

PRELIMINARY NOTES ON SOUTH AMERICAN
NEMATOGNATHI.

II.

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The present paper is a continuation of the Preliminary Notes which appeared in the Proceedings of the California Academy of Sciences, 2d Ser., Vol. I, pp. 119-172. It contains several forms omitted in the preceding paper, a list of the genera and species of Loricariidæ exclusive of the genus *Plecostomus*, *Bunocephalidæ* and *Pygididæ*, with descriptions of the following new forms:

1, *Acentronichthys*; 2, *A. leptos*; 3, *Nemuroglanis*; 4, *N. lanceolatus*; 5, *Steindachneria doceana*; 6, *Platystoma fasciatum reticulatum*; 7, *Pl. fasc. nigricans*; 8, *Pl. fasc. brevefile*; 9, *Tachisurus upsulonophorus*; 10, *Farlowella*; 11, *F. carinata*; 12, *Loricaria panamensis*; 13, *L. brevirostris*; 14, *L. lata*; 15, *L. phoxocephala*; 16, *Oxyropsis*; 17, *O. wrightiana*; 18, *Hisonotus*; 19, *H. notatus*; 20, *Microlepidogaster*, 21, *M. perforatus*; 22, *Parotocinclus*; 23, *Neoplecostomus*; 24, *Rhinelepis lophophanes*; 25, *Panaque*; 26, *Delturus*; 27, *D. parahybæ*; 28, *Hemipsilichthys*; 29, *Ancistrus chagresi*; 30, *A. stigmaticus*; 31, *A. cirrhosus dubius*; 32, *Bunocephalus scabriceps*; 33, *Pygidium oroyæ*; 34, *P. immaculatum*; 35, *Tridens*; 36, *T. melanops*; 37, *T. brevis*; 38, *Pseudostegophilus*; 39, *Stegophilus intermedius*; 40, *Miuroglanis*; 41, *M. platycephalus*.

SILURIDÆ.

VI. c. ACENTRONICHTHYS gen. nov.

Type, *Acentronichthys leptos* sp. nov.

Caudal widely forked; occipital process small, not con-

tinued to the dorsal; fontanel extending to base of occipital process. Orbit without a free margin. Dorsal and pectoral without spines; ventrals under anterior half of dorsal; anal long. Allied to *Heptapterus*.

Acentronichthys leptos.

Type, No. 7532; one specimen, .105 m. Sao Matheos, Hartt & Copeland.

Extremely elongate, depth of caudal peduncle little less than the greatest depth.

Eye minute, one orbital diameter nearer to tip of snout than to end of opercle. Maxillary barbels reaching beyond middle of pectoral. Adipose fin long and low, its origin in advance of the anal, *confluent with the caudal fin*. Caudal with numerous accessory rays. Ventrals inserted below the *first dorsal ray*. Brownish, with traces of a dark lateral band; a dark bar extending forward from eye; two dark lines on base of caudal and parallel with its root.

Head $7\frac{1}{2}$; depth 10; D. 7; A. 19.

XV. b. NEMUROGLANIS gen. nov.

Type, *Nemuroglanis lanceolatus* sp. nov.

This genus belongs to the Pimelodinae with teeth on the vomer; its relationships are not well made out.

Caudal long lanceolate; adipose fin long and low, joined to the caudal. No evident occipital process. No bucklers in front of the dorsal which is placed over the ventrals. Vomer with teeth.

Nemuroglanis lanceolatus.

Type, No. 8169; one specimen, .035 m. Jutahy, Thayer Expedition.

Elongate slender, tail compressed, head and body depressed.

Eye $2-2\frac{1}{2}$ in snout which is equal to the interorbital, and $2\frac{3}{4}$ in the head.

Maxillary barbels reaching beyond origin of the dorsal.

Dorsal without spine or basal plate. Caudal rays rapidly tapering to the middle ones which are greatly prolonged, less than $2\frac{1}{2}$ in the length.

Uniform yellow.

Head $4\frac{1}{2}$; D. 7; A. 13.

XVIII. STEINDACHNERIA Eigenm. & Eigenm.

Steindachneria doceana sp. nov.

Types, Nos. 23792; 23793; 23794; nine specimens, .37-.74 m. Rio Doce.

Head broad, depressed, the depth at the base of the occipital process $2\frac{1}{2}$ -3 in its length, its width $1\frac{2}{3}$. Occipital process broad, not quite reaching the long, triangular dorsal plate.

Teeth of the vomer in a single patch.

Maxillary barbels reaching to middle of dorsal in the smallest, to middle of pectoral in the largest specimen.

Base of adipose $\frac{1}{4}$ - $\frac{1}{3}$ longer than base of anal.

Caudal emarginate.

Ground color light; sides and back marked with dark brown; only spots and curved bars of the ground color visible on the head and back; on the sides the color is about equally distributed in vermiculating stripes. Unpaired, and upper surfaces of the paired fins, light, profusely spotted with dark; the spots of the dorsal and pectoral confluent into bars and stripes in the largest specimen; adipose fin colored like the back; ventral surface and lower surface of the paired fins plain.

Head $3\frac{3}{5}$ - $3\frac{1}{2}$; depth $6\frac{1}{2}$ - $7\frac{1}{2}$; Br. 8-9; D. I, 7-8; A. 14.

The genus *Steindachneria* is confined, so far as known, to the rivers Parahyba, Jequitinhonha and Doce, each of which has a distinct species.

XXI. PSEUDOPLATYSTOMA Bleeker.

Pseudoplatystoma fasciatum reticulatum var. nov.

Type, No. 23813; length .77 m. Rio Negro.

Sides and back with narrow black lines forming coarse reticulations; a series of large round black spots on the lower part of the side; all the fins spotted with black. Maxillary barbels reaching little beyond base of pectorals, the post-mentals reaching somewhat farther.

***Pseudoplatystoma fasciatum nigricans* var. nov.**

Types, Nos. 7301 and 7311; two specimens, .40-.60 m. Xingu.

Black above, gradually shading into light below; lateral bars of the abdominal region extending to the edge of the belly; a series of large black spots along the lower parts of the sides; all the fins conspicuously spotted. Maxillary barbel reaching to origin of dorsal.

***Pseudoplatystoma fasciatum brevefile* var. nov.**

Type, No. 7317; one specimen, .62 m. Goyaz, Senhor Honorio

Vertical bars of abdominal region broken up into spots, those of the caudal region widened at their lower termination; a series of very large lateral spots on lower part of sides. Maxillary barbels reaching to edge of opercle.

XXV. TACHISURUS Lacépède.

***Tachisurus upsulonophorus* sp. nov.**

Type, No. 23750; one specimen, .33 m. Rio Grande do Sul.

Closely related to *T. platypogon* (Günther) from which it may be distinguished by the following characters:

platypogon.

Inner margins of palatine patches of teeth straight; the distance between them equal to the diameter of the pupil.

Fontanel abruptly continued as a groove.

Granulations of the head fine, irregularly scattered.

Anterior margin of the dorsal spine with sharp straight teeth.

upsulonophorus.

Inner margins of palatine patches of teeth concave, the distance between them greater than the longitudinal diameter of the eye.

Fontanel gradually merging into a groove.

Granulations of the head coarse, arranged in series.

Anterior margin of the dorsal spine with granules.

- Eye large, $2\frac{1}{3}$ in snout, $6\frac{1}{2}$ in head, 3 in interocular.
 Maxillary barbels reaching little beyond base of pectoral.
 Snout somewhat blunt, less decurved than in *platypogon*;
 upper jaw slightly projecting; teeth villiform.
 Gill membranes forming a narrow fold across the isthmus.
 Vertical series of pores on the sides of the body.
 Distance of dorsal fin from tip of snout little more than
 $2\frac{1}{2}$ in the length, the spine $1\frac{2}{5}$ in the head.
 Adipose fin as long as the dorsal fin minus the fulcrum.
 Caudal widely forked, $3\frac{3}{5}$ in the length.
 Anal little longer than high, deeply emarginate.
 Metallic blue, shading into silvery below; inner surface
 of the pectorals wholly blue-black except the posterior
 margin which is light; ventrals lighter, similarly marked.
 Head $3\frac{2}{3}$; depth $5\frac{1}{3}$; D. I. 7; A. 17.

LORICARIIDÆ.

I. FARLOWELLA nom. gen. nov.

Acestra Kner 1853, preoc. in Hem., Dall, 1852.

We have dedicated this genus to Dr. W. G. Farlow of Harvard University.

1. *Farlowella gladiola* (Günther).
2. *Farlowella carinata* Garman MS., sp. nov.

Types, Nos. 7742; 7769; 7770; 7771; 7773; 9830; fifteen specimens,
 .10-.22 m. to base of caudal. Santarem; Teffé; Gurupa; Obidos;
 Jutahy; Tabatinga.

Body little depressed, subterete; tail much depressed.
 Snout long, greatly varying in length in specimens from
 different localities; upper margin of gill opening equidis-
 tant from tip of snout and somewhere between the posterior
 end of dorsal fin and posterior margin of third scute behind
 the dorsal fin; plates along margin of snout finely granular,
 or swollen at center and more coarsely granular. Temporal
 plate with coarse vermiculating ridges. Interorbital flattish.

Orbit $3-3\frac{1}{2}$ in the interorbital. Anterior half of occipital slightly tumid, the occipital sometimes having obscure X-shaped ridges which are continued as two parallel ridges on the nuchal plates.

Soft parts of the mouth in an oval depression; teeth fine, numerous; barbels obsolete. Region between mouth and pectoral fins with marginal plates only in the young, with irregular polygonal plates in the adult.

Belly with two series of plates, each with a median keel. Anal plate arrow-shaped, a small unpaired plate before it; an elongate plate before the anal fin. Dorsal plate elongate, separating one or two paired plates; six or seven paired plates between the dorsal plate and the occipital. Sides of the body covered with two series of obscurely keeled plates which coalesce above or slightly behind the anal; 20-22 paired plates between the dorsal and caudal fins.

Distance of dorsal fin from tip of snout $2-2\frac{1}{7}$ in the length; dorsal fin about three times as high as long, the first ray highest.

Outermost caudal rays elongate, varying from the length of the snout to much longer than the head.

Anal fin well developed, inserted under third or fourth dorsal ray, little lower than dorsal fin.

Pectoral fins short, not reaching the ventrals, ventrals not to the anal fin.

Light olivaceous to dark brown, the rays of all the fins barred; each caudal lobe with a narrow, dark brown stripe, sometimes with a few flecks of light across it; base of caudal sometimes with a large dusky spot.

Length of head to end of occipital plate $2\frac{7}{8}-3\frac{3}{8}$ in the length.

D. 7; A. 6; V. 5; P. 7; lat. l. 30-34.

3. *Farlowella knerii* (Steindachner).

4. *Farlowella oxyrrhynchus* (Kner).

5. *Farlowella amazona* (Günther).

6. *Farlowella acus* (Kner).
Loricaria scolopacina Filippi.

II. HEMIODONTICHTHYS Bleeker.

7. *Hemiodontichthys acipenserinus* (Kner).

Localities: Manacapuru; Hyavary.

III. LORICARIA Linnaeus.

Sturisoma Swainson; *Hemiodon* Kner; *Loricariichthys*, *Pseudoloricaria*, *Parahemiodon*, *Hemiloricaria*, *Pseudohemiodon*, *Rineloricaria* and *Oxyloricaria* Bleeker.

DOUBTFUL SPECIES OF LORICARIA.

I. *Loricaria platyura* Müller and Troschel. II. *Hemiloricaria caracasensis* Bleeker. III. *Loricaria bransfordi* Gill. IV. *Loricaria cadeæ* Hensel.

‡ *Hemiodon*.

8. *Loricaria depressa* Kner.

9. *Loricaria panamensis* sp. nov.

Type, No. 8126; one specimen, .95 m. to base of caudal. Panama.
Dr. Hernberg.

Body little depressed. No keels on the head or on the nuchal plates. Shields and scales hispid; a large naked area about the mouth.

Orbit without a notch, 4 in the snout, 7 in head, $1\frac{2}{3}$ in interorbital.

Teeth fine, numerous in both jaws.

Five series of plates on the belly; anal plate as long as broad; lateral keels remaining distinct to the caudal fin, approximated at about the sixteenth lateral scute.

Distance of dorsal fin from tip of snout $3\frac{2}{5}$ in the length; first dorsal ray very high, little less than its distance from the tip of the snout.

Caudal forked, the outermost rays greatly produced.

First anal ray little less than length of head. Ventrals reaching to end of base of anal; pectoral to the vent.

Brownish; dorsal fin dark brown on its first and second membrane and second ray, its other rays spotted; base of caudal and longitudinal stripe on each lobe dark brown; other fins plain; a large blackish area in front of each eye.

Head $4\frac{1}{2}$; D. 8; A. 6; V. I, 5; P. I, 6; lat. l. 33.

‡ *Sturisoma*.

10. *Loricaria rostrata* (Spix.)

L. acuta Cuv. & Val., plate, not descr.; *L. barbata* Kner.

Locality: Manacapuru.

‡ *Rineloricaria*.

11. *Loricaria brevirostris* sp. nov.

Type, No. 8095; one specimen, ♂; .21 m. to base of caudal. Iça. James.

Body little depressed anteriorly, its depth $1\frac{1}{2}$ in its width. Depth of the head $1\frac{1}{2}$ in the snout. Head without keels or ridges, its surface and that of all the plates hispid; transverse profile of the occiput regularly convex.

Orbit without a notch, $3\frac{1}{2}$ in snout, 7 in head, 2 in interorbital. Anterior profile little concave; snout triangular, acute, little longer than the rest of the head. Margin of head with minute movable bristles. Teeth fine, numerous, well developed in both jaws; upper lip granular, lower lip thickly papillose. Breast and lower surface of the head with numerous irregular plates; belly with five series of plates. Lateral keels coalescing into one keel at about the twentieth scute, the upper keel obsolete in front. Distance of dorsal fin from tip of snout slightly more than 3 in the length. First dorsal ray longer than the head. Rays of the dorsal and caudal faintly spotted, other fins plain.

12. *Loricaria lima* Kner.

? *L. strigilata* Hensel.

Localities: Mendez; Santa Cruz; Rio Guenda; Rio Parahyba; Campos; Rio Macacos.

13. *Loricaria magdalenæ* Steindachner.

14. *Loricaria filamentosa* Steindachner.
? *L. bransfordi* Gill.

‡ *Loricaria*.

15. *Loricaria variegata* Steindachner.

16. *Loricaria macrodon* Steindachner.

17. *Loricaria nudiventris* Cuv. & Val.

18. *Loricaria cataphracta* Linnæus.

L. dura Linnæus; *L. cirrhosa* Bloch; *L. setifera* Lacépède; *L. carinata* Castelnau; *Plecostomus flagellaris* Gronow.

Localities: Vigia; Sao Gonçallo; Cameta; Manaos; Para; Rio Negro; Coary; Villa Bella; Gurupa; Rio Preto; Tajapurú; Porto do Moz; Teffé; Marañon; Ucayale; Obidos.

19. *Loricaria lata* sp. nov.

Types, No. 8123; eleven specimens; .11-.27 m. to base of caudal; Goyaz. Senhor Honorio.

Body everywhere greatly depressed, the depth about $1\frac{3}{4}$ in the width; the width at origin of anal equals snout and orbit in the adult, equal to the snout alone in young. Head depressed, its depth considerably less than length of snout, its width little longer than its length to upper angle of gill opening. Posterior half of occipital with two inconspicuous keels. Humeral plate without keels.

A shallow, rounded orbital notch; interorbital very slightly concave. Eye $3\frac{3}{4}$ - $4\frac{1}{2}$ in snout, 7- $8\frac{1}{2}$ in head, $1\frac{1}{3}$ - $1\frac{1}{2}$ in the interorbital. Snout pointed, its margin entirely granular. Lips margined with cirri, the lower lip emarginate, its surface also covered with cirri. Teeth few, large, those of the upper jaw longer.

Nuchal plates faintly bicarinate; lateral keels rather prominent, approximated on the 20th scute; breast and belly with numerous small plates, or almost wholly naked in specimens .10 m. long to base of caudal.

Distance of dorsal fin from tip of snout 3 in the length.

Caudal fin injured. Anal fin as high as the ventrals.

Outer ventral ray greatly thickened and prolonged, reaching beyond origin of anal fin.

Pectorals higher than the ventrals, reaching beyond base of the latter.

Coloration uniform in adult (?), all the fins dusky; young with five dark cross bars which are most prominent on the sides; all the fins more or less spotted; upper lip and barbel dotted.

20. *Loricaria macromystax* Günther.

21. *Loricaria vetula* Valenciennes.

22. *Loricaria lamina* Günther.

23. *Loricaria platystoma* Günther.

‡ *Pseudoloricaria*.

24. *Loricaria læviuscula* Cuv. & Val.

Localities: Rio Madeira; Rio Trombetas; Coary; Jutahy; Porto do Moz; Manaos; Fonteboa; Lake Jose Assu; Gurupa; Silva, Lake Saraca; Xingu; Tonantins; Hyavary.

‡ ?

25. *Loricaria brunnea* Hancock.

‡ *Pseudohemiodon*.

26. *Loricaria platycephala* Kner.

‡ *Parahemiodon*.

27. *Loricaria uracantha* Kner & Steindachner.

28. *Loricaria stubelii* Steindachner.

Localities: Santarem; Hyavary; Teffé; Rio Preto; Rio Puty.

29. *Loricaria spixii* Steindachner.

Localities: Santa Cruz, Rio Guenda; Sambaia; Mendez; Campos; Muriahe; Sao Matheos.

30. *Loricaria typus* (Bleeker).

Loricaria hemiodon Günther.

31. *Loricaria phoxocephala* sp. nov.

Types, No. 8030; two specimens .14-.15 m. to base of caudal. Coary. L. Agassiz.

This species can readily be distinguished by its pointed snout and by the bars on its head.

Head long, pointed, the snout acute; depth of the head $1\frac{3}{5}$ in its width; occipital with scarcely evident keels; interorbital convex; anterior profile concave; tip of snout naked. A narrow orbital notch. Eye $3\frac{2}{3}$ in snout, 7 in head, $1\frac{2}{3}$ in the interorbital.

Lower surface of the head naked; teeth numerous and well developed in both jaws; thoracic plates small, the anterior margin of the mailed ventral region truncate, in a line with the gill-openings. Five longitudinal series of ventral plates; anal plate and the plates anterior to it as in *L. teffeana*; nuchal plates obscurely bicarinate; lateral keels becoming more or less entirely coalesced on the 15th plate.

Distance of dorsal fin from tip of snout $3\frac{1}{3}$ – $3\frac{1}{6}$ in the length; first dorsal ray higher than length of head; outermost caudal rays produced; anal fin higher than ventrals or pectorals.

Light brown with six broad cross-bands, the first on the nape, the second under origin of dorsal fin; a dark band forward from eye, a narrower one down from eye; head and anterior half of body with black pores; dorsal slightly dusky, obscurely spotted, its base with a few spots; base of caudal and a band parallel to its margin dark brown; anal and ventrals light; pectoral like the dorsal.

Head $4\frac{7}{8}$ –5; lat. 1. 29.

32. *Loricaria anus* Valenciennes.

Locality: Rio Grande do Sul.

§ *Loricariichthys*.

33. *Loricaria acuta* Cuv. & Val.

L. castanea Castelnau; ? *L. maculata* Günther.

Localities: Villa Bella; Lake Hyanuary; Cudajas; Manaos, on the Rio Negro; Xingu Cascade; Lago Atexo; Obidos; Coary; Tefé.

34. *Loricaria maculata* Bloch.

L. amazonica Castelnau; *Pl. calaphracta* Gronow.

Localities: Coary; Santarem; Iça; Hyavary; Obidos; Tefé; Jutahy.

35. *Loricaria konopickyi* Steindachner.
L. maculata Val.; *L. valenciennesi* Vaillant.
36. *Loricaria lanceolata* Günther.
37. *Loricaria teffeana* Steindachner.
 Localities: Cudajas; Tonantins; Tefé; Jutahy; Lago Alexo; Tabatinga.

IV. HARTTIA Steindachner.

38. *Harttia loricariformis* Steindachner.
 Localities: Rio Parahyba; Itabapuaana; Muriahe.

V. OXYROPSIS gen. nov.

Type, *Oxyropsis wrightiana* sp. nov.

This genus differs from *Harttia* as *Hypoptopoma* differs from *Otocinclus*.

The head is depressed, the eyes marginal, the orbit infringing slightly on the lower surface of the head. Tail depressed. A lateral keel. Belly covered with granular plates. Adipose fin none.

39. *Oxyropsis wrightiana* sp. nov.

Type, No. 8055; one specimen, .037 m. to base of caudal. Lake Hyanuary. L. Agassiz.

Depressed, elongate, the depth about 2 in the width. Head depressed, the snout rounded; occipital margined by two nuchal plates; interorbital convex; nares above the anterior margin of the orbit. Surface of the head and all the scutes with longitudinal series of small spines; no keels on the head. Lower surface of the head as in *Hypoptopoma*.

Eye $2\frac{1}{2}$ in the snout, $5\frac{1}{3}$ in the head, $2\frac{3}{5}$ in the interorbital.

Teeth well developed; lower lip convex, papillose.

Anal groove bounded laterally and posteriorly by a horse-shoe-shaped plate, anteriorly by the large shield-shaped anal plate. Belly with three series of plates which are separated anteriorly; thorax with two pairs of large plates. Four series of plates cover the entire body. The lateral

series of plates has a median keel which is strongest above tip of anal.

Distance of dorsal fin from tip of snout about $2\frac{3}{5}$ in the length; first dorsal ray as high as the space between base of pectoral and tip of snout. Caudal fin broken.

Anal fin as high as length of snout plus the eye. Ventrals short, not reaching the anal. Pectorals extending beyond middle of ventrals, little lower than the first dorsal ray; the spine strongly spiny on its outer margin, almost smooth on its inner margin.

Back marbled; sides with numerous minute dark dots; dorsal rays spotted with dark; middle caudal rays blackish; anal, and inner surfaces of ventrals and pectorals spotted like the dorsal fin.

D. I, 7; A. 6; V. I, 5; P. I, 5; lat. l. 26.

We have dedicated this species to Professor R. Ramsey Wright of Toronto, who has contributed more than any one else to the knowledge of the anatomy of the American Nematognathi.

VI. HYPOPTOPOMA Günther.

40. *Hypoptopoma thoracatum* Günther.

H. bilobatum Cope. *Otocinclus joberti* Vaillant.

Localities: Tefé; Obidos; Manacapuru; Iça; ? Rio Negro.

41. *Hypoptopoma gulare* Cope.

42. *Hypoptopoma carinatum* Steindachner.

VII. HISONOTUS gen. nov.

Type, *Hisonotus notatus*, sp. nov.

Belly with large plates; eyes superior; humeral plate imperforate.

‡ *Hisonotus*.

Adipose fin none.

43. Hisonotus notatus sp. nov.

? *Otocinclus maculicauda* Steindachner, in part.

Types, No. 7764; ninety-five specimens, the largest .04 m. long. Santa Cruz. Dom Pedro II.

No. 8177; one specimen .043 m. Juiz de Fora. Thayer expedition.

Body somewhat depressed anteriorly, wider than deep. Head narrow and comparatively high; occipital ending in a triangular process which is bordered by a single nuchal plate; profile rather steep and slightly convex; all the plates of the head strongly hispid; a series of rather large recurved spines margining the granular portion of the snout below. Orbit $3\frac{1}{2}$ in the snout, 7 in the head, 3 in the inter-orbital.

Ventral surface with about 3 series of irregular plates. Lateral plates strongly hispid, the marginal spines scarcely enlarged.

Distance of dorsal fin from tip of snout little more than 2 in the length; margin of dorsal fin convex. Caudal emarginate.

Pectoral spine not reaching middle of ventrals, its outer margin spiny.

Light brown; caudal with a large median blackish spot which extends to the tip of the middle caudal rays, outer caudal rays yellow.

Head 3; D. I, 7; A. I, 5; V. I, 5; P. I, 6; lat. 1. 25.

Parotocinclus subgen. nov.

Adipose fin present.

44. Hisonotus maculicauda (Steindachner).

Locality: Santa Cruz.

VIII. *OTOCINCLUS* Cope.**45. Otocinclus affinis** Steindachner.

Locality: Santa Cruz.

46. Otocinclus vestitus Cope.

IX. MICROLEPIDOGASTER gen. nov.

Type, *M. perforatus*, sp. nov.

Ventral surface covered with minute granular plates; dorsal fin inserted far posterior to the ventrals; temporal plate perforate.

47. *Microlepidogaster perforatus* sp. nov.

Type, No. 8182; one specimen .032 m. to base of caudal.

Localities: Rio Carandaby, Brazil.

Broad and depressed anteriorly, the depth less than the width. Head broad, depressed, its depth little more than two in its length to the end of temporal plate; its width $1\frac{1}{2}$ in its length. Snout narrow, pointed; loreal region concave. Eye 4 in snout, $8\frac{1}{2}$ in head; interorbital concave, equal to the post-orbital portion of the head.

All of the plates hispid, most so on the tail, not keeled. Lat. l. 27.

X. NEOPLECOSTOMUS Eigenm & Eigenm.

This subgenus proposed by us (Proc. Calif. Acad. Sci., 2d Ser., Vol. I, p. 171; 1888) may be raised to generic rank.

Tail comparatively long, terete; adipose fin far removed from the dorsal fin; belly with a median, sub-circular patch of granules.

A. 6-8.

48. *Neoplecostomus microps* (Steindachner).

Localities: Juiz de Fora; Goyaz.

49. *Neoplecostomus granosus* (Cuv. & Val.)

XI. RHINELEPIS Spix.

50. *Rhinelepis parahybæ* Steindachner.

Locality: Rio Parahyba, at Barra do Pirahy.

51. *Rhinelepis agassizii* Steindachner.52. *Rhinelepis aspera* Spix.

? *R. strigosa* Cuv. & Val.

53. *Rhinelepis lophophanes* sp. nov.

Type. No. 8164; one specimen .018 m. to base of caudal.

Localities: Santa Cruz, Brazil. Dom Pedro II.

Greatest depth equal to the greatest width. Occipital with three strong spiniferous ridges, a short median one and two longer lateral ones; similar crests extending from posterior margin of orbit to edge of temporal plate. Nasal pits margined by spiniferous ridges. Lower surface of head naked, margined by a series of recurved spines. Coracoid and scapula granular; belly with a small, granular plate between posterior margins of ventrals; a larger plate behind the pectoral. Lateral and dorsal plates keeled.

D. I, 7; A. 6; Lat. 1. 22.

XII. HEMIANCISTRUS Bleeker.*

Pseudacanthicus Bleeker; *Chaetostomus* Günther.

We have been able to examine only two species of this genus.

54. *Hemiancistrus histrix* (Cuv. & Val.).
55. *Hemiancistrus serratus* (Cuv. & Val.).
56. *Hemiancistrus spinosus* (Castelnau).
57. *Hemiancistrus medians* (Kner).
58. *Hemiancistrus pictus* (Kner).
59. *Hemiancistrus brachyurus* (Kner).
60. *Hemiancistrus itacua* (Valenciennes).
61. *Hemiancistrus scaphirhynchus* (Kner).
Localities: Hyauuary; Coary; Teffé; Hyavary.
62. *Hemiancistrus mystacinus* (Kner).
63. *Hemiancistrus oligospilus* (Günther).
64. *Hemiancistrus schomburgkii* (Günther).
65. *Hemiancistrus guacharote* (Günther).
66. *Hemiancistrus trinitates* (Günther).
Ancistrus guacharote Gill.
67. *Hemiancistrus aspidolepis* (Günther).
68. *Hemiancistrus fordii* (Günther).

*Should *Hypostomus pictus* Castelnau, prove to be a valid species it must be renamed.

69. *Hemiancistrus heteracanthus* (Günther).
 70. *Hemiancistrus megacephalus* (Günther).
 71. *Hemiancistrus vittatus* (Steindachner).
 Localities: Rio Trombetas: Porto do Moz; Tajapuru; Obidos; Avary.

XIII. PARANCISTRUS Bleeker.

72. *Parancistrus punctatissimus* Steindachner.
 ? *Hypostomus niveatus* Castelnau.
 Locality: Porto do Moz.
 73. *Parancistrus aurantiacus* (Castelnau).
 74. *Parancistrus nigricans* (Castelnau).

XIV. COCHLIODON Heckel.

75. *Cochliodon cochliodon* (Kner).
C. hypostomus Heckel; *Loricaria melanoptera* Natterer.

XV. PANAQUE gen. nov.

Type: *Chætostomus nigrolineatus* Peters.

Teeth enlarged, bowl-shaped at tip, few in each jaw. Interopercle with a bunch of erectile spines.

76. *Panaque nigrolineatus* (Peters).
 Locality: Goyaz.
 77. *Panaque cochliodon* (sive *gibbosus*) (Steindachner).
 78. *Panaque dentex* (Günther).

XVI. PTERYGOPLICHTHYS Gill.

Liposarcus Günther.

79. *Pterygoplichthys undecimalis* (Steindachner).
 80. *Pterygoplichthys etentaculatus* (Spix).
Hypostomus duodecimalis Cuv. & Val. *H. brevitentaculatus* Ranzani;
Ancistrus longimanus Kner.
 Locality: Rio San Francisco below the falls.
 81. *Pterygoplichthys gibbiceps* (Kner).
Liposarcus altipinnis Günther; ? *L. scrophus* Cope.
 Localities: Coary; Teffé; Porto do Moz; Lago Alexo; Cudajas; Lake Hyanuary; Santarem; Tabatinga; Lago do Maximo; Jutahy; Villa Bella; Silva, Lake Saraca; Obidos.

82. *Pterygoplichthys punctatus* Natterer.
Ancistrus duodecimalis Kner.
 Locality: Cudajas.
83. *Pterygoplichthys pardalis* Castelnau.
Liposarcus varius Cope.
 Localities: Santarem; Cudajas; Rio Negro; Teffé; Jutahy; Villa Bella;
 Obidos; Tabatinga.
84. *Pterygoplichthys jeansianus* Cope.
85. *Pterygoplichthys lituratus* Kner.
 Localities: Rio Preto; Rio Puty; Sao Gonçallo; Xingu Cascade.

XVII. PSEUDANCISTRUS Bleeker.

86. *Pseudancistrus barbatus* (Cuv. & Val.).
87. *Pseudancistrus guttatus* (Cuv. & Val.).
88. *Pseudancistrus depressus* (Günther).
89. *Pseudancistrus setosus* (Boulenger).
90. *Pseudancistrus wertheimeri* Steindachner.
 Locality: Santa Clara, Rio Mucuri.

XVIII. DELTURUS gen. nov.

Type: *Delturus parahybæ* sp. nov.

Dorsal fin adnate; lateral plates well developed; sides of the head with short fine bristles which do not encroach on the preopercle. Tail flat below, trenchant above, a cross section being Δ -shaped.

91. *Delturus angulicauda* Steindachner.
 Locality: Santa Clara, Rio Mucuri.
92. *Delturus parahybæ* sp. nov.
 Types, No. 7726; two specimens .28 m. Parahyba. Thayer expedition.

The differences between the two species of this genus may best be seen from the following key:

- a. D. I, 9. Fins plain; lat. l. 24. *angulicauda*.
- aa. D. I, 10. Fins all spotted; lat. l. 25-27. *parahybæ*.

XIX. HEMIPSILICHTHYS gen. nov.

Xenomystus Lütken, preoc.

93. **Hemipsilichthys gobio** (Lütken.)
 Locality: Parahyba.

XX. ACANTHICUS Spix.

DOUBTFUL SPECIES.

Hypostomus vicinus Castelnau.

94. **Acanthicus hystrix** Spix.
Rhinelepis acanthicus Cuv. & Val.
 Locality: Para.
95. **Acanthicus genibarbis** (Cuv. & Val.).

XXI. CHÆTOSTOMUS Kner.

96. **Chætostomus jelskii** Steindachner.
 97. **Chætostomus latifrons** Günther.
 98. **Chætostomus macrops** Lütken.
 99. **Chætostomus stannii** Kröyer.
 100. **Chætostomus taczanowskii** Steindachner.
 101. **Chætostomus tectirostris** Cope.
 102. **Chætostomus variolosus** Cope.
 103. **Chætostomus nudirostris** Lütken.
 104. **Chætostomus guairensis** Steindachner.
 105. **Chætostomus sericeus** Cope.
 106. **Chætostomus malacops** Cope.
 107. **Chætostomus branickii** Steindachner.
 108. **Chætostomus fisheri** Steindachner.
 109. **Chætostomus lobarhynchus** Tschudi.
 110. **Chætostomus dermerhynchus** Boulenger.
 111. **Chætostomus microps** Günther.
 112. **Chætostomus nudiceps** Müller & Troschel.
 113. **Chætostomus erinaceus** Cuv. & Val.
 114. **Chætostomus bufonius** Cuv. & Val.
 115. **Chætostomus gymnorhynchus** Kner.

XXII. ANCISTRUS Kner.

116. *Ancistrus chagresi* sp. nov.*

Types, No. 8026; two specimens ♂ & ♀ .14-.19 m. Rio Chagres. Dr. Maak.

*As all the species of this genus are very much alike the following key will serve to describe the new forms.

a. Margin of the snout naked, provided with tentacles. The females with a narrow naked margin and a single series of simple tentacles, or without tentacles in *calamita*; males with a much broader naked area, a series of simple marginal tentacles and a Y-shaped series on the middle of the snout.

b. Lower caudal lobe not produced, scarcely if any longer than the upper; margin of caudal obliquely truncate, a dusky spot at the base of the first dorsal membrane. D. I, 7; A. 4 or 5; lat. l. 2±.

c. Eye 6-7½ in the head; preopercular spines 11-15; median tentacles of the male profusely branched; a small granular patch on the breast below the base of the pectoral. *chagresi* 1.

cc. Eye 7-10 in the head; preopercular spines 25 or more; median tentacles of the male flattened, mostly simple; breast entirely naked; head broad, depressed; dark brown, thickly covered with light spots which are smallest and most regular on the head; ventral surface lighter; fins dark brown irregularly spotted with light. *stigmaticus* 2.

bb. Lower caudal lobe produced, much longer than the upper; margin of the caudal sub-truncate.

d. Head longer than broad.

e. D. I, 7; dark brown, ventral surface lighter, everywhere with small lighter spots very closely crowded and scarcely evident on the dorsal surface; fins dusky, obscurely marbled; lat. l. 23; head 3. *hoplogenyis* 3.

ee. D. I, 8 or 9, rarely I, 7. Dark brown, sometimes everywhere with dark spots which occasionally have a white center; fins dusky, the base of the dorsal obscurely spotted like the body.

temminkii 4.

dd. Head as broad as long.

calamita 5.

bbb. Lower and upper caudal rays produced, the margin concave; 9-12 interopercular spines. D. I, 7, rarely I, 8 in *cirrhosus*; a dark spot on base of first dorsal membrane.

f. Dark brown, everywhere with rather large, light spots; dorsal dark brown with wavy, interrupted horizontal bands; other fins spotted with lighter. Head 2¾-3. *cirrhosus* 6.

ff. Dark brown, back with two darker cross-bands; head irregularly marbled. *cirrhosus dubius* 6a.

fff. Light or dark brown, everywhere covered with white dots which are largest on the belly; fins colored like the body.

leucostictus 7.

117. **Ancistrus stigmaticus** sp. nov.
Types, No. 8022; one specimen, ♂ .11 m. Sao Matheos. Hartt & Copeland.
No. —, one specimen, ♂ .19 m. Goyaz. Senhor Honorio.
118. **Ancistrus hoplogeny**s (Günther).
Locality: Tajapuru.
119. **Ancistrus temminkii** (Cuv. & Val.).
A. dolichopterus Kner.
Localities: Cudajas; Gurupa; Lake Hyanuary; Teffé; Iça; Jutahy; Serpa; Rio Madeira; Ueranduba; Tabatinga; Rio Trombetas.
120. **Ancistrus calamitus** (Günther).
121. **Ancistrus cirrhosus** (Valenciennes).
Localities: Cudajas; Obidos.
- 121a. **Ancistrus cirrhosus dubius** var. nov.
Type, No. 7983; one specimen, ♀ .13 m. Gurupa. Prof. Agassiz.
No. 7983; five specimens, ♀ .06-.10 m. Tabatinga. Bourget.
No. 7984; five specimens, ♂ & ♀ .07-.13m. Tabatinga. Bourget.
122. **Ancistrus leucostictus** (Günther).
Chatostomus alga Cope.
Localities: Coary; Tabatinga; Jutahy.

BUNOCEPHALIDÆ.

I. BUNOCEPHALICHTHYS Bleeker.

1. **Bunocephalichthys hypsiurus** (Kner).

II. BUNOCEPHALUS Kner.

2. **Bunocephalus knerii** Steindachner.
Localities: Cudajas; Tabatinga; Hyavary.
3. **Bunocephalus aleuropsis** Cope.
4. **Bunocephalus melas** Cope.
5. **Bunocephalus bicolor** Steindachner.
Localities: Cudajas; Jutahy.
6. **Bunocephalus gronovii** Bleeker.
7. **Bunocephalus verrucosus** (Bloch).
Locality: Serpa.

8. *Bunocephalus scabriceps* sp. nov.

Types, No. 7967; two specimens .04-.043 m. Jutahy. James, Thayer & Talisman.

This species may readily be recognized by its prominent cephalic knobs.

Tail slender, tapering. Head and body deep, the depth at base of occipital process scarcely less than the distance from tip of snout to base of pectoral. Nuchal plate a thin crest with two high knobs and a knob at its base; a transverse crest at base of nuchal plate directed backward externally; a low crest between the eyes, two crests extending backward from eyes, becoming approximated behind and forming a lyre-shaped figure; each arm of the lyre with three knobs; a crest extending forward from the eye, meeting its fellow at the tip of the snout.

Interorbital width equals the snout plus the eye; eye almost lateral.

Maxillary barbels reaching about to base of pectoral fins; mental barbels not reaching post mentals; post mentals less than interorbital width.

Teeth villiform in two narrow patches in each jaw.

Coracoid process converging backward, the margins of the coracoid bone marked by prominent ridges, which with the processes form a lyriiform figure; the length of the processes about equal to the space between them. Humeral process extending to about the middle of the pectoral spine.

Pectoral pore large, slit-like. Skin everywhere covered with small warts.

Distance of dorsal fin from tip of snout $2\frac{1}{6}$ in the length. Pectoral spine reaching tip of coracoid process, both margins with strong hooks, strongest toward tip.

Back mottled with light and dark brown; belly more uniform brown, marked with lighter.

A. 6: Greatest width in front of the pectoral fin 3 in the length.

III. DYSICHTHYS Cope.

- 9.
- Dysichthys coracoides**
- Cope.

IV. PLATYSTACUS Bloch.

Aspredo Linnæus; *Cotylephorus* Swainson; *Aspredinichthys* Bleeker.

10. **Platystacus cotylephorus** Bloch.
Silurus hexadactylus Lacépède; *Aspredo sex-cirrhis* Cuv. & Val.;
Aspredo spectrum Gronow.
 Localities: Vigia; Pará; Tajapuru.
11. **Platystacus nematophorus** Bleeker.
Aspredo nematophorus Günther.
12. **Platystacus aspredo** (Linn).
Platystacus lævis Bloch; *Aspredo batrachus* (Linnæus).
 Localities: Pará; Arary.
13. **Platystacus sicuephorus** (Cuv. & Val.)
14. **Platystacus filamentosus** (Cuv. & Val.)
15. **Platystacus tibicen** (Temminck).
 Locality: Curuca, Rio Muria.

PYGIDIDÆ. *

I. NEMATOGENYS Girard.

1. **Nematogenys inermis** (Guichenot).
N. nigricans & *pallidus* Philippi.
 Localities: Curico; Santiago.

II. PARIOLIUS Cope.

- 2.
- Pariolius armillatus**
- Cope.

III. PYGIDIUM Meyen.

Trichomycterus Val.; *Thrycomycterus* Cuv. & Val.; *Thricomycterus* Girard.

* The genus *Cetopsis*, placed in the *Doradinæ*, belongs here. It possesses the peculiar modifications of the anterior vertebræ characterizing this family.

DOUBTFUL OR INSUFFICIENTLY CHARACTERIZED SPECIES OF
PYGIDIUM.

I. *Pygidium fuscum* Meyen; II, III and IV. *Trichomycterus tigrinum*, *palleus* & *marmoratus* Philippi; V & VI. *Trichomycterus tenuis* and *corduvensis* Weyenbergh.

3. **Pygidium macræi** (Girard).
Locality: Uspullatuo.
4. **Pygidium maculatum** (Cuv. & Val.)
Locality: Rio Mapocho, Chile.
5. **Pygidium areolatum** (Cuv. & Val.)
Locality: Rio Mapocho, Chile.
6. **Pygidium rivulatum** (Cuv. & Val.)
Trichomycterus inca, *gracilis*, and *barbatula* Cuv. & Val.; *Trichomycterus pictus* and *pentlandi* Castelnau; *Trichomycterus dispar* Günther.
Localities: Cuzco; Moho & Puno on Lake Titicaca.
7. **Pygidium poeyanum** Cope.
8. **Pygidium brasiliensis** (Reinhardt).
? *Trichomycterus brasiliensis tristis* Lütken.
Localities: Rio Parahyba; Mendez; Lagoa Santa; Santa Cruz.
9. **Pygidium taenia** (Kner).
10. **Pygidium laticeps** (Kner).
11. **Pygidium oroyæ** sp. nov.
Types, No. 3955; eight specimens .115-.14 m. Pochachara, Oroya River. Closely allied to *P. brasiliensis*.

Rather robust; head about as long as wide, none of the barbels reaching gill-opening when laid straight back. Gill membrane narrowly joined to the isthmus, without a free margin.

Pectoral short, fan-shaped, the first ray not prolonged. Dorsal inserted over the vent, its last ray over or behind the middle of the anal; its origin equidistant from anterior margin of eye or occiput and tip of caudal.

Caudal broadly rounded, its distance from the anal $4-4\frac{3}{4}$ in the length.

Origin of ventrals about equidistant from tip of caudal and tip of snout.

Dark chocolate brown; sides, back and unpaired fins with irregular groups of dark points.

Head $5\frac{3}{4}$ -6; depth $5\frac{3}{4}$ -7; D. 12; A. 10.

12. *Pygidium punctatissimum* Castelnau.
 13. *Pygidium knerii* Steindachner.
 Locality: Cumbaca.
 14. *Pygidium dispar* Tschudi.
 Locality: Callao, Peru.
 14a. *Pygidium dispar punctulatum* Cuv. & Val.
 Locality: Rio Remac near Lima.
 15. *Pygidium pardum* Cope.
 16. *Pygidium nigromaculatum* Boulenger.
 17. *Pygidium immaculatum* sp. nov.
 Types, No. 8300; 10 specimens .12-.20 m. Juiz de Fora, Rio Parahybuna. Hallfeld.
 8302; 1 specimen .15 m. Sao Matheos; Hartt & Copeland.
 8307; 1 specimen .14 m. Juiz de Fora, Rio Parahyba.
 8305; 1 specimen .14 m. Juiz de Fora, Rio Parahyba.
 8266; 1 specimen .06 m. Goyaz. Senhor Honorio.

Elongate, compressed backward; head greatly depressed, the snout broad spatulate; width of head less than its length. Eye comparatively large, equidistant from tip of snout and tip of opercle. Barbels all rather short, the nasals scarcely reaching occiput, mostly shorter; maxillaries not to gill-opening. First pectoral ray prolonged in a filament. Dorsal truncate, its last ray in front of the anal, its origin equidistant from nares and tip of caudal or slightly nearer tip of caudal. Caudal broad, emarginate, the upper lobe sometimes produced.

Brownish, lighter below; fins somewhat dusky; specimens from Sao Matheos uniform blackish-brown.

Head $5\frac{1}{3}$ - $5\frac{1}{2}$ (6 - $6\frac{1}{2}$ in total). D. 11; A. 9.

18. *Pygidium taczanowskii* (Steindachner).

19. *Pygidium nigricans* (Cuv. & Val.)
 20. *Pygidium amazonicum* (Steindachner).

IV. EREMOPHILUS Humboldt.

Thricomycterus Humboldt; *Trachypoma* Giebel.

21. *Eremophilus mutisii* Humboldt.
Trachypoma marmoratum Giebel.

V. TRIDENS gen. nov.

Type, *Tridens melanops* sp. nov.

Ventrals small, nearer tip of snout than to base of caudal. Anal long, inserted in front of the dorsal fin. Head greatly depressed, the eye infringing on its lower and upper surfaces. A series of fine labial teeth; stronger teeth on the jaws. Gill membrane united, forming a broad free fold across the isthmus. Opercle and preopercle armed. Maxillary barbels 2.

22. *Tridens melanops* sp. nov.

Types, No. 8137; twenty-seven specimens, the largest .027 m. long.
 Iça. James.

Body compressed, extremely slender. Head broad, the snout rounded; mouth broad, inferior. Opercle long and slender, terminating in three spines, trident shaped. Preopercle with similar but smaller spines. Barbels minute, scarcely evident.

Distance of origin of dorsal fin from extremity of caudal 3 in the length; origin of anal fin from extremity of caudal $2\frac{1}{2}$ in the length. Anal rays rapidly decreasing in height backward, its last ray about over the last ray of the dorsal. Caudal rounded, without accessory rays.

Yellowish, a series of black spots along the base of the anal; posterior half of the caudal fin dusky.

Head 9; depth 13; D. 10-12; A. 20-25.

23. *Tridens brevis* sp. nov.

Type, No. 8160; one specimen .021 m. Tabatinga. Bourget.

Body short and deep. Head as broad as long. Mouth broad, inferior. Opercle with a bunch of six or more spines. Barbels well developed, the outer one extending to the base of the pectoral, the inner to the gill-opening. Eye large, nearer end of opercle than tip of snout.

Distance of dorsal fin from tip of caudal little more than 2 in the length.

Anal inserted very little in front of the dorsal and extending some distance beyond it, its rays decreasing in height toward the caudal. First pectoral ray greatly produced. Caudal emarginate.

Yellowish; blackish dots along the bases of the fins; a series of blackish dots along the middle line of the sides, similar spots on the back. Head with brown dots.

Head 6; depth 8; D. 9; A. 22.

VI. *PSEUDOSTEGOPHILUS* gen. nov.

Type, *Stegophilus nemurus* Günther.

Caudal widely forked. Mouth inferior, each jaw with series of fine teeth, upper lip with several series of fine movable teeth. No teeth on the vomer. Maxillary barbel single; gill membrane confluent with the skin of the isthmus. Opercle and preopercle armed.

24. *Pseudostegophilus nemurus* (Günther).

Locality: ? Morañon or Ucayale.

VII. *STEGOPHILUS* Reinhardt.

25. *Stegophilus maculatus* Steindachner.**26. *Stegophilus punctatus* Boulenger.****27. *Stegophilus intermedius* sp. nov.**

Type, No. 9842; one specimen .08 m. Goyaz. Senhor Honorio.

Elongate, compressed behind, depressed forward; head

somewhat longer than broad; snout pointed. Eye large, 1 in snout, $3\frac{1}{2}$ in head. Mouth large, upper lip with two series of teeth; intermaxillaries and mandible with four series of depressible teeth, those of the inner series enlarged at the tip. Lower lip not dilated, barbel shorter than the eye.

Opercle with two spines; preopercle with 5 or 6 claw-like spines.

Origin of dorsal about equidistant from tip of caudal and occiput; caudal emarginate; anal placed entirely behind the dorsal; origin of ventrals equidistant from bases of caudal and pectoral.

Light brown; entire upper surface with rather large dark brown spots; a series of larger dark spots along the middle line of the sides, the spots largest and most conspicuous on the tail; caudal with a few faint dark spots.

Head $5\frac{1}{2}$; D. 9; A. 7.

28. *Stegophilus macrops* Steindachner.
29. *Stegophilus insidiosus* Reinhardt.
30. *Stegophilus reinhardti* Steindachner.

VIII. VANDELLIA Cuv. & Val.

31. *Vandellia cirrhosa* Cuv. & Val.
Locality: Hyavary.
32. *Vandellia plazaii* Castelnau.
Locality: Lake Hyanuary.

IX. PAREIODON Kner.

Centrophorus Kner; *Astemomycterus* Guichenot.

33. *Pareiodon microps* Kner.
Astemomycterus pusillus Guichenot.

X. MIUROGLANIS gen. nov.

Type, *Miuroglanis platycephalus* sp. nov.

Gill membrane broadly united with the isthmus, without

a free margin. Maxillary barbels two; mouth inferior. Each jaw with several series of strong teeth. Opercle and preopercle with numerous strong spines. Caudal rounded.

34. *Miuroglanis platycephalus* sp. nov.

Type, No. 8172; one specimen .017 m. Jutahy. James, Thayer & Talisman.

Body short, compressed and rather deep. Head greatly depressed, wider than long. Eye large, lateral, placed behind the angle of the mouth.

Mouth sub-inferior, the upper jaw projecting slightly.

Upper maxillary barbel scarcely extending to the gill opening; no nasal or mental barbels.

Opercular and preopercular patches of spines united.

Origin of the dorsal little behind that of the anal; its distance from the tip of the snout somewhat less than twice its distance from the tip of the caudal.

Head $5\frac{1}{2}$; D. 10; A. 15.

SUMMARY.

	Species.	Varieties.
Siluridæ.....	232	13
Argiidæ.....	7	
Callichthyidæ.....	25	
Loricariidæ.....	150	3
Bunocephalidæ.....	15	
Pygididæ.....	34	1
	<hr/>	<hr/>
Total.....	463	17



Eigenmann, Carl H. and Eigenmann, Rosa Smith. 1889. "Preliminary notes on South American Nematognathi, II." *Proceedings of the California Academy of Sciences* 2, 28–56. <https://doi.org/10.5962/bhl.part.3477>.

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