

ZOOLOGISCHE MEDEDELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE TE LEIDEN

(MINISTERIE VAN CULTUUR, RECREATIE EN MAATSCHAPPELIJK WERK)

Deel 50 no. 11

29 december 1976

A SHORT REVIEW OF THE SURINAM LORICARIINAE; WITH ADDITIONAL INFORMATION ON SURINAM HARTTIINAE, INCLUDING THE DESCRIPTION OF A NEW SPECIES (LORICARIIDAE, SILURIFORMES)

by

M. BOESEMAN

Rijksmuseum van Natuurlijke Historie, Leiden

With 2 text-figures, 6 tables and 8 plates

INTRODUCTION

The present paper forms the continuation of a series pretending to cover at least most of the Surinam representatives of loricariid armoured catfishes (for earlier papers, see Boeseman, 1968, 1969, 1971, and 1974), but for various reasons it is less extensive in scope than its forerunners. The main reasons are that, (1) it seems unnecessary to repeat the general information provided in the earlier papers, especially since the employed methods, the provided measurements (see fig. 1), and the localities (fig. 2) or habitats are the same, or at least similar (exceptions: measurements and counts up to "caudal base" in fact are up to the end of the last, small scute of the lateral series, while in some of tables, to the total (or axial) length, the length including the caudal filament (as far as available) is added between square brackets); (2) most of the species here recorded are quite distinctive and have been well described in previous publications; and (3) most reflections on the phylogeny and the relationships of the present groups (Hartiinae, Loricariinae) have been provided previously and, moreover, still remain highly speculative, as repeatedly indicated in my previous papers. The group is badly in need of a different approach, with special consideration of the comparative anatomy and osteology of the various species and higher units.

It further may be emphasized that, especially with regard to the Loricariinae and besides the doubtful validity of several nominal species, there still is fundamental discordance among recent authors concerning the actual status of various higher taxa frequently lumped in the genus *Loricaria* Linnaeus

(sensu lato). Since the last extensive revision by Regan (1904), no attempt has been made to cover the subfamily (Loricariinae sensu Boeseman, 1971) on the basis of more modern methods, and Gosline's 1945 catalogue, which in some aspects may be regarded as an emended uncritical but extremely useful version of part of Regan's paper, appears to have been accepted by many subsequent authors with respect to the interpretation and subdivision of *Loricaria*.

Still, other authors have adopted a different point of view (e.g., Nijssen and Isbrücker, 1970-1976), unfortunately without basing their vision on

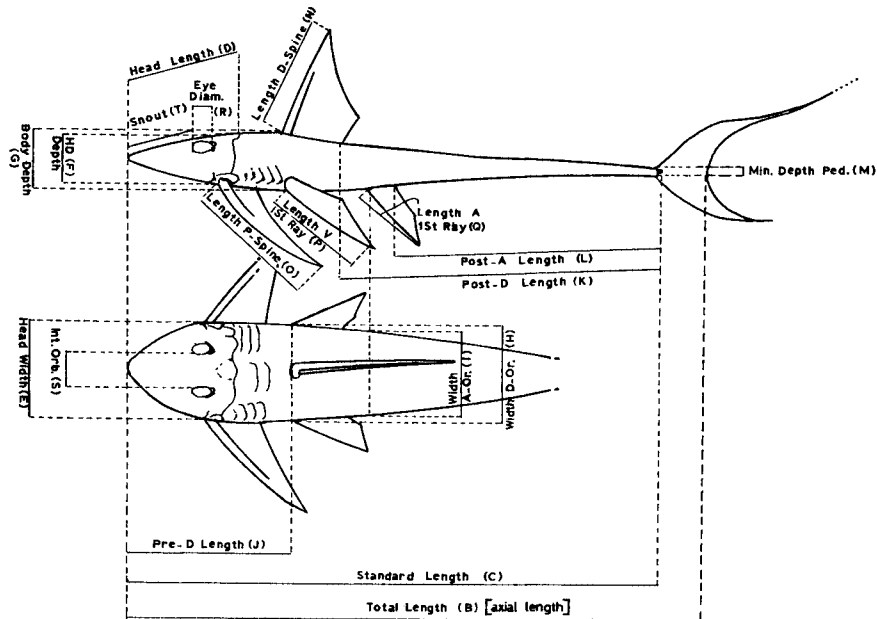


Fig. 1. Measurements and terminology: (A, register number); B, total length; C, standard length; D, head length; E, head width; F, head depth; G, body depth at dorsal origin; H, width of body at dorsal origin; I, width of body at anal origin; J, predorsal length; K, postdorsal length; L, postanal length; M, minimum depth of caudal peduncle; N, length of dorsal spine; O, length of pectoral spine; P, length of first ventral ray; Q, length of first anal ray; R, maximum eye diameter; S, interorbital width; T, length of snout; (U, number of scutes in longitudinal series; V, teeth number on half upper/lower jaw). With slight modifications after Boeseman, 1971, fig. 3.

more than a limited number of morphological features, some of which seem to a considerable degree variable, adaptive, or even artificial, and at least of dubious phylogenetic value, or without providing any argumentation. If their subdivision of the genus *Loricaria* sensu lato is largely intuitive

(and hunches of this kind often prove true), they should have stated so in their otherwise most adequate and useful publications.

Presuming that, at an opportune moment, these or other authors will more thoroughly investigate this extremely difficult problem — the distinction between and evaluation of genera and subgenera always remaining highly subjective —, and since I have at my disposal neither the necessary facilities nor the time and (probably) the required expert knowledge to carry out the necessary anatomical or osteological research, I think it more prudent to provisionally adopt here Gosline's perhaps rather conservative (or possibly erroneous) but frequently used nomenclature.

While several specimens here included belonged to our older collections, quite a number of which were received from Dr. D. C. Geijskes, formerly director of the Surinaams Museum at Paramaribo, Surinam, the major part was assembled in the course of activities for the Biological Brokopondo Research Project (sponsored by the Netherlands Foundation for the Advancement of Research in Surinam and the Netherlands Antilles, and by the Leiden Museum) during the years 1963-1964 (present author) and 1965-1966 (Dr. G. F. Mees, Curator of Birds), and in 1971 (present author) during an expedition to north-western Surinam (sponsored by the Netherlands Foundation for the Advancement of Tropical Research and by the Leiden Museum). Unfortunately, several specimens collected by Dr. H. Nijssen of the Amsterdam Museum, also as a member of the Biological Brokopondo Research Project team, were either withdrawn before I had the opportunity to compose the present review, or even were not put at my disposal and are recorded elsewhere (Isbrücker, 1971: 12; 1972: 173).

THE LORICARIINAE OF SURINAM

1. Orbit with a more or less distinct orbital notch; usually a well developed filamentous upper caudal ray (frequently damaged); teeth variably developed, up to about 12 on each half jaw, usually less; no large triangular lower cheek cover projecting before the gill apertures on lower head surface 2

No orbital notch; upper caudal rays hardly prolonged, both lobes of about equal length; teeth well developed, though varying in size, in long curved series of about 20 or more on each half jaw in adults, in juveniles less (down to possibly 5); a broad triangular cover before each lower gill aperture usually distinct Harttiinae, see p. 168.

2. Labial disc wholly covered with numerous tentacles; caudal filament very long, often far surpassing length of the specimen (but frequently damaged)

. *L. (Loricaria) cataphracta* Linnaeus

Labial disc smooth or papillose, with at most marginal tentacles or fringes; caudal filament moderate to little developed, usually not surpassing predorsal length . . . 3

3. Upper lip complete but narrow in the middle; teeth very small; belly with a minimum of two series of plates between the lateral transverse series; without distinct transverse bands on body or peduncle or small spots on each side of anal origin; usually a distinct series of dark lateral blotches; caudal filament hardly developed; adult males with

considerably enlarged lower lip; upper head, cheeks or upper pectorals not with evident enlarged spines *L. (Loricariichthys) maculata* Bloch

Upper lip well developed; teeth moderate to relatively large; belly with a minimum of three series of platelets between the lateral transverse series; dark transverse bands on body and peduncle usually distinct; a small spot on each side of anal origin, occasionally indistinct or disappearing in preservative; no lateral blotches; a moderately developed caudal filament; males with occipital region and nape, cheeks and upper pectorals spiny 4

4. Head relatively smooth; a distinct dark spot before dorsal origin; males with two slightly X-shaped longitudinal bands of well developed spines on interorbital and occipital region, continued on nape *L. (Loricariichthys) brunnea* Hancock

Head more or less strigilate, often spiny; no dark predorsal spot; males with enlarged spines on interorbital and occipital areas *L. (Loricariichthys cf. stewarti)* Eigenmann

SUBFAMILY LORICARIINAE

Genus *Loricaria* Linnaeus, 1758 (sensu lato)

***Loricaria (Loricaria) cataphracta* Linnaeus (pl. 1)**

Loricaria cataphracta Linnaeus, 1758: 307 (America meridionali).

Extensive reviews of references to the present species have been provided by Bleeker, 1864: 19 (*Loricaria dura*), Eigenmann, 1912: 243 (*Loricaria cataphracta*), Van der Stigchel, 1946, 1947: 170 (*Loricaria cataphracta*), and Isbrücker, 1972: 172 (*Loricaria cataphracta*), including numerous Surinam records, and need not be repeated here.

Material examined. — RMNH 3113, Surinam, 1824-1836, don. H. H. Dieperink, 1 ex., 134 mm; — RMNH 3114, Surinam, 1824-1836, don. H. H. Dieperink, 2 ex., 103 & 127 mm; — RMNH 3116, Surinam, 1824-1836, don. H. H. Dieperink, 1 ex., 300 mm; — RMNH 14794, Surinam, n.d., don. Mus. Cambridge, U.S.A., 1 ex., 186 mm; — RMNH 25060, Suriname River near Brokopondo, Surinam, 20 March 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 146 mm; — RMNH 25420, Suriname River near Brokopondo, Surinam, 25/26 April 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 163 mm; — RMNH 25422, Suriname River near Brokopondo, Surinam, 12 May 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 3 ex., 158, 159 & 160 mm; — RMNH 27506, outlet Marowijne River near Galibi, Surinam, 1/2 June 1966, leg. et don. Dr. W. Vervoort et al., 11 ex., 248-300 mm (plate 1); — RMNH 27507, Suriname River near Brokopondo, Surinam, 2 September 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 2 ex., 167 & 173 mm; — RMNH 27508, Suriname River near Brokopondo, Surinam, 25/26 April 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 79 mm; — RMNH 27509, Kwambaolo Creek, right tributary of Sara Creek above Dam, Surinam, 28 December 1963, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 22 ex. 103-181 mm; — RMNH 27510, Marowijne River near Mopikondre, Surinam, 17 June 1966, leg. et don. Dr. W. Vervoort et al., 1 ex., 227 mm; — RMNH 27511, Suriname River near Brokopondo, Surinam, 2 May 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 4 ex., 150-205 mm; — RMNH 27512, Suriname River near Brokopondo, Surinam, 24 June 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 148 mm; — RMNH 27513, Zandvallen, ca. 10 km above Avanavero Falls, Kabalebo River, Corantijn River basin, Surinam, 23 September 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 110 mm; — Tjawassi Creek, right tributary of Nickerie River below Lombok Falls, Surinam, 7 February 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 1 ex.

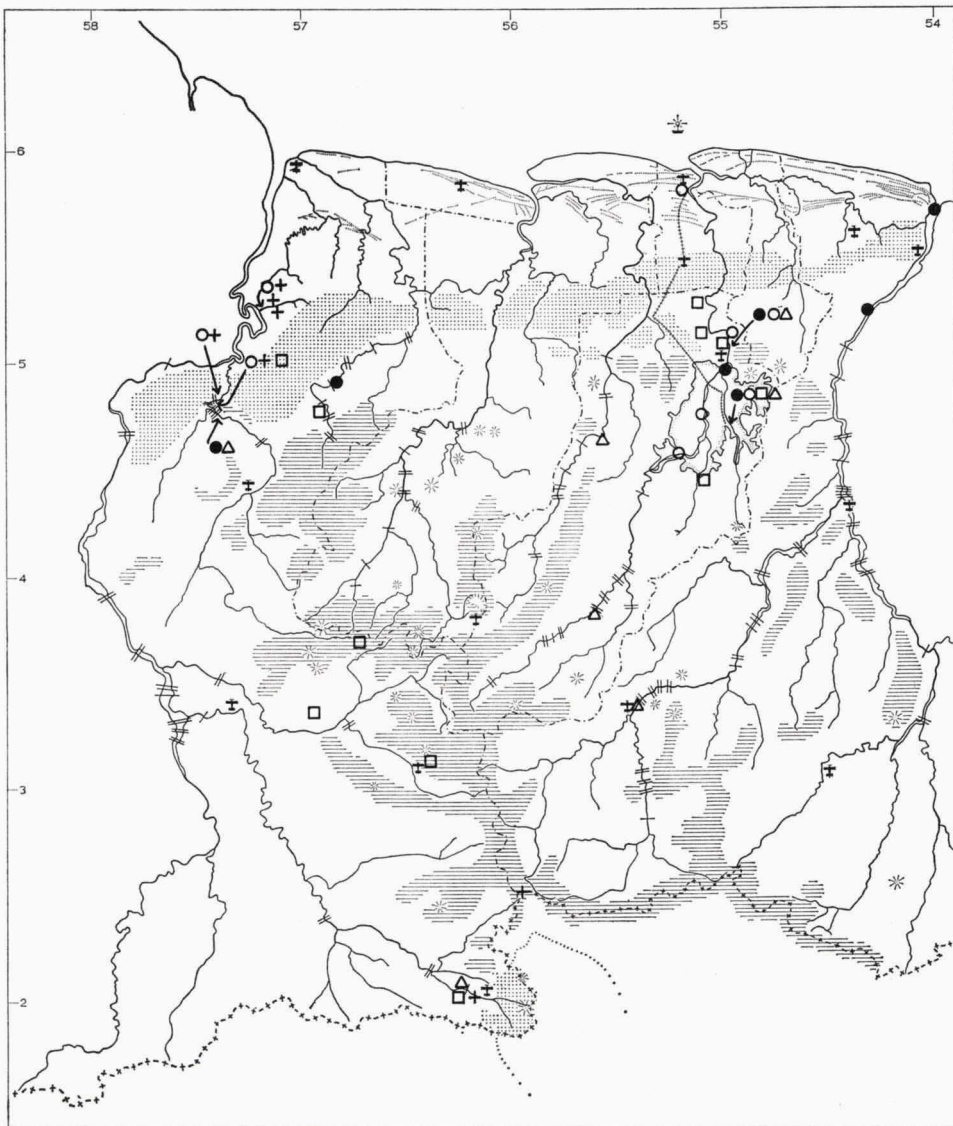


Fig. 2. Collecting localities of the Surinam species now recorded: *Loricaria cataphracta* (black dot), *L. maculata* (circle), *L. brunnea* (cross), *L. cf. stewarti* (square), and *Harttia nijsseni* (triangle).

126 mm; — RMNH 27515, pools in dry bed of Suriname River near Brokopondo after closing of Afobaka dam, Surinam, 7 June 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 2 ex., 148 & 151 mm; — RMNH 27516, Brokopondo Lake just above dam at Afobaka, Surinam, 18 March 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 131 mm. Extralimital: — RMNH 27505,

Stoupan, Mahurie River basin, Guyane, 3 April 1975, leg. et don. Dr. M. S. Hoogmoed, 3 ex., 252-300 mm. Without exact locality: — RMNH 17986, South America, n.d., 1 ex., 290 mm. See also Isbrücker, 1972: 173.

Remarks. — The present species, rather common in the fresh-water of northern Surinam (fig. 2), appears to inhabit a large area in tropical South America (Fowler, 1954: 93). As a consequence being also common in collections, it has so frequently been described by previous authors that it seems unnecessary to provide more details than the discriminating characters used in the key and a few data in the accompanying table 1 to illustrate in the given measurements the occurring variability and the almost complete lack of allometry. Also Isbrücker (1972) provides valuable information on the morphology of this species, which is illustrated on plate 1.

A very complete and competent discussion of the taxonomic and nomenclatorial problems connected with this species has been given by Isbrücker (1972: 163), on which only a few remarks may be made. Besides starting his "Introduction" using quotation marks where no quotations are given,

TABLE I

Tabulated morphological data on *Loricaria cataphracta* Linnaeus, with ratios of the measurements (in mm) in comparison with standard length (behind hyphen) or head length (between brackets). For explanation of the symbols A-V, see fig. 1.

	A	B	C	D	H	J	K	L	U	V
1. RMNH 27508	85(110)	79	16.0-4.95	8.2-9.65(1.95)	22.7-3.50	49.0-1.60	43.0-1.85	18 + 15	3/6	
2. RMNH 25060	158(228)	147	30.3-4.80	18.5-7.90(1.65)	44.6-3.25	91.0-1.60	78.8-1.85	17/18 + 16/16	3/7	
3. RMNH 25422	171(230)	158	33.7-4.70	20.2-7.80(1.65)	47.8-3.30	95.0-1.65	83.5-1.90	18 + 14	3/8	
4. RMNH 25422	169(?)	159	30.9-5.15	18.6-8.55(1.65)	45.3-3.50	101.2-1.55	87.9-1.80	19/20 + 15/14	3/8	
5. RMNH 25422	171(270)	160	32.6-4.90	19.3-8.30(1.70)	47.1-3.40	99.4-1.60	86.1-1.85	18/19 + 15/14	4/7	
6. RMNH 25420	175(238)	163	33.7-4.85	20.7-7.85(1.65)	49.0-3.35	100.4-1.60	84.3-1.95	19 + 15	4/7	
7. RMNH 27507	179(?)	167	35.1-4.75	21.9-7.65(1.60)	50.5-3.30	103.6-1.60	88.2-1.90	18/19 + 16/15	5/7	
8. RMNH 27507	184(250)	173	36.7-4.70	22.0-7.85(1.65)	52.4-3.30	107.8-1.60	92.0-1.90	19 + 15	4/7	
9. RMNH 14794	? (?)	186	37.9-4.90	24.2-7.70(1.55)	54.5-3.40	116.0-1.60	101.8-1.85	18/19 + 15/14	3/8	
10. RMNH 27506	222(300)	207	40.3-5.15	27.8-7.45(1.45)	57.5-3.60	129.8-1.60	113.4-1.85	18/19 + 16/15	3/8	
11. RMNH 27510	? (?)	227	47.1-4.80	29.8-7.60(1.60)	68.1-3.35	136.0-1.65	119.2-1.90	18 + 16	4/7	
12. RMNH 27506	267(560)	248	52.6-4.70	34.0-7.30(1.55)	76.1-3.25	154.0-1.60	133.6-1.85	18/19 + 16/15	4/8	
13. RMNH 27506	268(360)	249	51.1-4.85	36.6-6.80(1.40)	74.6-3.35	152.6-1.65	132.1-1.90	17/18 + 17/16	4/6	
14. RMNH 27506	? (555)	250	51.0-4.90	36.6-6.85(1.40)	73.8-3.40	152.8-1.65	130.2-1.90	18 + 16	3/7	
15. RMNH 27505	267(580)	252	52.5-4.80	34.7-7.25(1.50)	75.3-3.35	156.0-1.60	135.1-1.85	18 + 16/17	4/7	
16. RMNH 27506*	274(?)	256	54.8-4.65	36.0-7.10(1.56)	77.2-3.30	156.6-1.65	135.4-1.90	18 + 16	5/7	
17. RMNH 27506	288(435)	270	56.0-4.80	39.0-6.90(1.45)	79.5-3.40	165.6-1.65	140.7-1.90	18 + 16	4/6	
18. RMNH 27506	291(570)	272	56.0-4.85	38.3-7.10(1.45)	80.0-3.40	165.2-1.65	141.0-1.95	18/19 + 16/15	3/8	
19. RMNH 27506	300(560)	280	58.8-4.75	38.9-7.20(1.50)	85.0-3.30	172.0-1.65	146.4-1.90	17 + 16	4/6	
20. RMNH 27506	300(?)	282	55.9-5.05	37.5-7.50(1.50)	82.0-3.45	174.7-1.60	151.8-1.85	18/19 + 16/15	3/9	
21. RMNH 27505	303(?)	284	56.9-4.80	40.0-7.10(1.45)	83.8-3.40	176.8-1.60	151.0-1.90	17/18 + 17/16	3/7	
22. RMNH 27506	309(525)	290	60.0-4.85	42.4-6.85(1.40)	85.3-3.40	178.0-1.65	152.0-1.90	18 + 16	4/8	
23. RMNH 17986	310(?)	290	61.0-4.75	41.8-6.95(1.45)	85.6-3.40	177.7-1.65	154.8-1.85	17 + 16	4/7	
24. RMNH 27506	323(540)	294	58.8-5.00	41.0-7.15(1.45)	86.0-3.40	179.0-1.65	154.6-1.90	19 + 15	4/7	
25. RMNH 3116	320(350)	300	62.4-4.80	46.5-6.45(1.35)	88.0-3.40	188.8-1.60	159.5-1.90	18/19 + 16/15	3/7	
26. RMNH 27505	322(735)	300	60.8-4.95	43.8-6.85(1.40)	89.1-3.35	184.0-1.65	160.0-1.90	19 + 15	4/6	
			av. 4.85	av. 7.45(1.55)	av. 3.40	av. 1.60	av. 1.90	av. 18 + 15 or 16		

*) See plate 1

the first paragraphs adequately (and intricately) cover the subject and the various aspects involved. Unfortunately, his action to solve the problems regarding the present species by indicating a neotype "In view of the nomenclatural difficulty in this group and of the fact that the type material is lost" seems not correct.

First, the fact that *Loricaria cataphracta* is one of the most common species of the subfamily in northern South America and quite well represented in numerous taxonomical institutes, while, as Isbrücker (1972: 164) states "There are no difficulties in the determination of *Loricaria cataphracta*, *sensu stricto*", makes the designation of a neotype in contravention of Article 75(a) of the International Code, no threatening of nomenclatorial stability being involved.

Secondly, since Isbrücker seems in doubt whether the Gronovius specimen referred to in the original description of *Loricaria cataphracta* (Linnaeus, 1758: 308), which is also the holotype of Gronovius's (1854: 158) *Plecostomus flagellaris*, is conspecific with *L. cataphracta* as now generally understood, he necessarily remains also in doubt with regard to the possible existence of at least one of the syntypes of *L. cataphracta sensu stricto*, a circumstance rendering his neotype designation both unwarranted and unacceptable, or at least premature.

Actually, considering the condition of Gronovius's holotype (BM 1853.11.12.195-196), a dry, flattened, deformed and shrunk skin, and also the relative importance of the few presumed differences and the overall conformity of this holotype when compared with recent material of *L. cataphracta*, I am unable to adopt the idea of a specific differentiation between *cataphracta* and *flagellaris* as tentatively expressed by Wheeler (1958: 214) and Isbrücker (1972: 169, 186). This rejection seems supported by the fact that, while Isbrücker (1972: 166, 1269) does not think it unlikely that Gronovius's holotype came from Surinam, among the large collections of loricariids recently assembled in that country, besides numerous specimens of *L. cataphracta* none of a similar and closely related species were found, which makes it unlikely that any such species occurs in the area. Resuming, all available evidence, though partly circumstantial, seems to point to conspecificity of *cataphracta* and *flagellaris*, the second being the junior synonym, which would mean that the Gronovius holotype of *flagellaris* in the British Museum is a still extant syntype of *Loricaria cataphracta* Linnaeus precluding the designation of a neotype.

Another aspect which may have influenced Isbrücker in his decision is the fact that Linnaeus (1758: 308) included in his original description references to and diagnostic quotations from two of Gronovius's species,

separating them by adding the indication " β " to the second, thereby showing some doubt concerning their conspecificity. Though such a subdivision of the information Linnaeus provides appears to be rare in the fish chapters of the "Systema naturae" (1758), it is not infrequent in other parts (e.g., see *Homo* on pp. 20-22), and it certainly does not mean that any parts of descriptions thus indicated should necessarily be exempted from nomenclatorial or taxonomical considerations, or that the specimens on which such parts were based were "expressly not" "included as a syntypical part of the Linnaean diagnosis" (Isbrücker, 1972: 164; see also Isbrücker, 1971: 15).

I completely agree with Isbrücker (1972: 166) when he states that only Linnaeus's material of *Loricaria cataphracta* can be considered typical of *L. dura* Bleeker (1862b: 3), as Bleeker just mentioned this name, taken from Linnaeus (1754), to replace *cataphracta* Linnaeus (1758), while referring to the Leiden specimens he must have had at hand only in 1864. Therefore my type indications (Boeseman, 1972: 311) seem unacceptable.

The present material fills in a gap in the known distribution of the species in Surinam. Isbrücker still records only the Marowijne and Suriname River basins as origins of recorded material. Specimens from the Nickerie and Corantijn River basins now listed form a link with the records from north-eastern Guyana (Eigenmann, 1912, pl. 82). It is a fresh-water species, occurring both in open rivers and creeks, while it may be found in river outlets during rainy periods. Though occurring also around rapids, the species is evidently much less dependent on these special habitats than, e.g., most Surinam species of *Hypostomus* (Boeseman, 1968: 12).

***Loricaria (Loricariichthys) maculata* Bloch (pls. 2-4)**

Loricaria maculata Bloch, 1794: 73 (no locality, possibly Surinam).

Extensive reviews of references to this species have been given by Bleeker, 1864: 17 (*Loricariichthys maculatus*), Van der Stigchel, 1946, 1947: 172 (*Loricaria maculata*), and Isbrücker, 1971: 12 (*Loricariichthys maculatus*), including Surinam records. It is remarkable that Eigenmann (1912: 67, 244-250) does not consider the species in his main text, though listing it in one of the introductory chapters as recorded from the westcoast of Guyana.

Material examined. — RMNH 3115, Surinam, 1824-1836, don. H. H. Dieperink, 1 ex., 172 mm; — RMNH 3121, Surinam, from old collection without further data — see also subsequent comments, 1 ex., 173 mm (holotype of *Parahemiodon typus* Bleeker, plate 3); — RMNH 6916, Surinam, no further data, from auction coll. Dr. P. Bleeker, 1879, 2 ex., 100 & ca. 183 mm; — RMNH 17252, Surinam, June 1910, don. D. Bolten, 1 ex., 210 mm; — RMNH 17253, Cultuurtuin (Experimental Agricultural Garden), Paramaribo, Surinam, 17 March 1939, leg. et don. H. W. C. Cossee, 1 ex., 192 mm; — RMNH 25066, Gansee, submerged in Brokopondo Lake, Surinam, 2 April 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 2 ex., 175 & 222 mm; — RMNH 25418, Suriname River near Brokopondo, Surinam, 13 February 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 186 mm;

— RMNH 25421, Suriname River near Brokopondo, Surinam, 12 May 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 2 ex., 162 & 169 mm; — RMNH 25423, Suriname River near Brokopondo, Surinam, 12 May 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 4 ex., 162-183 mm; — RMNH 27468, Suriname River near Brokopondo, Surinam, 2 May 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 2 ex., 155 & 157 mm; — RMNH 27469, pools in bed of Suriname River after closing of Afobaka dam, Surinam, 3 February 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 2 ex., 159 & 184 mm; — RMNH 27470, Brokopondo Lake at (submerged) Gansee, Surinam, 29 April 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 202 mm; — RMNH 27471, Brokopondo Lake at (submerged) Gansee, Surinam, 2 April 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 2 ex., 145 & 165 mm; — RMNH 27472, Brokopondo Lake at (submerged) Gansee, Surinam, 8 April 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 14 ex. 126-186 mm (plate 4); — RMNH 27473, right tributary of lower Kaboeri Creek (Morali Creek), Corantijn River basin, Surinam, 23 March 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 6 ex., 89-175 mm (plate 2); — RMNH 27474, Suriname River near Brokopondo, Surinam, 2 September 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 140 mm; — RMNH 27475, Kwambaolo Creek, right tributary of Sara Creek above Dam, Surinam, 28 December 1963, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 115 mm; — RMNH 27476, right tributary Kabalebo River below Avanavero Falls, Corantijn River basin, Surinam, 10 April 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 1 ex., 147 mm; — RMNH 27477, right tributary of lower Kaboeri Creek (Morali Creek), Corantijn River basin, Surinam, 23 March 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 1 ex., 122 mm; — RMNH 27478, right tributary Kabalebo River just below Avanavero Falls, Corantijn River basin, Surinam, 6 April 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 1 ex., 95 mm; — RMNH 27479, creek below Moesoembapрати Falls, Surinam River tributary, Surinam, 21 August 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 128 mm; — RMNH 27480, pool in dry Suriname River near Brokopondo, Surinam, 13 May 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 84 mm; — RMNH 27481, pools in dry Suriname River near Brokopondo, Surinam, 25/26 April 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 3 ex. 68-87 mm; — RMNH 27482, pools in Suriname River after closing of Afobaka dam, near Brokopondo, Surinam, 13 February 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 111 mm; — RMNH 27483, Tapoeripa Creek N. of Brokopondo, Suriname River basin, Surinam, 22 December 1963, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 115 mm; — RMNH 27553, Brokopondo Lake near (submerged) Gansee, Suriname River basin, Surinam, 29 April 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 32 mm. Extralimital: — RMNH 10722, Berbice River near New Amsterdam, Guyana, no date, don. Dr. C. G. Young, 2 ex., 148 & 170 mm; — RMNH 10723, same locality, don. Young, 1 ex., 238 mm. Without exact locality: — RMNH 3118, "Mexico" (err.), no data, don. Museum Berlin, 1843, 2 ex., 90-127 mm. See also Isbrücker, 1971: 12.

Remarks. — Like the previous species, the present seems rather common in the rivers and streams of northern Surinam (fig. 2), and inhabits a large area in tropical South America (Fowler, 1954: 105). The species has been described adequately by previous authors, and quite in detail by Isbrücker (1971: 12-15). Therefore, besides the discriminating characters given in the

TABLE 2

Tabulated morphological data on *Loricaria maculata* Bloch, with ratios of the measurements (in mm) in comparison with standard length (behind hyphen) or head length (between brackets). For explanation of the symbols A-V, see fig. 1.

Table with 12 columns labeled A through L. Rows list individual measurements (numbered 1-31) and their corresponding values for different specimens, including standard length and head length where applicable. The table concludes with a summary row for 'av.' values.

Table with 12 columns labeled M through V. Rows list measurements for various specimens, including standard length and head length. It concludes with a summary row for 'av.' values.

* See plate 3
** See plate 4
*** See plate 2

above key, only an extensive table (2) covering the main measurements, counts and ratios is given, with illustrations (pls. 2-4), to complement the data Isbrücker took from four specimens and to enable a comparison with other loricariine species.

Besides an adequate and well illustrated description of the species, the paper by Isbrücker (1971) referred to above contains additional paragraphs which in my opinion need some comment.

In the first paragraph of his introduction attention is drawn to the obvious fact that Linnaeus (1758: 307-308) based his concept of the monotypic genus *Loricaria* on a heterogeneous type-species, *L. cataphracta*, as discussed here in the previous chapter, if I correctly interpret his remark that the genus "was originally diagnosed from two widely different biological [sic] species". But he makes a real error when stating that in almost all subsequent literature the species concept for *L. cataphracta* (or *L. dura* Linnaeus, 1754) became fixed "by common consent". Actually, this interpretation became adopted as a result of the renown of Bloch's (1794) work and his decision on this matter. Since Bloch separated one of the species mixed in Linnaeus's *cataphracta* by referring to it in the synonymy of his newly proposed *L. maculata*, the homogeneous remainder of Linnaeus's species no longer posed any problems of interpretation and thereby became fixed in common usage.

Another point is that, though well aware of the facts and contrary to taxonomic practice, Isbrücker arbitrarily interprets misnomers as new specific names (*Plecostomus cataphracta* Gronovius, 1854 in Isbrücker, 1971: 12, 16; and also evidently *Loricaria cirrhosa* Bloch & Schneider, 1801: 125 in Isbrücker, 1972: 169, 172), using the furthering of stability in nomenclature as an argument. However, merely the demonstration that a case concerns a misnomer suffices for that purpose.

In the synonymy of Isbrücker (1971: 12) I miss a reference to Bonnaterre (1788: 157, as *L. cataphracta*), who obviously describes and pictures (pl. 65 fig. 259) the present species. This reference has erroneously been included in his subsequent paper (Isbrücker, 1972: 172) among those presumed to pertain to *cataphracta* Linnaeus.

Finally, there is the problem of a correct interpretation of *Parahemiodon typus* Bleeker (1862a: 373). I examined the holotype in our collection (RMNH 3121) and, though slightly hampered by its condition, provide the usual information in the accompanying table 2. The fins are partly broken and the lips and dentition damaged, but on the whole all available information quite convincingly proves that the species is identical with *Loricaria maculata* Bloch, and that Bleeker obviously has been misled by the extreme development of the lower lip in the holotype. Though not frequent in the present

material, there are quite a few similar specimens in RMNH 10723, 25418, 25421 (2 ex.), and 27473 (plate 2). Valenciennes (1840: 475) and Van der Stigchel (1946, 1947: 173) correctly came to the same conclusion.

As stated before (Boeseman, 1972: 308), the present holotype, pictured in a later Bleeker paper (1864, pl. 6 fig. 1, pl. 13 fig. 1), shows a remarkable similarity with the figure of a loricariine species in Seba (1759, pl. 29 fig. 14), especially when taking into account the usually limited accuracy at that time. Seba states in the introduction to the first volume of his "Locupletissimi rerum naturalium" (1734: 5-6) that, whenever feasible, his illustrations are in natural size, and actually the sizes of the considered Seba picture and the holotype of *Parahemiodon typus* are the same or at least very close. The large lip, though badly drawn, is distinctly indicated in the Seba picture; unfortunately, it gives the impression of a mere shadow, but none of the many fishes pictured in Seba (except that of a dry skin of a sturgeon) shows any indication of a shadow. The upper caudal ray is drawn with a hardly filamentous, short prolongation, as in *L. maculata*, not with a long and slender filament as is found in *L. cataphracta*, while its pointed tip makes mutilation unlikely. Also the general shape and the proportions show considerable similarity, though the spiny lateral ridges are drawn with far too large spines to comply with either of aforementioned species, and should be attributed to artistic license. The same, together with the influence of perspective, probably accounts for the slightly more narrow head and the too backward position of dorsal and anal fins. Also, of course, it is unwarranted to scrutinize eighteenth century pictures using modern criteria. Therefore, it seems that Gronovius (1754: 25) was correct when referring to Seba in his description of a Surinam *Loricaria* ("*Plecostomus*") with the "ossiculo superiori caudae bifurcae setiformi brevi" (= *L. maculata*), at least as far as only Seba's picture is concerned. Seba's, or rather Artedi's text (1759: 88), however, contains elements which probably refer to *L. cataphracta*: "Os ... cirris plurimis ubique pollet", "Oblongi quidam dentes ... in antica & postica oris parte", and the description of an upper caudal filament "quatuor fere uncias in adultis longum, extenditur" in a specimen of which the "Longitudo a rostro ad extremum usque ossiculi filiformis in cauda est fere 12 unciarum". As also the addition "in adultis" seems to indicate the existence in Seba's collections of more and smaller loricariine material, I assume that both *cataphracta* and *maculata* were represented.

Though there are several arguments to consider Bleeker's holotype as the pictured Seba specimen, it still has to be shown how such a specimen could have reached the Leiden Museum. In a previous paper (Boeseman, 1970), I have indicated that some Seba specimens must have come into the

possession of the Rijksmuseum van Natuurlijke Historie via various "cabinets" (the Stadtholder, Van Klinkenberg, Van Lidth de Jeude or perhaps via others like Temminck) or by having been returned by the French authorities in Paris in 1815 to become included in the Leiden University Cabinet, one of the main sources of the present Leiden Museum collections.

In the auction catalogue of Seba's collections (Anonymous, 1752: 16, 17, 19, 22) four numbers contain "*Plecostomus*" material: 17 (1 ex.), 60 (2 ex.), 100 (1 ex.) and 209 (1 ex.), of which the numbers 17 and 100 were bought by Vosmaer, presumably for the Cabinet of the Stadtholder, while number 209 was acquired by Van Rooijen (= Van Royen or Van Rooyen) for the Leiden University cabinet. The two specimens of number 60 were procured by Carelius, one of the buyers of uncertain identity, and their vicissitudes remain obscure. It is interesting to note that Seba (or rather Artedi) (1759: 87-88) described four species of "*Plecostomus*", three of which now relegated to other genera, while the Seba auction catalogue also presents four lots. As of the described species only one, the present, appears to have been represented by more than one specimen, it is unfortunate that little is known about the only lot (number 60) containing two examples, though it certainly remains possible that eventually these too came into the possession of the Stadtholder or the Leiden University cabinet. Resuming, it seems not at all unlikely that the present specimen came to the Leiden Museum either via the cabinet of the Stadtholder or that of Carelius, or directly via Van Ro(o)yen, and via the Leiden University collection. As the jar bears the indication "anc.cab.", it was certainly not obtained via Van Klinkenberg and Van Lidth de Jeude. No Seba specimens of *Loricaria maculata* Bloch appear to have been retained by the Paris Museum (Lacépède, 1803: 142; Valenciennes, 1840: 475), while I found none in the British Museum.

Considering these circumstances, and the fact that conclusive evidence of this kind is rarely (if ever) available for specimens from that era, I tentatively consider the holotype of *Parahemiodon typus* Bleeker (RMNH 3121) as derived from Seba's collections, described and figured by Artedi in Seba (1759: 88, pl. 29 fig. 14), and to be attributed to *Loricaria maculata* Bloch.

Judging by the available material, part of which was collected together with *L. cataphracta* specimens, this species inhabits a similar habitat.

***Loricaria (Loricariichthys) brunnea* Hancock (pls. 5, 7)**

Loricaria brunnea Hancock, 1828: 247 (Demerara).

For further references see Eigenmann, 1912: 247 (*Loricaria brunnea*) and Van der Stigchel, 1946, 1947: 179 (*Loricaria brunnea*); none of these include records of Surinam material, and none were found elsewhere.

Material examined. — RMNH 27484, Winanna Creek, left tributary of Koboeri Creek, Corantijn River basin, Surinam, 1 April 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 1 ex., 93 mm; — RMNH 27485, Winanna Creek, left tributary of Koboeri Creek, Corantijn River basin, Surinam, 1 April 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 4 ex., 97-115 mm; — RMNH 27486, Avanavero Falls, Kabalebo River, Corantijn River basin, Surinam, 13 September 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 59 mm; — RMNH 27487, right tributary of Kabalebo River, ca. 8 km below Avanavero Falls, Corantijn River basin, Surinam, 7 April 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 5 ex., 47-94 mm; — RMNH 27488, right tributary of Kabalebo River, just below Avanavero Falls, Corantijn River basin, Surinam, 6 April 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 1 ex., 69 mm; — RMNH 27489, Morali Creek, right tributary of lower Koboeri Creek, Corantijn River basin, Surinam, 23 March 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 3 ex., 101-111 mm; — RMNH 27490, right tributary of Koboeri Creek below Fajastik Creek, Corantijn River basin, Surinam, 2 April 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 2 ex., 44 & 50 mm; — RMNH 27491, Morali Creek, right tributary of lower Koboeri Creek, Corantijn River basin, Surinam, 23 March 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 1 ex., 127 mm (plate 7); — RMNH 27492, Morali Creek, right tributary of lower Koboeri Creek, Corantijn River basin, Surinam, 23 March 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 2 ex., 95 & 115 mm; — RMNH 27493, Sipaliwini River, south-western Surinam, May-June 1972, leg. et don. Dr. G. F. Mees, 1 ex., 101 mm (plate 5); — RMNH 27518, jungle creek near Apisikè, southern Surinam or northern Brazil, 20 April 1952, leg. et don. Dr. D. C. Geijskes, 2 ex., 63 & 83 mm.

TABLE 3

Tabulated morphological data on *Loricaria brunnea* Hancock, with ratios of the measurements (in mm) in comparison with standard length (behind hyphen) or head length (between brackets). For explanation of the symbols A-V, see fig. 1.

	A	B	C	D	H	J	K	L	U	V
1. RMNH 27490	48(?)	44	9.0-4.90	5.0- 8.80(1.80)	13.4-3.30	27.3-1.60	24.0-1.85	16+15	6/6	
2. RMNH 27487	52(58)	47	9.4-5.00	4.6-10.00(2.05)	13.6-3.45	29.6-1.60	26.6-1.80	16+15	6/7	
3. RMNH 27490	54(77)	50	11.0-4.55	5.8- 8.60(1.90)	15.7-3.20	30.8-1.60	27.7-1.80	16+15	6/7	
4. RMNH 27486	64(75)	59	11.8-5.00	6.4- 9.20(1.85)	17.0-3.45	38.0-1.55	34.6-1.70	16+15	6/7	
5. RMNH 27488	74(103)	69	13.6-5.10	8.0- 8.60(1.70)	20.0-3.45	43.5-1.60	38.6-1.80	16+15	7/7	
6. RMNH 27487	86(115)	80	15.3-5.25	10.0- 8.60(1.55)	22.5-3.55	50.0-1.60	45.0-1.80	16+15	8/8	
7. RMNH 27487	89(111)	82	15.4-5.30	10.0- 8.20(1.55)	23.5-3.50	54.5-1.50	47.4-1.75	16+15	7/7	
8. RMNH 27487	92(109)	85	16.5-5.15	10.8- 7.85(1.55)	25.0-3.40	54.6-1.55	48.0-1.75	16+15	7/7	
9. RMNH 27484	100(127)	93	18.0-5.15	11.5- 8.10(1.55)	27.0-3.45	58.8-1.60	53.3-1.75	16/17+15/14	7/7	
10. RMNH 27487	101(111)	94	17.5-5.35	12.1- 7.75(1.45)	27.0-3.50	58.7-1.60	53.0-1.75	16+15	7/9	
11. RMNH 27492	102(124)	95	17.7-5.35	11.1- 8.55(1.60)	27.7-3.45	61.0-1.55	53.2-1.80	16+15	7/8	
12. RMNH 27485	104(136)	97	19.3-5.05	12.0- 8.10(1.60)	28.5-3.40	61.7-1.55	53.7-1.80	16+15	7/7	
13. RMNH 27485	107(128)	99	19.8-5.00	12.4- 8.00(1.60)	29.7-3.35	62.0-1.60	55.0-1.80	16+15	8/7	
14. RMNH 27493*	109(117)	101	18.8-5.35	12.5- 8.05(1.50)	29.1-3.45	63.0-1.60	55.3-1.85	15/16+16/15	8/7	
15. RMNH 27489	110(136)	101	19.7-5.15	12.5- 8.10(1.55)	30.5-3.30	63.0-1.60	55.9-1.80	16+15	7/8	
16. RMNH 27489	115(?)	103	20.5-5.05	12.5- 8.15(1.65)	30.0-3.45	65.6-1.55	58.7-1.75	15+16	8/8	
17. RMNH 27489	123(133)	111	22.5-4.95	18.0- 6.15(1.25)	35.0-3.20	68.8-1.60	61.3-1.80	16+14	8/8	
18. RMNH 27485	122(137)	114	23.0-4.95	15.7- 7.25(1.45)	34.7-3.30	70.7-1.60	62.9-1.80	16+15	8/9	
19. RMNH 27485	124(148)	115	22.5-5.10	15.0- 7.65(1.50)	34.8-3.30	71.5-1.60	63.8-1.80	16+15	9/8	
20. RMNH 27492	124(138)	115	22.7-5.05	17.1- 6.75(1.35)	35.4-3.25	71.2-1.60	61.8-1.85	16+15	8/8	
21. RMNH 27491**	138(155)	127	24.5-5.20	17.0- 7.50(1.45)	38.5-3.30	80.0-1.60	70.0-1.80	16/17+15/14	9/9	
			av. 5.10	av. 8.05(1.60)	av. 3.35	av. 1.60	av. 1.80	av. 16+15		

* See plate 5

** See plate 7

Remarks. — This species hitherto appears to have been recorded only from north-eastern Guyana, adjacent to the region covering the localities in Surinam listed above, which suggests a rather restricted distribution. As the specimens listed above are in close agreement with the description by Eigenmann (1912: 247), though showing in some characters a slightly wider range of variation or allometry, only the information listed in the accompanying table (3) and some illustrations (plates 5 and 7) are given here. Moreover, the papillose lower lip, the well developed upper lip, the intense dark cross-bands on body and peduncle (though sometimes missing in old and bleached specimens), the well developed upper caudal filament and the rather smooth head (though with spiny areas on cheeks and dorsum in males), together with further characteristic colourmarkings (e.g., a dark predorsal spot or ocellus, two smaller dark spots next to anal origin), all well distinguish the present species from all others hitherto reported from Surinam. The description by Van der Stigchel (1946, 1947: 179) shows more discrepancies and apparently is less accurate.

In Surinam *Loricaria brunnea* appears to be restricted to the Corantijn River basin (if the jungle creek near Apisikè, near the watershed between the drainages of Corantijn and Paru (Amazon) River basins, can thus be attributed), occurring from the Kaboeri Creek upward to the upper Sipaliwini area (fig. 2). It has not yet been reported from the coastal area, though Eigenmann (1912: 247, and plate 82) provides records from coastal Demerara. This species is much smaller than those referred to above, and seems to prefer as habitat the smaller creeks.

Gosline's (1945: 105) allocation of this species to the (sub)genus *Loricariichthys* does not seem correct as in several respects it shows much more affinity with *Rineloricaria* Bleeker.

***Loricaria (Loricariichthys) cf. stewarti* Eigenmann (pls. 6, 7)**

? *Loricaria stewarti* Eigenmann, 1910: 9 (Chipoo Creek); 1912: 249, pl. 30 fig. 5).

Material examined. — RMNH 27538, right tributary of Kabalebo River below Avanavero Falls, Corantijn River basin, Surinam, 10 April 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 1 ex., 104 mm (plate 6); — RMNH 27539, Compagnie Creek, Suriname River basin, Surinam, 15 March 1966, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 67 mm; — RMNH 27540, Compagnie Creek, Suriname River basin, Surinam, 19 December 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 71 mm; — RMNH 27541, tributary of Mama Creek near Berg en Dal, Suriname River basin, Surinam, 12 March 1966, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 4 ex., 65-76 mm; — RMNH 27542, 20 km north of Lucie River, Corantijn River basin, western Surinam, 11 February 1975, leg. et don. Dr. M. S. Hoogmoed, 1 ex., 86 mm; — RMNH 27543, right tributary of upper Gran Creek (now approximately Brokopondo Lake shore), Suriname River basin, Surinam, 30 July 1964, leg. et don. Dr. M. Boeseman (Broko-

pondo Research 1963-1964), 1 ex., 80 mm; — RMNH 27544, "Wilhelmina Mountains", Corantijn River basin, Surinam, June-August 1963, leg. H. P. Pijpers, don. Dr. D. C. Geijskes, 1 ex., 43 mm; — RMNH 27545, left tributary of Nickerie River below Blanche Marie Falls, western Surinam, 16 February 1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 5 ex., 61-94 mm; — RMNH 27546, Sipaliwini River, Corantijn River basin, Surinam, May-June 1972, leg. et don. Dr. G. F. Mees, 1 ex., 46 mm; — RMNH 27547, Marchall Creek, Suriname River basin, Surinam, 28 December 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 8 ex., 53-81 mm; — RMNH 27548, Kwambaolo Creek, right tributary of Sara Creek above Dam, Suriname River basin, Surinam, 28 December 1963, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 13 ex., 47-79 mm; — RMNH 27549, Compagnie Creek, Suriname River basin, Surinam, 18 October 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 10 ex., 43-60 mm; — RMNH 27550, jungle creek north-east of airstrip Kayser Mountains, Corantijn River basin, Surinam, 10 August 1968, leg. et don. Dr. M. S. Hoogmoed, 6 ex., 43-53 mm; — RMNH 27551, Compagnie Creek, Suriname River basin, Surinam, 18 October 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 78 mm; — RMNH 27552, Compagnie Creek, Suriname River basin, Surinam, 13 April 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 32 mm; — RMNH 27554, Sipaliwini River, south-western Surinam, May-June 1972, leg. et don. Dr. G. F. Mees, 2 ex., 80 & 82 mm (plate 7).

Remarks. — The present species seems hitherto to have been recorded only from the type locality, Chipoo Creek, a tributary of the Ireng River, Rio Branco (Amazon) drainage, which makes it surprising that now (tentatively) several specimens are recorded from widely dispersed localities in Surinam, south of the northern savannah belt (fig. 2). As a consequence, even though the agreement with the original description, including several striking characters, seems convincing, the present identification must remain tentative pending comparison with type material. It may be added here that in the Rupununi-Ireng region, many species occur on both sides of the divide, possibly due to river captures (Lowe, 1964: 135, 140-143).

As the description by Eigenmann (1912: 249) does not cover all features and certainly not the whole variational range of several characters, additional information is provided in the accompanying table (4), while also pictures are given (plates 6 and 7).

As already stated by Eigenmann, the present species appears to be closely allied to the previous, *Loricaria brunnea*, though differing in some salient features, the principal of which are given in the present key. It also appears to have erroneously been allocated to the (sub)genus *Loricariichthys* by Gosline (1945: 105).

Like *Loricaria brunnea*, *L. stewarti* too seems to occur primarily (or only) in small jungle creeks.

ADDENDUM ON SURINAM HARTTIINAE

In a previous paper (Boeseman, 1971), I omitted any record of several specimens, clearly of a *Harttia*-like aspect, feeling some doubt about their

TABLE 4

Tabulated morphological data on *Loricaria* cf. *stewarti* Eigenmann, with ratios of the measurements (in mm) in comparison with standard length (behind hyphen) or head length (between brackets). For explanation of the symbols A-V, see fig. 1.

	A	B	C	D	E	F	G	H	I	J	K	L
1. RMNH 27544	?(?)	43	9.6-4.50	6.8(1.40)	3.8(2.55)	3.8-11.3(2.55)	5.0-8.60(1.90)	4.3-10.00(2.25)	13.2-3.25	26.8-1.60	23.1-1.85	
2. RMNH 27546	51(?)	46	9.5-4.85	6.9(1.40)	3.9(2.45)	4.2-11.0(2.25)	5.3-8.70(1.80)	4.5-10.20(2.10)	13.2-3.50	28.5-1.60	25.5-1.80	
3. RMNH 27547	59(73)	53	10.6-5.00	7.2(1.45)	4.6(2.30)	4.8-11.0(2.20)	5.9-9.00(1.80)	4.8-11.05(2.20)	15.6-3.40	33.9-1.55	30.0-1.75	
4. RMNH 27547	64(86)	57	11.5-4.95	7.8(1.45)	4.8(2.40)	5.0-11.4(2.30)	6.6-8.65(1.75)	5.2-10.95(2.20)	17.1-3.35	35.8-1.60	31.4-1.80	
5. RMNH 27547	64(?)	58	11.3-5.15	7.8(1.45)	4.6(2.45)	4.8-12.0(2.35)	6.5-8.90(1.75)	5.3-10.95(2.15)	17.0-3.40	35.9-1.60	31.6-1.85	
6. RMNH 27545	67(77)	61	12.6-4.85	8.7(1.45)	5.0(2.50)	5.0-12.2(2.50)	7.0-8.70(1.80)	6.1-10.00(2.05)	18.2-3.35	36.7-1.65	32.1-1.90	
7. RMNH 27545	70(82)	63	13.2-4.75	9.0(1.45)	5.3(2.50)	5.5-11.5(2.40)	7.5-8.40(1.75)	6.5-9.70(2.05)	19.4-3.25	38.8-1.60	34.0-1.85	
8. RMNH 27541	72(?)	65	12.8-5.05	8.7(1.45)	5.6(2.30)	5.9-11.0(2.15)	7.2-9.00(1.75)	6.2-10.50(2.05)	19.3-3.35	42.0-1.55	37.2-1.75	
9. RMNH 27541	72(99)	66	13.2-5.00	8.8(1.50)	5.6(2.35)	5.8-11.4(2.30)	7.8-8.45(1.70)	6.5-10.15(2.05)	20.2-3.25	40.9-1.60	35.5-1.85	
10. RMNH 27547	72(93)	66	13.0-5.05	8.7(1.50)	5.2(2.50)	5.5-12.0(2.35)	7.5-8.80(1.75)	6.6-10.00(1.95)	20.3-3.25	41.6-1.60	36.6-1.80	
11. RMNH 27539	74(?)	67	13.6-4.95	9.0(1.50)	6.1(2.25)	6.2-10.8(2.20)	8.1-8.25(1.70)	7.0-9.55(1.95)	21.2-3.15	41.3-1.60	36.0-1.85	
12. RMNH 27547	74(99)	68	13.1-5.20	8.8(1.50)	5.4(2.45)	5.8-11.7(2.25)	8.0-8.50(1.65)	6.7-10.15(1.95)	20.4-3.35	42.2-1.60	36.8-1.85	
13. RMNH 27541	74(?)	68	13.2-5.15	8.9(1.50)	5.9(2.25)	5.9-11.5(2.25)	8.0-8.50(1.55)	6.8-10.00(1.95)	20.0-3.40	43.1-1.60	37.0-1.85	
14. RMNH 27547	75(97)	69	13.4-5.15	9.1(1.45)	5.8(2.30)	6.4-10.8(2.10)	8.0-8.65(1.70)	6.8-10.15(1.95)	20.5-3.35	42.4-1.65	36.9-1.85	
15. RMNH 27540	77(100)	71	14.0-5.05	9.5(1.45)	6.2(2.25)	6.9-10.3(2.05)	9.3-7.65(1.50)	7.2-9.85(1.95)	21.3-3.35	43.8-1.60	37.8-1.90	
16. RMNH 27541	82(99)	76	15.3-4.95	10.0(1.55)	6.2(2.45)	7.0-10.9(2.20)	9.8-7.75(1.55)	7.8-9.75(1.95)	23.8-3.20	46.0-1.65	39.6-1.90	
17. RMNH 27545	87(89)	76	16.4-4.65	10.8(1.50)	6.3(2.60)	6.5-11.7(2.50)	9.2-8.25(1.80)	8.3-9.15(2.00)	24.1-3.15	46.5-1.65	39.4-1.95	
18. RMNH 27547	88(120)	79	15.3-5.15	10.8(1.40)	6.4(2.40)	6.5-12.2(2.35)	9.5-8.30(1.60)	8.1-9.75(1.90)	23.4-3.40	49.1-1.60	42.0-1.90	
19. RMNH 27554	86(114)	80	15.7-5.10	11.2(1.40)	6.4(2.45)	6.6-12.1(2.40)	10.3-7.75(1.50)	8.6-9.30(1.85)	24.2-3.30	48.6-1.65	42.8-1.85	
20. RMNH 27543	87(114)	80	15.1-5.30	10.4(1.45)	6.1(2.50)	6.5-12.3(2.30)	9.4-8.50(1.60)	8.6-9.30(1.75)	23.7-3.40	50.6-1.60	43.8-1.85	
21. RMNH 27547	88(112)	81	15.6-5.20	10.5(1.50)	6.6(2.35)	7.4-11.0(2.10)	10.3-7.85(1.50)	8.3-9.75(1.85)	23.7-3.40	49.8-1.65	43.0-1.90	
22. RMNH 27554	89(117)	82	15.8-5.20	11.5(1.35)	6.5(2.45)	7.1-11.5(2.25)	10.9-7.50(1.45)	9.0-9-10(1.75)	24.5-3.35	50.1-1.65	44.3-1.85	
23. RMNH 27541	92(-)	82	18.3-4.50	12.7(1.45)	7.2(2.55)	7.7-10.6(2.40)	11.3-7.25(1.60)	10.1-8-10(1.80)	27.2-3.00	47.7-1.70	40.6-2.00	
24. RMNH 27542	95(108)	86	18.2-4.75	13.2(1.40)	7.4(2.45)	8.0-10.8(2.30)	11.8-7.30(1.55)	10.0-8.60(1.80)	27.5-3.15	50.5-1.70	44.7-1.90	
25. RMNH 27545	103(124)	94	19.7-4.75	13.1(1.50)	7.9(2.50)	8.7-10.8(2.25)	12.8-7.35(1.55)	10.8-8.70(1.80)	29.5-3.20	57.3-1.65	48.9-1.90	
26. RMNH 27538	114(145)	104	21.8-4.75	14.1(1.55)	8.4(2.60)	9.3-11.2(2.35)	13.5-7.70(1.60)	11.8-8.80(1.85)	32.8-3.15	62.3-1.65	54.1-1.90	
			av. 4.95	av. (1.45)	av. (2.40)	av. 11.4(2.30)	av. 8.30(1.70)	av. 9.80(1.95)	av. 3.30	av. 1.60	av. 1.85	
	M	N	O	P	Q	R	S	T	U	V		
1. 0.6 (16.00)	8.1-5.30(1.20)	6.9-6.25(1.40)	6.0-7.15(1.60)	7.4-5.80(1.30)	1.6(6.00)	2.3(4.15)	4.6(2.10)	15+14	5/6			
2. 0.65(14.60)	8.6-5.35(1.10)	6.9-6.65(1.40)	5.9-7.80(1.60)	7.6-6.05(1.25)	1.6(5.95)	2.3(4.15)	4.4(2.15)	15/16+15/14	6/7			
3. 0.7 (15.15)	10.8-4.90(1.00)	7.7-6.90(1.40)	7.3-7.25(1.45)	8.3-6.40(1.30)	1.7(6.25)	2.6(4.05)	5.0(2.10)	15+16	6/7			
4. 0.7 (16.45)	11.1-5.15(1.05)	8.2-6.95(1.40)	8.0-7.15(1.45)	8.9-6.40(1.30)	1.8(6.40)	2.8(4.10)	5.6(2.05)	15+16	6/7			
5. 0.8 (14.15)	11.8-4.90(0.95)	8.2-7.05(1.40)	8.5-6.85(1.35)	9.9-5.85(1.15)	1.8(6.30)	2.8(4.05)	5.4(2.10)	15/16+16/15	5/6			
6. 0.8 (15.75)	11.4-5.35(1.10)	8.7-7.00(1.45)	7.9-7.70(1.60)	9.8-6.20(1.30)	1.9(6.65)	2.6(4.85)	6.0(2.10)	16/17+14/13	6/6			
7. 0.8 (16.50)	11.9-5.30(1.10)	10.0-6.30(1.30)	10.0-6.30(1.30)	9.9-6.35(1.35)	2.0(6.60)	2.8(4.71)	6.0(2.20)	15/16+15/14	5/7			
8. 0.75(17.10)	12.2-5.35(1.05)	9.9-6.55(1.30)	9.6-6.75(1.35)	10.4-6.25(1.25)	1.9(6.75)	3.0(4.25)	5.8(2.20)	14/15+17/17	7/7			
9. 0.8 (16.50)	13.5-4.90(1.00)	10.1-6.55(1.30)	9.7-6.80(1.35)	11.5-5.75(1.15)	2.0(6.60)	3.2(4.15)	6.1(2.15)	15/16+16/15	8/6			
10. 0.8 (16.25)	13.4-4.95(0.95)	9.8-6.75(1.35)	9.6-6.85(1.35)	10.5-6.30(1.25)	1.9(6.85)	3.1(4.20)	6.2(2.10)	15+16	7/7			
11. 0.9 (15.10)	13.2-5.10(1.05)	9.9-6.75(1.35)	10.0-6.70(1.35)	11.9-5.65(1.15)	2.0(6.80)	3.2(4.25)	6.4(2.15)	15+16	6/6			
12. 0.85(15.40)	13.7-4.95(0.95)	9.7-7.00(1.35)	9.7-7.00(1.35)	11.1-6.15(1.20)	2.0(6.55)	3.2(4.10)	6.3(2.10)	15/16+16/15	6/6			
13. 0.9 (14.65)	12.9-5.25(1.00)	10.4-6.55(1.25)	9.9-6.85(1.35)	11.2-6.05(1.20)	2.0(6.60)	3.1(4.25)	6.3(2.10)	15+16	7/7			
14. 0.9 (14.90)	13.6-5.10(1.00)	10.3-6.70(1.30)	9.8-7.05(1.35)	11.4-6.05(1.20)	2.1(6.40)	3.0(4.45)	6.4(2.10)	15/16+15/15	6/6			
15. 0.9 (15.55)	15.1-4.70(0.95)	10.7-6.65(1.30)	10.5-6.75(1.35)	12.1-5.85(1.15)	2.1(6.65)	3.3(4.25)	6.5(2.15)	14+16	6/6			
16. 0.95(16.10)	14.6-5.20(1.05)	11.4-6.65(1.35)	10.6-7.15(1.45)	12.3-6.15(1.25)	2.3(6.65)	3.5(4.35)	6.8(2.25)	15+16	7/7			
17. 1.0 (16.40)	15.7-4.85(1.05)	11.0-6.90(1.50)	10.8-7.05(1.50)	12.6-6.05(1.30)	2.5(6.55)	3.4(4.80)	8.2(2.20)	15+14	6/7			
18. 1.0 (15.30)	15.0-5.25(1.00)	10.9-7.25(1.40)	10.9-7.25(1.40)	12.8-6.15(1.20)	2.4(6.40)	3.6(4.25)	7.3(2.10)	15+16	7/7			
19. 1.0 (15.70)	15.0-5.55(1.05)	11.1-7.20(1.40)	11.1-7.20(1.40)	11.8-6.80(1.35)	2.3(6.85)	3.3(4.75)	7.3(2.15)	15+15	7/9			
20. 1.0 (15.10)	15.8-5.05(0.95)	12.0-6.65(1.25)	11.6-6.90(1.30)	12.5-6.40(1.20)	2.4(6.30)	3.5(4.30)	7.6(2.00)	15+17	7/8			
21. 1.0 (15.60)	15.5-5.25(1.00)	11.7-6.95(1.35)	11.2-7.25(1.40)	13.1-6.20(1.20)	2.4(6.50)	3.5(4.45)	7.6(2.05)	15+16	7/7			
22. 1.1 (14.35)	15.7-5.20(1.00)	12.1-6.80(1.30)	12.0-6.85(1.30)	12.4-6.60(1.25)	2.4(6.60)	3.4(4.65)	7.4(2.15)	16+15	8/8			
23. 1.2 (15.25)	16.2-5.05(1.15)	12.0-6.85(1.50)	11.5-7.15(1.60)	13.1-6.25(1.40)	2.8(6.55)	3.8(4.80)	9.0(2.05)	16/17+12/11	7/7			
24. 1.2 (15.15)	15.6-5.50(1.15)	12.8-6.70(1.40)	11.6-7.40(1.55)	12.9-6.65(1.40)	2.7(6.75)	3.7(4.90)	9.3(1.95)	16+14(15)	6/7			
25. 1.15(17.15)	18.0-5.20(1.10)	13.6-6.90(1.45)	12.8-7.35(1.55)	14.5-6.50(1.35)	3.0(6.55)	3.9(5.05)	9.5(2.05)	15/16+15/14	6/6			
26. 1.3 (16.75)	18.3-5.70(1.20)	14.2-7.30(1.55)	14.1-7.20(1.55)	14.9-7.00(1.45)	3.1(7.05)	3.9(5.60)	10.9(2.00)	16+14	7/8			
	av. 15(1.65)	av. 5.15(1.05)	av. 6.80(1.35)	av. 7.05(1.40)	av. 6.20(1.25)	av. (6.55)	av. (4.45)	av. (2.10)	av. 15+15			

●) Aberrant specimen, with posterior part underdeveloped. Omitted from average.

●●) See plate 7

●●●) See plate 6

systematic allocation on account of the relatively limited numbers of teeth, especially in young examples. Since then, I have come to the conclusion that these specimens, which evidently represented a new species, should indeed be allocated to the genus *Harttia* on account of their general shape, the indistinct and rounded lateral longitudinal ridges, the missing orbital notch, the lack of any caudal filaments and, in adults, the still quite numerous teeth found on each half jaw. The smaller number of teeth in juveniles, not unexpected in this group, evidently is of little systematic or phylogenetic importance.

Since 1971, Isbrücker (1975a: 1-9, 3 pls.) described a new harttiine species from Guyane (French Guiana): *Metaloricaria paucidens*, to which evidently the present Surinam material is closely related.

Isbrücker based his new genus *Metaloricaria* (1975a: 2) merely on differences "in nature of dentition and in shape and structure of lips". These few features, however, form a single functional unit with presumably a considerable adaptability and therefore probably without sufficient importance to warrant generic distinction from *Harttia* Steindachner. Especially as many other diagnostic characters also convincingly show a close relationship of *M. paucidens* with my *Harttia surinamensis* (Boeseman, 1971). I therefore propose here the new combination *Harttia paucidens*. On the other hand, some measurements in the present species (see K, L and M in table 5) seem to suggest a synonymy between *Harttia* Steindachner and *Parasturisoma* Ribeiro, as adopted by Isbrücker; however, other diagnostic characters of *Parasturisoma* (e.g., the slender shape and the occurrence of filamentous caudal rays and much more distinct lateral carinae) still hold. N.B.: In my previous diagnosis of the genus *Parasturisoma* (Boeseman, 1971: 11), the line "width of head distinctly surpassing its length" should read "width of head distinctly surpassed by its length", another character contrasting with *Harttia*.

***Harttia nijsseni* nov. spec. (pl. 8)**

Material examined. — RMNH 27498, Sipaliwini River, south-western Surinam, 6 February 1964, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 273 mm (holotype, plate 8): — RMNH 27494, Tapanahoni River, ca. 2 km downstream Paloemeu airstrip, Surinam, 17 November 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 3 ex., 205-232 mm, and 1 juv., 44 mm; — RMNH 27495, Awaradam (rapids), Gran Rio, upper Suriname River, Surinam, 17 July 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 265 mm; — RMNH 27496, Sipaliwini River, south-western Surinam, 4 February 1966, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 1 ex., 257 mm; — RMNH 27497, Zandvallen, ca. 10 km above Avanavero Falls, Kabalebo River, Corantijn River basin, Surinam, 23 September 1965, leg. et don. Dr. G. F. Mees (Brokopondo Research 1965-1966), 5 ex., 115-203 mm; — RMNH 27499, Suriname River near Brokopondo (pools in dry river bed), Surinam, 2 September 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research

1963-1964), 5 ex., 145-260 mm; — RMNH 27500, pool below Feddiprati rapids, Saracca River, Surinam, 9 April 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 4 ex., 90-248 mm; — RMNH 27501, Suriname River near Brokopondo (pools in partly dry river bed), Surinam, 12 March 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 2 ex., 223 & 243 mm; — RMNH 27502, Suriname River near Brokopondo (pools in mostly dry river bed), Surinam, 25/26 April 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 4 ex., 124-239 mm; — RMNH 27503, Suriname River near Brokopondo (pools and shallow parts, subsiding water), Surinam, 3/4 February 1964, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 118 mm, and 1 juv., 39 mm; — RMNH 27504, Kwambaolo Creek, right tributary of Sara Creek above Dam, Surinam River basin, Surinam, 28 December 1963, leg. et don. Dr. M. Boeseman (Brokopondo Research 1963-1964), 1 ex., 98 mm; — (all except RMNH 27498 paratypes).

Description. — As most counts, measurements and ratios are given in the accompanying table (5), while pictures (plate 8) are given of the holotype in dorsal, lateral and ventral view, it seems unnecessary to provide here more than a few additional characters, and to point out the principal discriminating features which distinguish the present species from *Harttia paucidens* (Isbrücker), very meticulously described by its author, and my *Harttia surinamensis* (Boeseman, 1971: 28).

In table 6, the principal data, ratios and counts of the types of the three species here discussed are given; the explanation of the symbols A-V is provided in the legend to text-figure 1. Besides the registered numbers of the holotypes (A) and the total (axial) and standard length (B, C), and, at the end, the numbers of scutes in postcleithral longitudinal series and the numbers of teeth on the (upper/lower) jaw halves, only ratios are provided, the first concerning the holotype, those of the total typical material between brackets.

While the size ranges of the concerned material of *H. paucidens* and the present *H. nijsseni* are almost identical, there is a considerably lower range in the apparently smaller species *H. surinamensis*. Therefore, while for all the total available typical ranges are given, I have added between square brackets to those of *H. surinamensis* the alternative limits when neglecting the smaller specimens up to about 80 mm standard length, which numbers should replace those underlined in the total ranges to attain a more sound base for mutual comparison between the three species.

The most striking aspect of these comparative data seems that in most of the listed characters *H. nijsseni* is intermediate between *H. paucidens* and *H. surinamensis*, though evidently distinct by filling only part of the gap. This of course only if specimens of a more or less comparable size are considered, as the total ranges frequently overlap. No intermediate ratios occur in the characters F, G, N, Q and S, while E and R are largely the same in all three species. Among these characters, the most characteristic is the

TABLE 6

Comparative information, mainly ratios of measurements throughout the available size ranges, on the types of three species of *Harttia* here discussed. For an explanation of the symbols A-V, see fig. 1; further explanation in the text.

<i>Harttia paucidens</i>	<i>Harttia nijsseni</i>	<i>Harttia surinamensis</i>
A I.R.Sc.N.B. 549 (holotype)	RMNH 27498 (holotype)	RMNH 26388 (holotype)
B 295 - (89 -295)	301 - (101 - 301)	206.5 - (39 - 206.5) [<u>9</u>]
C 270 - (81.5-270)	273 - (90 - 273)	188 - (37 - 188) [<u>8</u>]
D 4.8 - (4.5-5.1)	4.35- (4.35-4.85)	4.20 - (3.70-4.45) [<u>4.0</u>]
E 1.1 - (1.1-1.2)	1.15- (1.10-1.25)	1.00 - (1.00-1.25) [<u>1.1</u>]
F 2.3 - (2.3-2.9)	2.20- (2.20-2.65)	2.70 - (2.60-2.90) -
G 10.8(2.2)-(10.8-13.3(2.2-2.8))	9.05(2.10)-(9.05-13.05(2.05-2.85))	11.30(2.65)-(10.00-12.00(2.35-3.20)) [<u>2.00(2.75)</u>]
H 6.2(1.3)-(6.2- 7.7(1.3-1.6))	5.90(1.35)-(5.85- 6.80(1.25-1.45))	4.75(1.15)-(4.65- 6.00(1.10-1.65)) [<u>5.65(1.30)</u>]
I 6.9(1.4)-(6.9- 8.3(1.4-1.9))	6.65(1.55)-(6.35- 7.85(1.35-1.65))	6.15(1.45)-(6.00- 8.00(1.40-2.20)) [<u>6.80(1.60)</u>]
J 3.6 - (3.4-3.8)	3.20- (3.20-3.55)	2.95 - (2.80-3.10) [<u>2.90</u>]
K 1.6 - (1.5-1.6)	1.65- (1.55-1.65)	1.80 - (1.75-1.85) [<u>1.80</u>]
L 1.9 - (1.8-1.9)	2.00- (1.85-2.00)	2.15 - (2.10-2.25) [<u>2.20</u>]
M 9.0 - (9.0-18.7)	13.40-(12.50-17.50)	15.0 - (14.5-18.5) -
N 4.8(ca.1.0)-(4.1-4.9(ca.0.8-1.0))	4.95(1.15)-(4.15- 5.05(0.85-1.15))	3.85(0.90)-(3.65- 4.75(0.85-1.30)) [<u>4.55(1.05)</u>]
O 6.4(1.3)-(4.9-6.4(1.0-1.3))*	5.35(1.25)-(4.60- 5.35(0.95-1.25))	3.45(0.85)-(3.45- 4.65(0.80-1.30)) [<u>4.30(1.05)</u>]
P 6.2(1.3)-(6.0-8.5(1.2-1.7))*	5.50(1.25)-(5.30- 6.65(1.15-1.35))	5.25(1.25)-(4.65- 5.50(1.10-1.40)) [<u>4.80(1.25)</u>]
Q 6.6(1.4)-(6.5-8.0(1.3-1.7))	6.45(1.50)-(5.75- 6.90(1.25-1.55))	7.00(1.65)-(7.00- 8.25(1.60-2.10)) [<u>8.25(1.95)</u>]
R 5.6 - (4.0-5.6)	5.30 - (3.80-5.70)	5.20 - (4.10-5.25) [<u>4.3</u>]
S 4.6 - (4.6-5.7)	5.15 - (4.70-5.85)	4.20 - (4.10-4.85) [<u>4.70</u>]
T 1.6 - (1.6-1.9)	1.65 - (1.65-2.00)	1.75 - (1.75-2.00) -
U 34 - (33 - 36)	33 - (32 - 34)	30 - (30-31) [<u>31 30</u>]
V 19/18-19 - (15-19/8-19)	26/27 - (8-26/11-27)	125/120-(45-125/50-120) [<u>80/75</u>]

●● Isbrücker (1975^a:3) mentions pelvic and anal spines, but the undivided first rays of these fins are not spiny.

difference in the number of teeth (V), again provided specimens of about the same size are compared.

The general shape of the species provides hardly any means for specific distinction. The broad triangular head may show a slightly concave lateral outline just behind the tip of the snout, as also occurs in *H. paucidens* (cf. Isbrücker, 1975a, pl. 2), and has an area of more developed bristles on the cheeks and the upper surface of the pectoral spine in adult males. Nuchal ridges are low but well discernible, the upper orbital rim is well elevated; no orbital notch. The oral disc is roundish, the lower lip papillose and hardly frayed along the margins, the broad-based tapering tentacles about as long as eye diameter. The dorsal and marginal shields of the head are continued below the cheeks on the lower surface by a wide triangular cover projecting before the gill apertures, the throat remaining naked. The scutes on body and peduncle hardly show the lateral longitudinal carinae, which become confluent at a point hard to distinguish. On the belly, between the large transverse marginal scutes, there are transversely about 5-7 smaller and irregularly arranged scutes (against numerous minute scutes in *H. surinamensis* and 8-10 in *H. paucidens*), though anteriorly on the breast several more are found.

Except in relative size, the fins show few relevant aspects. The fin-formula is: D I.7; P I.6; V i.5, A i.4(1) or i.5; C i.12.i. The first ray of the ventrals is considerably thickened and projects well beyond the next, divided ray. The caudal has no filaments; the two lobes are often more or less truncate, with either the upper or the lower the longest. The pectoral reaches to about $\frac{1}{4}$ - $\frac{1}{2}$ first pelvic ray.

There are five vaguely marked dark, broad transverse bands on posterior body and peduncle, and small spots may be discernible on the head. Only the dorsal fin shows distinct transverse series of spots, more or less situated on the spine and the rays. Similar spots may occur on the pectorals, but these as well as the ventrals usually merely have the membranes pigmented, while the anal is wholly pale. The caudal has some irregular dark blotches, which may more or less form transverse, incomplete bands.

Remarks. — Judging by the available material, the species occurs in Surinam throughout the whole area south of the northern savannah belt, including both the inland Corantijn- and Marowijne River basins (fig. 2), and therefore is largely sympatric with *H. surinamensis*; the last named species, however, has not yet been recorded from the Corantijn River basin and, considering the recent extensive exploration of that area, presumably does not occur there. The types of *H. paucidens* also came from the Marowijne River drainage, as do specimens of the present species now recorded from the Tapanahoni River, but the type locality is situated far more to the east in (French) Guyane. Except one juvenile, all were collected in the larger rivers, not necessarily near cataracts or rapids.

The species is named after Dr. H. Nijssen as a token of esteem for his work on the South American catfishes.

During the 1971 expedition to north-western Surinam by staff members and collaborators of the Rijksmuseum van Natuurlijke Historie, sponsored by the Netherlands Foundation for the Advancement of Tropical Research (WOTRO) and the Leiden Museum, another example was collected of *Farlowella parvicarinata* Boeseman:

RMNH 27517, Tjawassi Creek below bivouac Lombok Falls, right tributary of Nickerie River at about 50 km south-west of Stondansie Falls, Surinam, 7-2-1971, leg. et don. Dr. M. Boeseman (N.W. Surinam Expedition 1971), 1 ex., 136 mm.

The specimen almost wholly agrees with the original description (Boeseman, 1971: 42, pls. 7 & 8), and the key (p. 25) easily leads to the present identification. Only the pectoral spine length, being slightly over 3 in head, requires an extension of the variational range of that character. The locality

is situated at about 40 km south-west of the type locality, and belongs to the same drainage. No specimens of this species have hitherto been recorded from neighbouring river basins, though quite some collecting was done in the Maratakka River and nearby parts of the Corantijn River basin.

SUMMARY

A review is given, with a key, of the four species of Surinam Loricariinae (as restricted by Boeseman, 1971: 15-16), all provisionally relegated to the genus *Loricaria* Linnaeus 1758 (sensu lato): *L. cataphracta* Linnaeus, *L. maculata* Bloch, *L. brunnea* Hancock, and *L. cf. stewarti* Eigenmann. It is demonstrated that the holotype of *Parahemiodon typus* Bleeker (RMNH 3121), presumably originating from the Seba collection and pictured in Seba's *Locupletissimi rerum naturalium thesauri*, vol. 3 (1759) by Artedi, should be attributed to *Loricaria maculata* Bloch, of which it is a junior subjective synonym.

In an addendum to a previous review of the Surinam Harttiinae (Boeseman, 1971), a new species is recorded from Surinam: *Harttia nijsseni* nov. spec.; a new Surinam record of *Farlowella parvicarinata* Boeseman is added.

ACKNOWLEDGEMENTS

The photographs were made by Mr. Chr. Hoorn, photographer, the text-figures were drawn or adapted by Mr. A. Bos, artist, both of the Rijksmuseum van Natuurlijke Historie, Leiden. The kind cooperation of the typists, Mrs. J. B. Smit, Mrs. J. M. J. Bakker and Mrs. E. A. Julien, is gratefully acknowledged.

REFERENCES

- ANONYMOUS, 1752. *Catalogus Van de Uitmuntende Cabinetten, ... nagelaten door wylen den Heere Albertus Seba, etc.* Amsterdam.
- ARTEDI, P., 1759. In A. Seba, *Locupletissimi rerum naturalium thesauri ...*, 3. Amsterdam.
- BLEEKER, P., 1862a. Descriptions de quelques espèces nouvelles de Silures de Suriname. — *Versl. Akad. Amsterdam, Natuurk.*, 14: 371-389.
- , 1862b. *Atlas Ichthyologique des Indes Orientales Néerlandaises*, 2: Siluroïdes, Chacoïdes et Hétérobranchoïdes. Amsterdam.
- , 1864. Description des espèces de Silures de Suriname conservées aux Musées de Leide et d'Amsterdam. — *Nat. Verh. Maatsch. Wetensch. Haarlem*, (2) 20: 1-104, pls. 1-16.
- BLOCH, M. E., 1794. *Allgemeine Naturgeschichte der Fische*, 11 (= *Naturgeschichte der ausländischen Fische*, 8). Berlin. Only French version of 1797, Berlin & Leipzig, consulted.
- BLOCH, M. E. & J. G. SCHNEIDER, 1801. *M. E. Bloch, ..., Systema ichthyologiae iconibus CX illustratum.* Berlin.
- BOESEMAN, M., 1968. The genus *Hypostomus* Lacépède, 1803, and its Surinam representatives (Siluriformes, Loricariidae). — *Zool. Verhand. Leiden*, 99: 1-89, 6 figs., 18 pls., 20 tables, 19 diagrams.
- , 1969. Additional new species of *Hypostomus* Lacépède, 1803, from Surinam; with remarks on the apparent "gymnorhynchus-complex" (Siluriformes, Loricariidae). — *Beaufortia*, 16: 119-136, 5 figs., 2 tables, 19 diagrams.
- , 1970. The vicissitudes and dispersal of Albertus Seba's zoological specimens. — *Zool. Meded. Leiden*, 44 (13): 177-206, 1 fig., 4 pls.

- BOESEMAN, M., 1971. The "comb-toothed" loricariinae of Surinam, with reflections on the phylogenetic tendencies within the family Loricariidae (Siluriformes, Siluroidei). — Zool. Verhand. Leiden, 116: 1-56, 5 figs., 8 pls. 11 tables, 26 diagrams.
- , 1972. Notes on South American catfishes, including remarks on Valenciennes and Bleeker types in the Leiden Museum. — Zool. Meded. Leiden, 47: 293-320, 2 pls.
- , 1974. On two Surinam species of Hypoptopomatinae, both new to science (Loricariidae, Siluriformes, Ostariophysi). — Proc. Kon. Ned. Akad. Wetensch., (C) 77 (3): 257-271, 2 figs., 2 pls., 3 tables.
- BONNATERRE, J. P. 1788. Ichthyologie. Tableau encyclopédique et méthodique des trois règnes de la Nature. Paris.
- EIGENMANN, C. H., 1910. Some new genera and species of fishes from British Guiana. — Ann. Carnegie Mus., 6: 4-54.
- , 1912. The freshwater fishes of British Guiana, including a study of the ecological grouping of species and the relation of the fauna of the plateau to that of the lowlands. — Mem. Carnegie Mus., 1: i-xxi, 1-578, 39 figs., 1+103 pls.
- FOWLER, H. W., 1954. Os peixes de água doce do Brasil (4.a entrega). — Arq. Zool. São Paulo, 9: i-ix, 1-400, figs. 590-905.
- GOSLINE, W. A., 1945. Catálogo dos Nematognatos de água-doce da América do Sul e Central. — Bol. Mus. Nac. Rio de Janeiro, 33: 1-138.
- GRONOVIVS, L. T., 1754. Museum ichthyologicum, sistens piscium etc. Leiden.
- , 1854. Catalogue of fish ... now in the British Museum. London.
- HANCOCK, J., 1828. Notes on some species of fishes and reptiles, from Demerara, presented to the Zoological Society by John Hancock, Esq., Corr. Memb. Zool. Soc. — Zool. Journ., 4: 240-247.
- ISBRÜCKER, I. J. H., 1970. Pseudohemiodon (Planiloricaria) cryptodon, a new species and subgenus from Peru (Pisces, Siluriformes, Loricariidae). — Bonn. zool. Beitr., 21: 274-283, 8 figs.
- , 1971. A redescription of the South American catfish Loricariichthys maculatus (Bloch, 1794), with designation of the lectotype and restriction of its type locality (Pisces, Siluriformes, Loricariidae). — Bijdr. Dierk., 41 (1): 11-18, 7 figs.
- , 1972. The identity of the South American catfish Loricaria cataphracta Linnaeus, 1758, with redescriptions of the original type specimens of four other nominal Loricaria species (Pisces, Siluriformes, Loricariidae). — Beaufortia, 19: 163-191, 12 figs., 1 table.
- , 1973a. Status of the primary homonymous South American catfish Loricaria cirrhosa Perugia, 1897, with remarks on some other loricariids (Pisces, Siluriformes, Loricariidae). — Ann. Mus. Civ. Storia Nat. Genova, 79: 172-191, 3 figs., 1 table.
- , 1973b. Redescription and figures of the South American Mailed Catfish Rhineloricaria lanceolata (Günther, 1868) (Pisces, Siluriformes, Loricariidae). — Beaufortia, 21: 75-89, 5 figs., 1 table.
- , 1975a. 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, 4 figs. (3 on pls.), 1 table.
- , 1975b. Pseudohemiodon thorectes, a new species of Mailed Catfish from the Rio Mamoré system, Bolivia (Pisces, Siluriformes, Loricariidae). — Beaufortia, 23: 85-92, 3 figs.
- ISBRÜCKER, I. J. H. & H. NIJSSSEN, 1974a. Rhadinoloricaria gen. nov. and Planiloricaria, two genera of South American Mailed Catfishes (Pisces, Siluriformes, Loricariidae). — Beaufortia, 22: 67-81, 4 figs.
- , 1974b. On Hemiodontichthys acipenserinus and Reganella depressa, two remarkable Mailed Catfishes from South America (Pisces, Siluriformes, Loricariidae). — Beaufortia, 22: 193-222, 14 figs., 5 tables.

- ISBRÜCKER, I. J. H. & H. NIJSSEN, 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, 3 tables, 4 pls.
- LACÉPÈDE, B. G. E., 1803. *Histoire naturelle des poissons*, 5. Paris.
- LINNAEUS, C., 1754. *Museum S.R.M. Adolphi Friderici Regis Suecorum* — *describuntur et determinantur*, etc. Stockholm.
- , 1758. *Systema naturae per regna tria naturae*, etc. (ed. 10). Holmiae.
- LOWE (McCONNELL), R. H., 1964. The fishes of the Rupununi savanna district of British Guiana, South America. Part 1. Ecological groupings of fish species and effects of the seasonal cycle on the fish. — *Journ. Linn. Soc. (Zool.)*, 45 (304): 103-144, 4 figs., 3 tables.
- REGAN, C. T., 1904. A monograph of the fishes of the family Loricariidae. — *Trans. Zool. Soc. London*, 17 (3): 191-350, pls. 9-21.
- SEBA, A., see P. ARTEDI.
- STIGCHEL, J. W. B. VAN DER, 1946. *South American Nematognathi*. Thesis, Leiden.
- , 1947. The South American Nematognathi of the museums at Leiden and Amsterdam. — *Zool. Meded. Leiden*, 27: 1-204, 2 figs., 3 tables.
- VALENCIENNES, A., 1840. In Cuvier & Valenciennes, *Histoire naturelle des poissons*, 15: i-xxxii, 1-540, pls. 421-455.
- WHEELER, A. C., 1958. The Gronovius fish collection: a catalogue and historical account. — *Bull. B.M. (N.H.), Hist. Ser.*, 1 (5): 187-249, pls. 26-34.



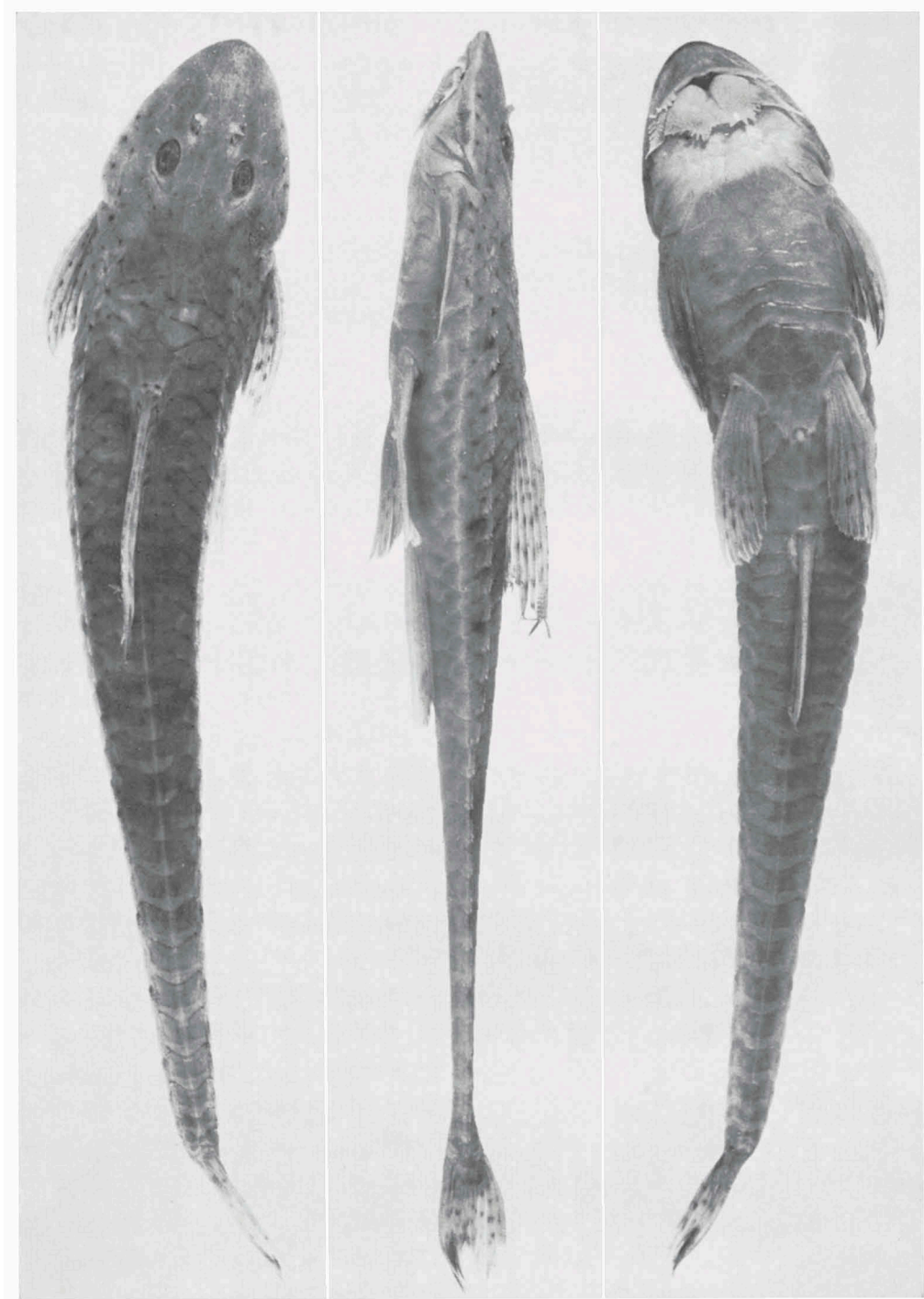
Loricaria (Loricaria) cataphracta Linnaeus (RMNH 27506), in dorsal, lateral and ventral view.



Loricaria (Loricariichthys) maculata Bloch (RMNH 27473, ♂), in dorsal, lateral and ventral view. The ventral view shows on the lower lip the imprints of a thread used to spread and protect the lip.



Loricaria (Loricariichthys) maculata Bloch (RMNH 3121, holotype of *Parahemiodon typus* Bleeker), in dorsal, lateral and ventral view.



Loricaria (Loricariichthys) maculata Bloch (RMNH 27472, ♀), in dorsal, lateral and ventral view.



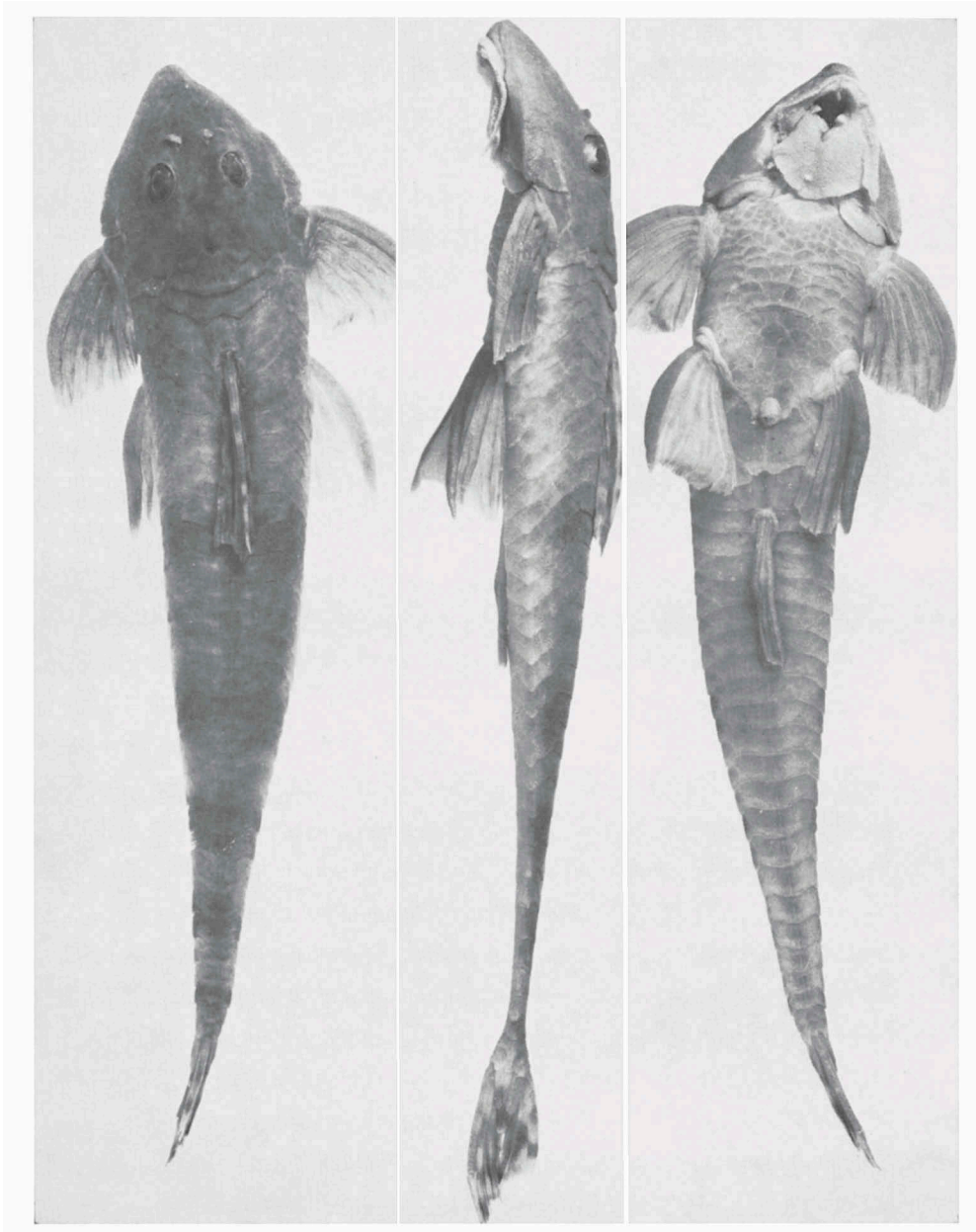
Loricaria (Loricariichthys?) brunnea Hancock (RMNH 27493, ♂), in dorsal, lateral and ventral view.



Loricaria (Loricariichthys?) cf. stewarti Eigenmann (RMNH 27538, ♀), in dorsal, lateral and ventral view.



Loricaria (Loricariichthys?) brunnea Hancock (below) and *Loricaria (Loricariichthys?)* cf. *stewarti* Eigenmann (RMNH 27491 and RMNH 27554, respectively), anterior part in dorsal view.



Harttia nijsseni nov. spec. (RMNH 27498, ♂, holotype), in dorsal, lateral and ventral view.

CORRECTIONS

p. 165, line 4 fr. below, Demerara, read Orinoco.

p. 167, line 2 fr. above should read: from the Orinoco and north-eastern Guyana, near the region covering the localities