6	73.4	103.8
dorsal spine length	>45.0	>18.8	68.5	49.4	40.5	>44.6
first dorsal ray	>54.4	55.4	61.6	45.2	38.4	>41.6
anal spine length	34.2	36.7	48.0	39.2	34.4	39.5
pectoral spine length	68.9	131.0	59.8	143.0	124.0	41.5
pelvic spine length	29.9	30.0	48.8	30.4	26.0	36.6
upper caudal spine	-	-	-	-	-	-
lower caudal spine	-	-	125.0	-	-	-
snout length	16.3	15.8	26.4	17.7	15.2	22.7
ventrorostral length	-	-	-	-	-	5.1
lower lip	3.8	4.4	5.6	3.5	3.4	3.3
thoracic length	24.6	24.4	37.4	24.4	19.9	35.6
abdominal length	20.2	23.3	38.2	25.1	22.2	31.8
max. orbital diameter	4.4	4.2	5.6	2.7	2.2	6.5
interorbital width	8.8	8.8	12.4	7.4	6.7	12.0
cleithral width	28.0	29.8	43.9	28.0	24.8	29.5
supra-cleithral width	20.7	21.2	31.6	21.4	18.5	24.4
head width	26.5	27.6	42.6	27.1	23.5	28.7
head depth	13.6	14.1	23.2	15.1	13.1	17.2
body depth at dorsal	18.7	20.5	28.6	20.1	16.8	21.0
body width at dorsal	23.2	24.6	36.9	25.8	22.7	27.7
body width at anal	19.4	19.8	29.9	25.0	22.2	24.7
depth caudal peduncle	2.5	2.4	4.0	2.4	2.1	2.8
width caudal peduncle	3.1	4.1	5.8	5.9	5.1	6.9
rectal barbel	-	-	-	-	-	5.1
lateral scutes	33/33	32/32	34/34	35/35	35/35	36/35
coalescing scutes	16/16	16/15	19/20	17/18	18/18	20/21
thoracic scutes	8/8	8/9	9/9	7/8	7/6	7/9
teeth upper jaws	*65/60	*75/75	79/86	*42/50	?/255	>17/19
teeth lower jaws	*65/48	*60/60	82/77	*45/47	-	>12/21

1865): "... Mr. James and Mr. Talisman, returned from their canoe expedition on the rivers Iça and Hyutahy, bringing most valuable collections."

Regan (1904: 299) interpreted the type-locality as "Iça, Peru." In Peru, there is a "Departamento" named Ica, in which the place Ica (14°05' S 75°43' W) is situated along the Río Ica. Another source of confusion is published by C. H. Eigenmann & Allen (1942: 212) when recording the locality as: "«Iça» probably a finca [Spanish for country-seat]." In their ichthyological gazetteer, these authors (1942: 74) describe: "Iça: hacienda [farm], soapworks, and chalet of Senor Layet, 4-5 km from Iquitos, left bank Rio Itaya [locality

at which Allen collected]. Also a locality where collections were made by W. James, not determined."

Both the original and the almost identical subsequent description of the holotype (and still only known specimen) by C. H. Eigenmann & R. S. Eigenmann (1889; 1890), record this specimen being a male. C. H. Eigenmann & R. S. Eigenmann (1889: 35, 1890: 368) describe the "Margin of (the) head with minute, movable bristles.", and in their key (1890: 362, couplet e (keying out to their subgenus *Rineloricaria*) is stated: "Margin of the head in males with numerous bristles, which are very minute in *brevirostre*; . . ." We find it hard to determine the holotype of *Sturisoma brevirostre* as a male on the basis of the developmental stage of enlarged odontodes, or bristles. It is possible that this specimen lost the longer odon-



Fig. 14. Collecting localities of *Lamontichthys filamentosus* (cross), *Lamontichthys stibaros* (open circle), *Pterosturisoma microps* (black spot), and *Sturisoma brevirostre* (triangle). T indicates the type-locality of *Lamontichthys filamentosus*, t that of *Harttia filamentissima*.

TABLE II

Morphometric data (head length through lower caudal spine expressed as ratios of standard length, snout length through rictal barbel expressed as ratios of head length) and meristic data of *Lamontichthys filamentosus* (a-h), *Lamontichthys stibaros* (i-j), *Pterosturisoma microps* (k-m), and *Sturisoma brevirostre* (n). a) holotype; b) paratype; c) six specimens from Bolivia, ZSM 23876, ZMA 111.205; d) holotype of *Harttia filamentissima*; e) paratype of *Harttia filamentissima*; f and h) specimens from Ecuador, USNM 16713; g) specimen from Ecuador, USNM 177215; i) holotype; j) paratype; k) lectotype; l) paralectotype; m) paratype; n) holotype.

specimen(s)	a	b	c	d	e	f	g	h	i	j	k	l	m	n
mature male(s)	-	-	6	+	-	-	-	+	-	-	-	-	-	?
standard length (mm)	142.0	161.0	120.7-133.8	160.0	111.3	71.7	154.0	167.3	242.0	213.3	161.0	141.0	156.5	207.0
axial length (mm)	-	172.9	-	-	119.4	-	-	-	258.2	-	173.0	152.0	170.0	-
total length (mm)	-	226.0	-	-	-	-	-	-	>365.0	-	-	-	-	-
head length	5.4	5.7	5.0-5.4	6.1	5.5	5.3	6.1	5.9	5.7	5.9	5.3	5.4	5.1	5.2
predorsal length	3.5	3.6	3.2-3.5	3.7	3.6	3.5	3.8	3.5	3.5	3.7	3.2	3.2	3.1	3.0
postdorsal length	1.6	1.6	1.6-1.7	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.7	1.7	1.7	1.7
postanal length	1.9	1.8	1.9-2.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0
dorsal spine length	<2.2	<2.8	<2.5-3.0	<1.3	-	-	<3.1	<2.8	3.5	3.2	3.3	3.5	3.5	<4.6
first dorsal ray	<2.6	3.3	3.0-3.4	2.9	2.9	-	<3.2	3.1	3.9	3.7	3.6	3.7	3.7	<5.0
anal spine length	4.2	4.9	4.1-5.0	4.4	4.0	4.3	4.3	<4.7	5.0	4.7	4.1	4.1	4.2	5.2
pectoral spine length	2.1	1.9	1.8-2.7	1.2	<2.1	<2.7	-	2.1	4.0	4.0	1.1	1.1	1.1	5.0
pelvic spine length	4.7	5.3	4.8-5.3	5.3	4.7	4.9	5.0	4.9	5.0	5.0	5.3	5.4	5.0	5.7
upper caudal spine	-	-	-	-	-	-	-	-	-	-	-	-	-	-
lower caudal spine	-	2.5	-	-	-	-	-	-	1.9	-	-	-	-	-
snout length	1.6	1.7	1.6-1.7	1.7	1.7	1.8	1.7	1.7	1.6	1.6	1.7	1.7	1.7	1.8
ventrorostral length	-	-	-	-	-	-	-	-	-	-	-	-	-	7.9
lower lip	6.9	6.7	6.0-8.6	6.0	5.6	5.6	7.8	7.3	7.6	7.5	8.6	7.7	7.7	12.2
thoracic length	1.1	1.1	1.0-1.2	1.1	1.1	1.2	1.0	1.0	1.1	1.1	1.2	1.3	1.3	1.1
abdominal length	1.3	1.3	1.2-1.3	1.1	1.3	1.3	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3
max. orbital diameter	6.0	6.0	5.8-6.4	6.3	6.3	5.6	5.6	5.7	7.6	6.9	11.1	11.9	12.8	6.2
interorbital width	3.0	3.0	2.8-3.1	3.0	3.3	3.6	3.2	3.0	3.4	3.4	4.1	3.9	4.2	3.3
cleithral width	0.9	0.9	0.9-1.0	0.9	0.9	1.0	0.9	0.9	1.0	1.0	1.1	1.1	1.1	1.4
supra-cleithral width	1.3	1.3	1.3	1.2	1.3	1.3	1.2	1.3	1.3	1.4	1.4	1.4	1.5	1.6
head width	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.4
head depth	1.9	1.8	1.9-2.0	1.9	1.9	1.9	1.8	1.9	1.8	1.9	2.0	2.0	2.0	2.3
body depth at dorsal	1.4	1.3	1.4-1.6	1.3	1.5	1.5	1.3	1.3	1.5	1.5	1.5	1.6	1.6	1.9
body width at dorsal	1.1	1.1	1.1-1.2	1.1	1.2	1.2	1.0	1.1	1.2	1.2	1.2	1.2	1.2	1.5
body width at anal	1.4	1.3	1.4	1.3	1.4	1.4	1.2	1.3	1.4	1.4	1.2	1.2	1.2	1.6
depth caudal peduncle	10.6	9.1	11.1-13.1	11.0	10.6	12.3	10.9	9.8	10.7	10.3	12.5	12.5	12.8	14.3
width caudal peduncle	8.5	6.4	6.0-6.7	6.4	5.8	7.9	6.4	6.2	7.3	6.6	5.1	5.1	5.1	5.8
rictal barbel	-	-	-	-	-	-	-	-	-	-	-	-	-	7.9
lateral scutes	33/33	34/34	33/33	32/32	33/32	33/33	32/32	33/33	34/34	34/34	35/35	35/35	35/35	36/35
coalescing scutes	16/16	17/17	17-18/16-18	16/15	16/16	17/16	14/14	16/17	19/20	19/21	17/18	18/18	17/17	20/21
thoracic scutes	8/8	8/7	7-10/7-10	8/9	9/8	9/8	7/8	10/10	9/9	10/9	7/8	7/6	7/7	7/9
teeth upper jaws	±65/60	±70/70	-	±75/75	-	46/48	55/53	-	79/86	±77/80	±42/50	±46/45	±46/45	>17/>19
teeth lower jaws	±65/48	±60/60	-	±60/60	-	±40/-	±45/45	-	82/77	86/84	±45/47	-	±46/35	>12/>7
pectoral fin rays	7/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7	6/6	6/6	6/6	6/6

todes, indicative of its sex, through damage. The holotype of *Sturisoma brevirostre* does not agree with couplet *aa* in the key of C. H. Eigenmann & R. S. Eigenmann, reading: "Snout acute or rounded, not produced.", since the specimen has its snout somewhat produced, with a ventrorostral length of 5.1 mm. This is relatively short, even for an average *Sturisoma*. This, and the statement of these authors (1889: 35; 1890: 368): "... upper lip granular, ..." has been overlooked by A. de Miranda Ribeiro (1911: 109), and by Boeseman (1971: 11), while diagnosing *Parasturisoma* as having: "... cabeça ... sem projecção anterior nem

revestimento inferior do rostro; ..." or the translation: "... snout ... not projecting or with cover on lower surface; ...", respectively.

Regan (1904) assigned *Sturisoma brevirostre* to the genus *Oxyloricaria*, now accepted as a junior synonym of *Sturisoma*. With the exception of *Harttia loricariformis* Steindachner, 1876b, and *Harttia platystoma* (Günther, 1868), Regan's conception of *Oxyloricaria* (1904) is still valid for *Sturisoma*.

We may add to this discussion a proposal to provisionally transfer *Harttia caquetae* Fowler, 1945a (a nominal species inadvertently omitted

TABLE III

Selected morphometric and meristic characters useful to compare a) 13 specimens of *Lamontichthys filamentosus* with b) 2 specimens of *Lamontichthys stibaros*, and c) 3 specimens of *Pterosturisoma microps*.

specimens	a	b	c
standard length	71.7-167.3	213.3-242.0	141.0-161.0
head length	5.0- 6.1	5.7- 5.9	5.1- 5.4
predorsal length	3.2- 3.8	3.5- 3.7	3.1- 3.2
postdorsal length	1.5- 1.7	1.5	1.7
postanal length	1.8- 2.0	1.8	1.9
dorsal spine length	up to <1.3	3.2- 3.5	3.3- 3.5
first dorsal ray	<2.6- 3.4	3.7- 3.9	3.6- 3.7
anal spine length	4.0- 5.0	4.7- 5.0	4.1- 4.2
pectoral spine length	1.2- < 2.7	4.0	1.1
snout length	1.6- 1.8	1.6	1.7
thoracic length	1.0- 1.2	1.1	1.2- 1.3
max. orbital diameter	5.6- 6.4	6.9- 7.6	11.1- 12.8
interorbital width	2.8- 3.3	3.4	3.9- 4.2
cleithral width	0.9- 1.0	1.0	1.1
supra-cleithral width	1.2- 1.3	1.3- 1.4	1.4- 1.5
head width	1.0	1.0- 1.1	1.1- 1.2
head depth	1.8- 2.0	1.8- 1.9	2.0
width caudal peduncle	5.8- 8.5	6.6- 7.3	5.1
pectoral fin rays	7	7	6
lateral scutes	32-34/32-34	34	35
coalescing scutes	14-18/14-18	19/20-21	17-18/17-18
teeth upper jaws	up to 75	up to 86	up to $\frac{1}{2}$ 55
teeth lower jaws	up to 65	up to 86	up to $\frac{1}{2}$ 47

from the genera of Harttiini by Boeseman, 1971) to *Sturisoma*, as *Sturisoma caquetae* (Fowler, 1945), this species being closely related to (and in fact, congeneric with) both *Sturisoma tamanae* and *Sturisoma leightoni*.

## REFERENCES

- AGASSIZ, [J.] L. [R.] & [E. C. CARY] AGASSIZ, 1868. A journey in Brazil: i-xix, 1-540, 20 figs. (Ticknor & Fields, Boston [only the facsimile reprint edition of 1969, with an introduction by A. Curtis Wilgus: v-ix; F. A. Praeger, New York/Washington/London, consulted]).
- BLEEKER, P., 1862. Atlas ichthyologique des Indes Orientales Néerlandaises, publié sous les auspices du Gouvernement colonial néerlandais: Siluroïdes, Chacoïdes et Hétéro-branchoïdes, 2: 1-112, pls. II-CI (Fr. Muller, Amsterdam).
- BOESEMAN, M., 1971. The "comb-toothed" Loricariinae of Surinam, with reflections on the phylogenetic tendencies within the family Loricariidae (Siluriformes, Siluroidei). Zool. Verh. Leiden, 116: 1-56, pls. I-VIII.
- , 1976. A short review of the Surinam Loricariinae; with additional information on Surinam Harttiinae, including the description of a new species (Loricariidae, Siluriformes). Zool. Meded. Leiden, 50 (11): 153-177, pls. I-VIII.
- BONAPARTE, C. L. J. L., 1831. Saggio di una distribuzione metodica degli animali vertebrati. G. Arcadico Sci., 49: 1-77 [not seen: cited from Dean, 1962: 148].
- DEAN, B., 1962. A bibliography of fishes (enlarged and edited by C. R. Eastman), 1: i-x, 1-718 (Russell & Russell, New York).
- DICK, M. M., 1977. Stations of the Thayer Expedition to Brazil 1865-1866. Breviora, 444: 1-37.
- EIGENMANN, C. H., 1910. Catalogue and bibliography of the fresh water fishes of the Americas south of the tropic of Cancer. Catalogue of the fresh-water fishes of tropical and South temperate America. Rep. Princeton Univ. Exped. Patagonia, 1896-1899, 3 (Zool. 4): 375-511.
- EIGENMANN, C. H. & W. R. ALLEN, 1942. Fishes of western South America: 1-494, pls. I-XXII, 1 map (Univ. Kentucky, Lexington).
- EIGENMANN, C. H. & R. S. EIGENMANN, 1889. Preliminary notes on South American Nematognathi, II. Proc. Calif. Acad. Sci., (2) 2: 28-56.
- & —, 1890. A revision of the South American Nematognathi, or cat-fishes. Occ. Pap. Calif. Acad. Sci., 1: 1-508, 1 map [also reprinted in facsimile in 1971 by Johnson Reprint Corporation, New York/London].
- & —, 1891. A catalogue of the fresh-water fishes of South America. Proc. U.S. natn. Mus., 14: 1-81.
- FITTKAU, E. J., 1974. Ichthyocladus n. gen., eine neotropische Gattung der Orthoclaadiinae (Chironomidae, Diptera) deren Larven epizoisch auf Welsen (Astroblepidae und Loricariidae) leben. Ent. Tidskr., 95 (Suppl.): 91-106.
- FOWLER, H. W., 1945a. Colombian zoological survey. Part I. The fresh-water fishes obtained in 1945. Proc. Acad. nat. Sci. Philad., 97: 93-135.
- , 1945b. Los peces del Peru. Catálogo sistemático de los peces que habitan en aguas peruanas: 1-298 (Mus. Hist. nat. "Javier Prado", Univ. San Marcos, Lima).
- , 1954. Os peixes de água doce do Brasil, 4. Arq. zool. S. Paulo, 9: i-ix, 1-400.
- FREIHOFFER, W. C. & E. H. NEIL, 1967. Commensalism between midge larvae (Diptera: Chironomidae) and catfishes of the families Astroblepidae and Loricariidae. Copeia, 1967 (1): 39-45.
- GOSLINE, W. A., 1945. Catálogo dos nematognathos de água-doce da América do Sul e Central. Bolm. Mus. nac. Rio de J. (n.s., Zool.), 33: 1-138.
- GÜNTHER, A. [C. L. G.], 1868. Diagnoses of some new freshwater fishes from Surinam and Brazil, in the collections of the British Museum. Ann. Mag. nat. Hist., (4) 1 (6): 475-481.
- ISBRÜCKER, I. J. H., 1975. Metaloricaria paucidens, a new species and genus of mailed catfish from French Guiana (Pisces, Siluriformes, Loricariidae). Bull. Inst. r. Sci. nat. Belg., 50 (4): 1-9, pls. I-III.
- ISBRÜCKER, I. J. H. & H. NIJSSEN, 1974. Rhadinoloricaria gen. nov. and Planiloricaria, two genera of South American mailed catfishes (Pisces, Siluriformes, Loricariidae). Beaufortia, 22 (290): 67-81.
- & —, 1976. Rineloricaria heteroptera, a new species of mailed catfish from Rio Amazonas near Manaus, Brazil (Pisces, Siluriformes, Loricariidae). Zool. Anz. Jena, 196 (1-2): 109-124.
- & —, 1978. Two new species and a new genus of neotropical mailed catfishes of the subfamily Loricariinae Swainson, 1838 (Pisces, Siluriformes, Loricariidae). Beaufortia, 27 (339): 177-206.
- KNER, R., 1854. Die Panzerwelse des k. k. Hof-Naturalien-Cabinetes zu Wien. I. Abtheilung: Loricariinae. Denkschr. Akad. Wiss. Wien, mathem.-naturwiss. Cl., 6: 65-98, pls. I-VIII.
- LA MONTE, F. R., 1935. Fishes from Rio Jurua and Rio

- Purus, Brazilian Amazonas. *Am. Mus. Novit.*, **784**: 1-8.
- MEEK, S. E. & S. F. HILDEBRAND, 1913. New species of fishes from Panama. *Publ. Field Mus. nat. Hist.*, **166** (zool. Ser.), **10** (8): 77-91.
- MIRANDA RIBEIRO, A. DE, 1911. Fauna Brasiliense. Peixes IV. Eleutherobranchios Aspirophoros (A). *Physostomos Scleracanthos. Archos. Mus. nac. Rio de J.*, **16**: 1-504, pls. XXII-LIV.
- MIRANDA RIBEIRO, P. DE, 1939. Sobre o gênero *Harttia*, Steind. (Peixes: Loricariidae). *Bolm. Biol. S. Paulo*, (n.s.) **4** (1): 11-13, pl. II.
- ØRVIG, T., 1967. Phylogeny of tooth tissues: evolution of some calcified tissues in early vertebrates. In: A. E. W. MILES ed., *Structural and chemical organization of teeth*, **1**: 45-110 (Academic Press, New York & London).
- , 1977. A survey of odontodes ("dermal teeth") from developmental, structural, functional, and phyletic points of view. In: MAHALA ANDREWS, S., R. S. MILES & A. D. WALKER eds., *Problems in vertebrate evolution*. *Linn. Soc. Symp. Ser.*, **4**: 53-75, pls. I-III (published for the Linnean Society of London by Academic Press, London).
- OVCHYNNYK, M. M., 1968. Annotated list of the freshwater fishes of Ecuador. *Zool. Anz. Leipzig*, **181** (3-4): 237-268.
- PELLEGRIN, J., 1908. Description de deux poissons nouveaux de l'Amérique du Sud, de la famille des Loricariidés. *Bull. Soc. zool. Fr.*, **31**: 124-127.
- REGAN, C. T., 1904. A monograph of the fishes of the family Loricariidae. *Trans. zool. Soc. Lond.*, **17** (3): 191-350, pls. IX-XXI.
- , 1912. Descriptions of new fishes of the family Loricariidae in the British Museum collection. *Proc. zool. Soc. Lond.*, **1912**: 666-670, pls. LXXXV-LXXXVII.
- SPIX, J. B. [VON] & [J.] L. [R.] AGASSIZ, 1829-1831. *Selecta genera et species piscium quos in itinere per Brasiliam annis MDCCCXVII-MDCCCXX jussu et auspiciis Maximiliani Josephi I. Bavariae regis augustissimi peracto collegit et pingendos curavit Dr. J. B. de Spix, [...] digessit, descripsit et observationibus anatomicis illustravit Dr. L. Agassiz, praefatus est et edidit itineris socius Dr. F. C. Ph. de Martius: [i-vi], i-ii, 1-6, i-xvi, 1-82, 83-138, pls. A-G, I-LXXXVI [83 pls.], A-F (C. Wolf, Monachii) [for a history of this work, see Whitehead & Myers, 1971].*
- STEINDACHNER, F., 1876a. ["Das W. M. Dr. Steindachner übersendet den dritten Theil einer Abhandlung über die Süßwasserfische des südöstlichen Brasiliens"]. *Anz. Akad. Wiss. Wien, mathem.-naturwiss. Cl.*, **13** (4): 191.
- , 1876b. *Die Süßwasserfische des südöstlichen Brasilien*, III. *Sber. Akad. Wiss. Wien, mathem.-naturwiss. Cl.*, **74**: 559-694, pls. I-XIII (only the reprint, p. 1-136, seen).
- SWAINSON, W., 1838. *The natural history of fishes, amphibians, & reptiles, or monocardian animals*, **1**: i-vi, 1-368 (Lardner's Cabinet Cyclopaedia) (Longman, Orme, Brown, Green & Longmans, and Taylor, London).
- , 1839. *The natural history of fishes, amphibians, & reptiles, or monocardian animals*, **2**: [i-vi], 1-452 (Lardner's Cabinet Cyclopaedia) (Longman, Brown, Green & Longmans, London).
- TOVAR SERPA, A., 1967. Peces del oriente peruano. Algunas especies de Loricariidae con referencia especial de la "carachama" *Pterygoplichthys multiradiatus* (Hancock), ecología y utilidad. *Biota, Lima*, **6** (50): 201-255.
- WHITEHEAD, P. J. P. & G. S. MYERS, 1971. Problems of nomenclature and dating of Spix and Agassiz's Brazilian fishes (1829-1831). *J. Soc. Bibliophy. nat. Hist.*, **5** (6): 478-497.

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