

5. Descriptions of Freshwater Fishes from Surinam and Brazil. By Dr. ALBERT GÜNTHER, F.R.S., F.Z.S., &c.

(Plates XX., XXI., XXII.)

The British Museum received in the course of last year several collections of freshwater fishes from Surinam and Brazil. Whilst engaged in the determination and arrangement of these examples, I have found several species which do not appear to have been described hitherto. All of them belong to the *Siluridae* and *Characinae*. The collections whence these examples were obtained are the following:—

1. A collection made by Mr. Edward Bartlett on the Huallaga, a tributary of the Upper Amazons, and on a smaller tributary near the town of Xeberos. This collection contained a greater proportion of new species than one made by Mr. Bartlett on the main stream, which was noticed by me in Ann. & Mag. Nat. Hist. 1866, xviii. p. 30. Besides the species which will be mentioned subsequently, the following were collected by him at Xeberos:—*Ageniosus brevifilis* (C. & V.), *Plecostomus emarginatus* (C. & V.), *Prochilodus nigricans* (Agass.), *Curimatus latior* (Spix), *Leporinus megalepis* (Gthr.), *Chalcinus brachypoma* (C. & V.), *Tetragonopterus orbicularis* (C. & V.), *Myletes duriventris* (Cuv.), *Serrasalmo humeralis* (C. & V.), *Xiphorhamphus ferox* (Gthr.), *Sternopygus virescens* (Val.).

2. A small collection from the Upper Amazons, made by Mr. Hauxwell, a correspondent of Mr. Bates, at Pebas. All the specimens contained in this collection have been previously described.

3. Two collections made by Hr. Kappler on the Maroni River, a river forming the boundary between the Dutch and French Guianas.

4. The freshwater fishes forming part of the museum of the late Dr. Van Lidth de Jeude. Unfortunately the localities whence these examples were procured are not preserved; but it is probable that the greater part, if not all, are from the Dutch possessions in Guiana, many of them being identical with species known to inhabit the fresh waters of Surinam.

DORAS HELICOPHILUS.

D. 1/6. A. 12. P. 1/8. V. 8. L. lat. 32–34.

Lateral shields well developed, entirely uncovered by the skin; the depth of the third is one-half of the length of the head, those on the tail only half as deep as the tail; their whole surface is covered with minute spines. The maxillary barbels reach to the middle of the pectoral spine, the outer of the mandible being somewhat, and the inner much, shorter than those of the maxillary. Humeral process without spines, with a very slight ridge, extending to the hinder third of the pectoral spine. The posterior lobes of



the nuchal carapace are rounded, reaching to the base of the second soft ray of the dorsal fin. Dorsal spine serrated in front and behind, the anterior denticulations being directed upwards. Pectoral spine very long, much longer than the head, extending to the ventral. Caudal peduncle shielded above and below. Uniform blackish; dorsal fin white, its middle black; base of the anal fin and the two posterior rays white.

Three examples, 14 inches long, were sent by Hr. Kappler from Surinam. This fish swallows Ampullarias of a diameter of an inch, and, after having digested the animal, passes the shells, not broken or damaged in any way. The mouth is not larger than in the allied species.

*OXYDORAS ACIPENSERINUS.* (Plate XX.)

D.  $1/6$ . A. 16. P.  $1/10$ . V. 7. L. lat. 42.

This fish is distinguished from all its congeners by the peculiar shape of the head and snout, which is elongate-triangular, pointed, and much depressed in its anterior portion. We find such modifications of form in other allied genera, and they cannot form the base for establishing distinct generic divisions.

The length of the head is nearly one-fourth of the total (without caudal); crown entirely bony to the dorsal fin; body much elongate, its greatest depth being only one-half of the length of the head. Mouth toothless. Barbels united by a broad thin membrane; the maxillary barbel is the longest, extending nearly to the root of the pectoral fin, and provided with several larger and smaller similar appendages. The outer mandibular barbel is split nearly to the base, so that the mandible appears to be provided with six barbels. Eye of moderate size, its horizontal diameter being more than the width of the interorbital space. Lateral shields very high, covering at least two-thirds of the side of the body; their margin is striated and spinous, the median spine being very strong. Humeral process obtuse, scarcely longer than high. Dorsal spine slender, shorter than the head, slightly serrated along both edges. Adipose fin low and short. Pectoral spine flat and very strong, coarsely dentated along both edges. Pectoral fin forked. Coloration uniform.

One specimen, 8 inches long, has been sent by Mr. Bartlett from Xeberos.

*CALLICHTHYS ARMATUS.* (Fig. 1, p. 231.)

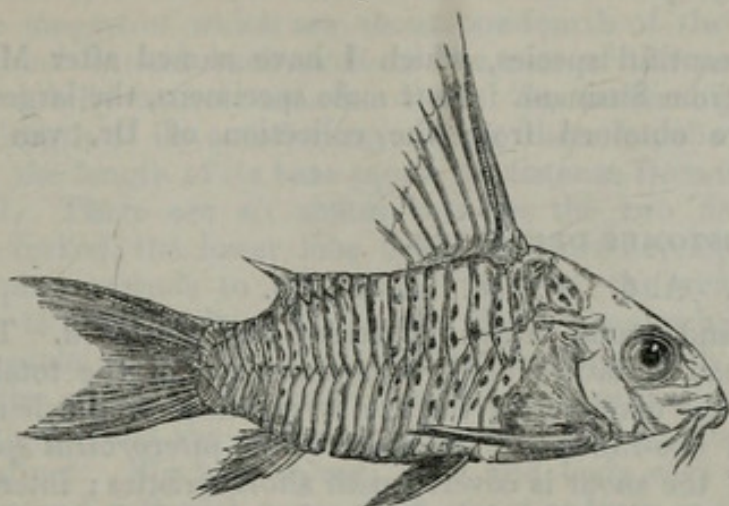
This species belongs to the group with compressed head.

D.  $1/1$ . A.  $1/6$ . P.  $1/8$ . V. 6.

Head rather higher than long; the height of the body is two-fifths of the total length (without caudal). Maxillary barbels extending to below the eye. Twenty-three series of shields in the upper series; there are four or five azygos shields before the adipose fin. Spines of the fins very strong and long; dorsal spine as high



Fig. 1.

*Callichthys armatus.*

as the body, finely serrated behind; pectoral spine rather stronger but shorter than that of the dorsal, longer than the head. Anal spine shorter and more feeble than that of the adipose fin. Olive-coloured (in spirits), the nine or ten anterior scutes with vertical series of small blackish spots.

Several examples, 2 and  $2\frac{1}{2}$  inches long, were collected by Mr. Bartlett at Xeberos and on the Huallaga.

#### CHÆTOSTOMUS FORDII. (Plate XXI.)

D.  $1/8$ . A.  $1/5$ . P.  $1/6$ . V.  $1/5$ . L. lat. 25.

Head much depressed, elongate, its length being one-third of the total (without caudal); snout broad and elongate, the distance of the eye from the posterior end of the head being only two-fifths of the length of the snout. Eye small, one-eighth of the length of the head, and two-fifths of the width of the interorbital space, which is rather flat. Occiput terminating in a low obtuse ridge. The entire upper surface of the head is very rough, and covered with minute spines; the scutes with which the snout is covered are but loosely united, so that this part is rather soft. Interoperculum with about ten setiform spines, the longest being about as long as the eye. Each jaw with six or seven stoutish teeth on each side; each of them has a lobe on its outer side, rather distant from the flat apex. Lower lip not notched, with numerous papillæ. Throat, thorax, and belly naked. The first ray of the dorsal and anal, and the upper and lower of the caudal, slightly thickened and rough. Caudal lobes more or less produced. Pectoral spine strong, extending to the second third of the ventral fin, covered with short hooks. Ventral spine as long as that of the pectoral fin, extending beyond the anal. Each scute of the body with a series of three or four very prominent spines. Ten scutes between anal and caudal, and eight between the two dorsal fins. Brownish black; most of the scutes with a round bluish-white dot at the



base; lower parts with numerous similar but more distinct white dots.

This beautiful species, which I have named after Mr. Ford, is probably from Surinam. Four male specimens, the largest 9 inches long, were obtained from the collection of Dr. van Lidth de Jeude.

CHÆTOSTOMUS DEPRESSUS.

D. 1/7. A. 6. P. 1/6. L. lat. 23.

Head and trunk much depressed and flattened. The length of the head is rather more than one-third of the total (without caudal); the diameter of the eye is one-fifth of the length of the head, and *two-thirds of the width of the interorbital space*. The margin of the snout is covered with short bristles; interoperculum with a bundle of about eight similar bristles, the longest being only half as long as the eye. The lower margin of the opercle slightly serrated. The lower side of the head, thorax, and belly entirely naked. Dorsal fin rather higher than long, the first ray being shorter than the head; the length of its base is nearly equal to its distance from the caudal; there are six scutes between the two dorsal fins. Caudal fin obliquely truncated, the lower rays being much longer than the upper. Pectoral spine extending to the second third of the ventral, and rather rough; ventral fin extending to the end of the anal. Eleven scutes between the anal and caudal fins. Scutes with numerous striæ, each stria composed of numerous very small spines. Posthumeral ridge obtuse. Brown, each scute with several round very small whitish dots; dorsal and caudal rays with a series of similar dots, the interradiæ membrane being immaculate.

This species is also probably from Surinam; one male specimen, 6 inches long, has been obtained from the collection of Dr. van Lidth de Jeude.

This species is allied to *Plecostomus barbatus* and *P. guttatus*. We have received a very complete series of the former species from the same collection, and I find that the long bristles on the margin of the snout and the interoperculum form a sexual character and are peculiar to the male. In the female they are very short, and sometimes scarcely developed. Both these species might be referred, with greater propriety, to *Chætostomus*.

CHÆTOSTOMUS MEGACEPHALUS.

D. 1/7. A. 5. P. 1/6. L. lat. 23.

Head but slightly depressed, rather longer than broad, *its length being more than one-third of the total (without caudal)*; a very obtuse ridge runs from the upper angle of the orbit to below the nostril; occiput flat; interorbital space with a pair of shallow grooves. The horizontal diameter of the orbit is more than one-half of the width of the interorbital space, and about one-fifth of the length of the head. Margin of the snout granulated, without



bristles; interoperculum with a bundle of about twenty setiform spines, the longest of which are about one-fourth of the length of the head, and extend backwards to the root of the pectoral fin. Thorax and belly entirely naked. Dorsal fin rather higher than long, the length of its anterior rays being three-fourths of that of the head; the length of its base equals its distance from the root of the caudal. There are six scutes between the two dorsal fins. Caudal fin forked, the lower lobe being the more developed. The pectoral spine extends to the second third of the ventral; the ventral fin to the middle of the anal. Twelve scutes between the anal and caudal fins. Scutes of the body without keels, but with vertical series of spines, the anterior scutes with one series only, the middle with two, and the posterior with three or more. Posthumeral ridge indistinct. Blackish brown; head and body with numerous indistinct round yellowish spots, each about as large as the pupil; each dorsal ray with a series of round whitish spots, the black ground-colour forming a network on the fin.

One male specimen, 6 inches long, has been obtained from the collection of Dr. van Lidth de Jeude. It is probably from Surinam.

#### CHÆTOSTOMUS DENTEX.

D. 1/7. A. 4. P. 1/6. L. lat. 23.

Head depressed, rather longer than broad, its length being somewhat more than one-third of the total (without caudal). A very distinct short ridge runs from the upper angle of the orbit to below the nostril. Interorbital space and occiput flat, the orbital margin being slightly elevated. Eye rather small, its horizontal diameter being one-half of the width of the interorbital space. Margin of the snout rough, like the surface of the head, but without bristles. *Interoperculum with a bundle of about ten straight setiform spines, the longest of which is as long as the eye. Thorax and belly nearly entirely naked*, there being only a few granulations behind the throat. *Teeth comparatively large, with the apex dilated, scarcely lobed*; there are about six on each side in the upper jaw, and three in the lower. Dorsal fin higher than long, but its anterior ray is shorter than the head; the length of its base is less than its distance from the caudal; there are seven scutes between the two dorsal fins. Caudal fin forked, the lower lobe being much longer than the upper. The pectoral spine extends to the second fourth of the ventral; the ventral fin beyond the anal. Eleven scutes between the anal and caudal. Scutes not keeled, but covered with strong spines. Uniform greyish brown.

One example,  $3\frac{1}{2}$  inches long, was found by Mr. Bartlett at Xeberos.

#### ACANTHICUS HYSTRIX, Spix.

The figure given by Spix is not good; but the species may be readily recognized from it. Mr. Bartlett obtained a splendid ex-

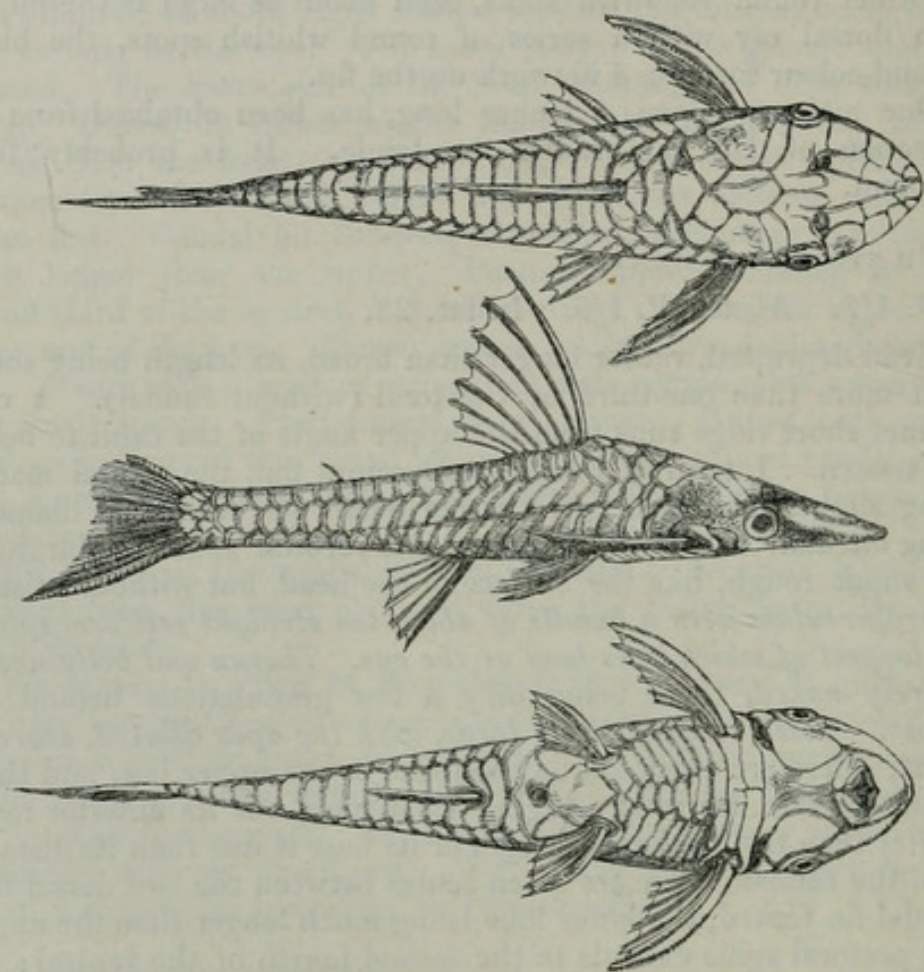


ample, 22 inches long, at Xeberos. It has no adipose fin; therefore Kner's assertion, that the absence of this fin in the typical example is merely accidental, is not confirmed.

**HYPOPTOPOMA (g. n. HYPOSTOMATINUM.).**

This genus differs from *Plecostomus* in the peculiar formation of the head, which is depressed, spatulate, the eyes being on the lateral edge of the head. The moveable gill-covers are reduced to two bones, viz. the operculum, small and placed as in *Plecostomus*, and a second, larger bone (interoperculum?), separated from the eye by the narrow suborbital ring, and placed at the lower side of the head.

Fig. 2.



*Hypoptopoma thoracatum.*

**HYPOPTOPOMA THORACATUM. (Fig. 2.)**

D.  $\frac{1}{6}$ /1. A. 6. P.  $\frac{1}{6}$ . V.  $\frac{1}{5}$ . L. lat. 24.

The form of the head approaches that of *Loricaria*, being much depressed; the snout broad, with the outline elliptical. The inter-orbital space is slightly convex, but little narrower than the greatest width of the head, which is three-fourths of its length. The



length of the head (to the occiput) is contained thrice and one-fourth in the total (without caudal). The margin of the snout is rough, like the upper surface of the snout. Structure of the mouth and teeth as in *Plecostomus*. Teeth small, about ten on each side in the upper jaw, and thirteen in the lower; lips narrow. The lower side of the head is naked, except where it is covered by the large subsemicircular interoperculum. Scutes without keels, covered with fine spines, which are arranged in longitudinal striæ. Thorax covered by two pairs, abdomen by three series of broad scutes. Dorsal fin much higher than long, the length of its base being one-half of its distance from the adipose spine; caudal fin obliquely truncated, the lower ray being much longer than the upper. Pectoral spine serrated along both edges, extending beyond the middle of the ventral; ventral fin scarcely extending to the anal. Coloration uniform olive, caudal fin darker.

A single example, 3 inches long, was obtained by Mr. Bartlett at Xeberos.

#### LORICARIA ROSTRATA, Spix.

The figure given in Spix's *Pisc. Bras.* is bad. The figure of Valenciennes under the name of *Loricaria acuta* (pl. 452) has probably been made from an example of this species; it certainly does not agree with his description of *L. acuta*. This species shows the same sexual character as *Plecostomus barbatus*, the male having a bearded snout. Kner, not being aware of this, described the female as *L. rostrata*, and the male as *L. barbata*. Mr. Bartlett found this fish at Xeberos.

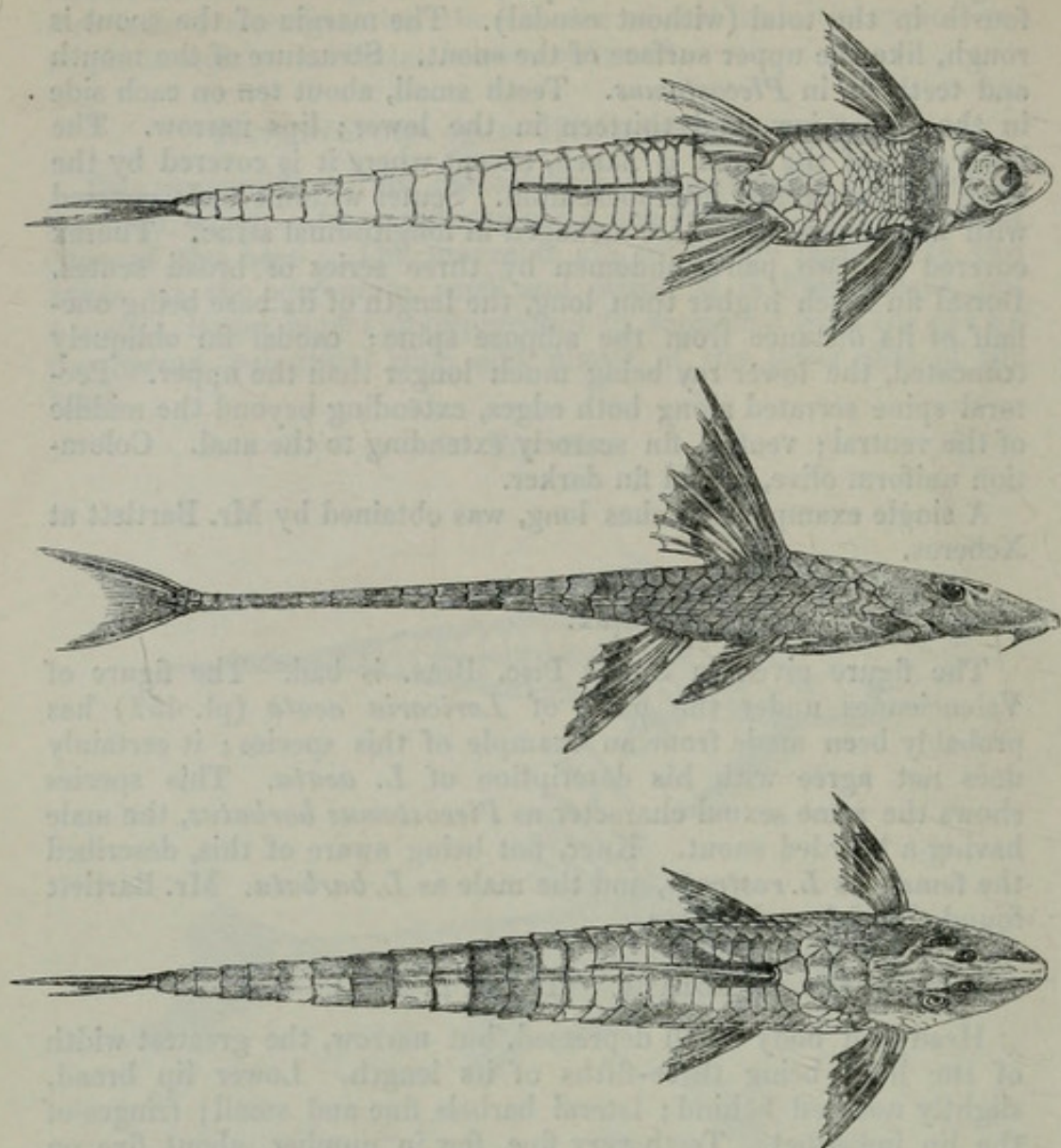
#### LORICARIA LANCEOLATA. (Fig. 3, p. 236.)

Head and body much depressed, but narrow, the greatest width of the head being three-fifths of its length. Lower lip broad, slightly notched behind; lateral barbels fine and small; fringes of the lip indistinct. Teeth very fine, few in number, about five on each side in the upper jaw, and about seven in the lower. Orbit with a rather shallow notch behind, its horizontal diameter (the notch included) being two-thirds of the width of the interorbital space, which is flat. Head and body rough; a pair of obtuse ridges on the occiput and nape. The lateral ridges of the body are confluent on the fifteenth scute. L. lat. 28. There is a series of seven scutes between the roots of the pectoral and ventral fins. Thorax and abdomen covered with irregular scutes. The length of the head (measured to the occiput) is a little more than one-fifth of the total (without caudal). None of the fin-rays are much produced; the pectoral extends somewhat beyond the origin of the ventral. Origin of the dorsal fin opposite to the root of the ventral. Brown; back with about five obscure dark cross bands; fins with broad, irregular confluent black cross bands.

One specimen,  $3\frac{3}{4}$  inches long, was found by Mr. Bartlett at Xeberos.



Fig. 3.

*Loricaria lanceolata*, p. 235.**LORICARIA PLATYSTOMA.** (Fig. 4, p. 237, and fig. 5, p. 238.)

Snout of moderate length, slightly pointed; mouth broad, upper lip well developed, lower semicircular, of moderate width, papillose, not fringed, and with a minute barbel near the angle of the mouth. Teeth very fine, about forty on each side of each jaw, the series occupying nearly the whole width of the mouth. Orbit nearly circular, without notch, its horizontal diameter being two-thirds of the width of the interorbital space, which is slightly concave. Scutes remarkably smooth, even the lateral ridges of the body and tail being obtuse; they are confluent on the twenty-first scute. L. lat. 29. There is a series of seven or eight scutes between the roots of the pectoral and ventral fins. Thorax and abdomen covered with small irregular scutes. The length of the head (measured to the occiput) is contained five times and one-third in the total (without



Fig. 4.

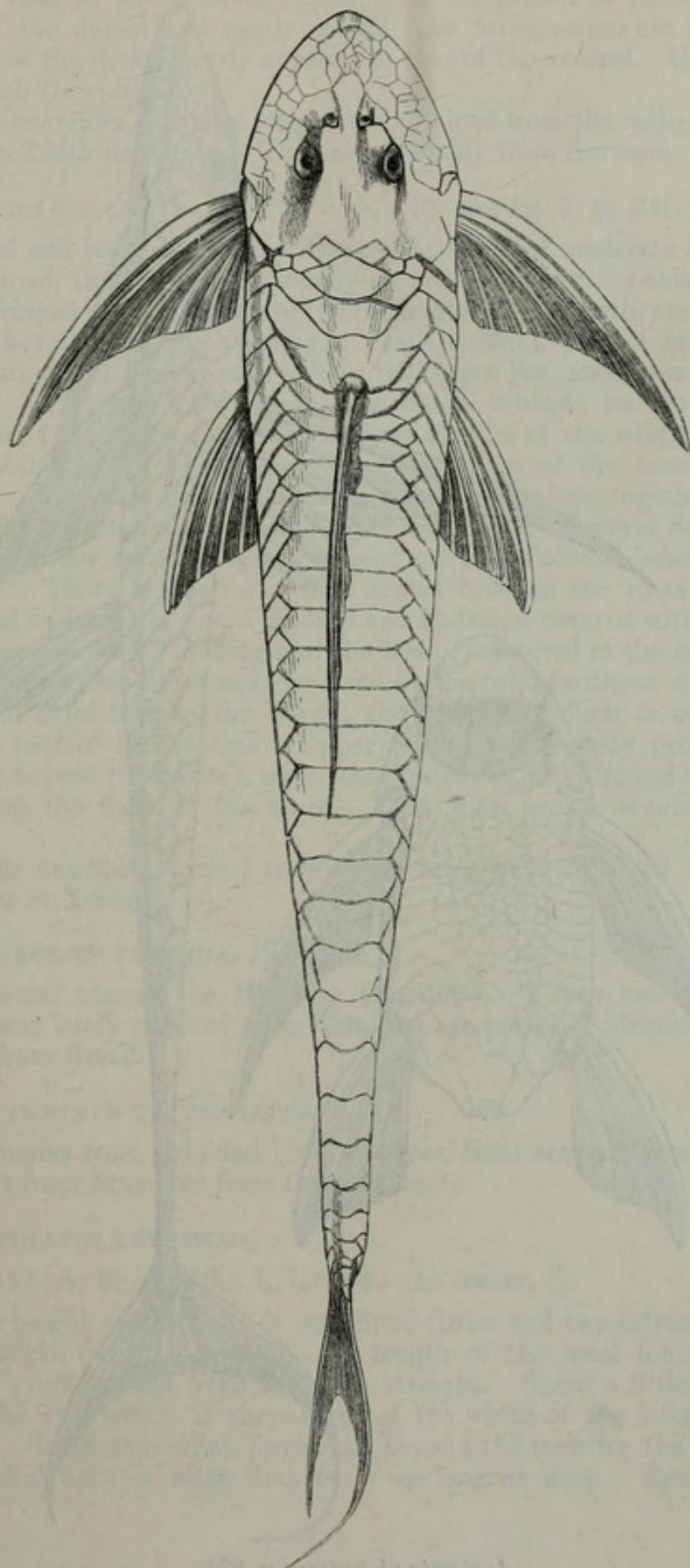
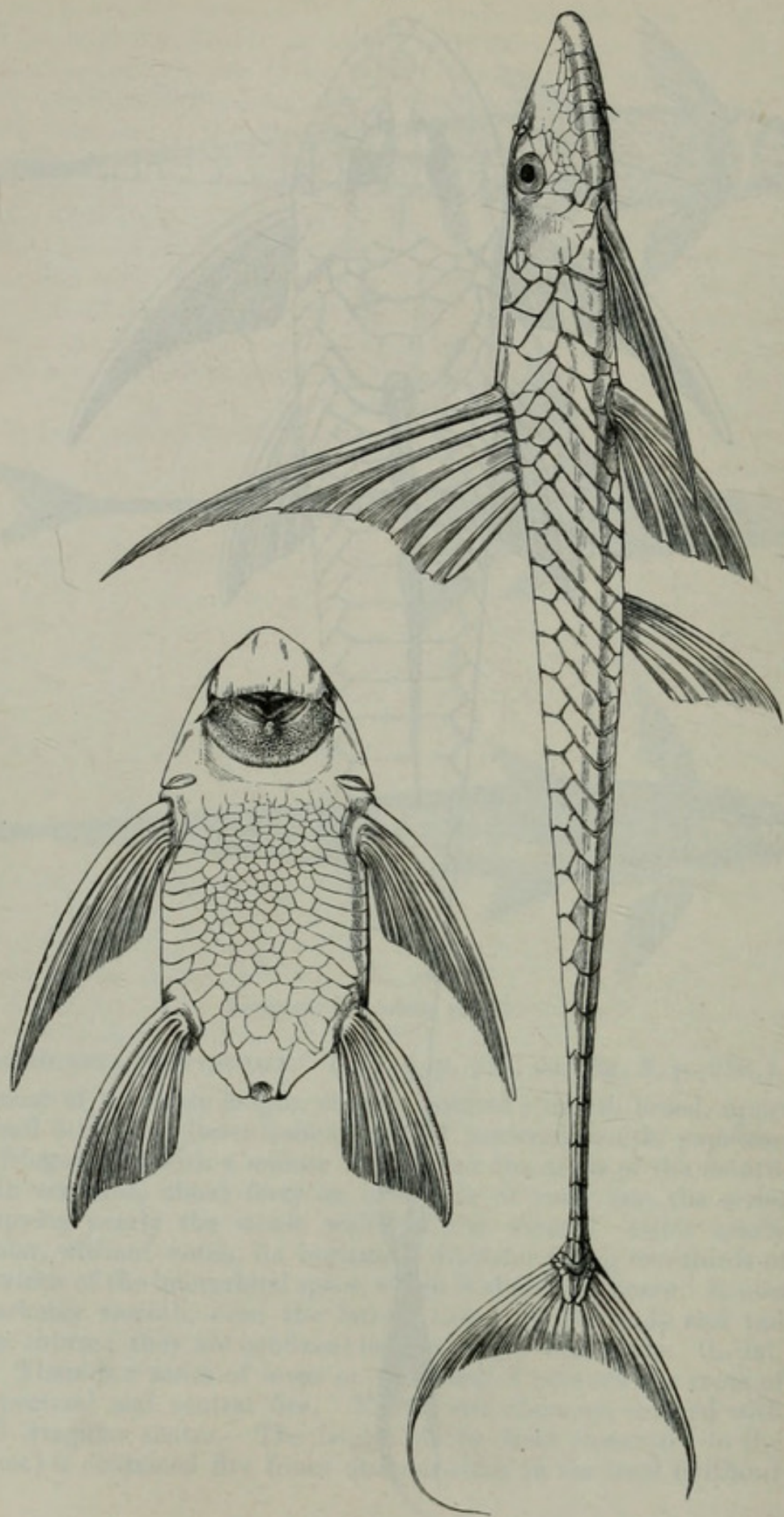
*Loricaria platystoma*, p. 236.



Fig. 5.

*Loricaria platystoma*, p. 236.



caudal). The outer ray of each fin (except anal) somewhat produced, that of the pectoral reaching to the middle of the ventral, that of the dorsal and upper caudal lobe being somewhat longer. Origin of the dorsal nearly opposite to that of the ventral. Uniform brownish (in spirits).

Two examples, 8 inches long, were obtained from the collection of Dr. van Lidth de Jeude. They are probably from Surinam.

LORICARIA LAMINA. (Fig. 6, p. 240, and fig. 7, p. 241.)

Head and body excessively depressed; snout of moderate length, very broad, the head being nearly as broad as long. Labial folds thin, fringed; a slender barbel at the angle of the mouth, extending to or beyond the gill-opening. Teeth minute, few in number; there are about five on each side in the upper jaw, and seven in the lower. Orbit small, with a shallow notch behind; its horizontal diameter (the notch included) is three-fourths of the width of the interorbital space, which is nearly flat. Edge of the snout trencant. Two very low median ridges placed close together run from the parietal region to the prædorsal scute. Lateral ridges of the body very conspicuous, confluent on the sixteenth scute. L. lat. 32. There is a series of nine scutes between the roots of the pectoral and ventral fins. Thorax and abdomen covered with small irregular scutes. The length of the head (measured to the occiput) is contained four times and one-third in the total (without caudal). Pectoral extending to the dorsal, the origin of which is opposite to the root of the ventral. Upper caudal ray slightly produced. Olive-coloured (in spirits), with some indistinct small round whitish spots on the back of the trunk; head with brown vermiculated lines.

Three examples, from 7 to 8 inches long, were collected by Mr. Bartlett at Xeberos.

MACRODON TRAHIRA, Bl. Schn.

Is found also in the Huallaga (Bartlett). I may remark that specimens lately received from Trinidad are perfectly identical with those from Brazil.

ERYTHRINUS UNITÆNIATUS, Spix.

Examples from Trinidad (? *E. cinereus*, Gill) are not specifically distinct from examples from the continent.

CURIMATUS LEUCISCUS.

D. 11. A. 9. V. 10. L. lat. 64. L. transv.  $\frac{11}{10}$ .

The height of the body is contained thrice and two-thirds in the total length (without caudal), the length of the head four times. Upper profile of the head and nape straight. Snout a little longer than the eye, which is three-fifths of the width of the interorbital space. Snout somewhat projecting beyond the mouth; the second suborbital bone is more than twice as long as deep. Eye with a



Fig. 6.

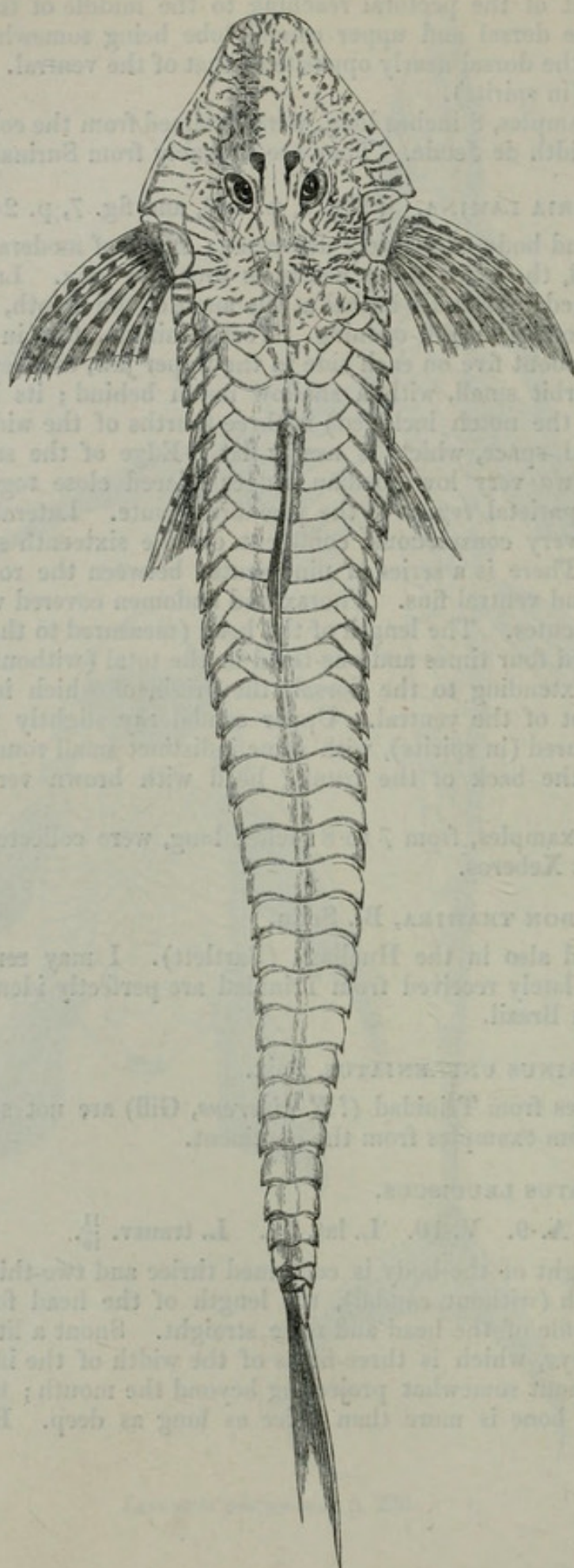
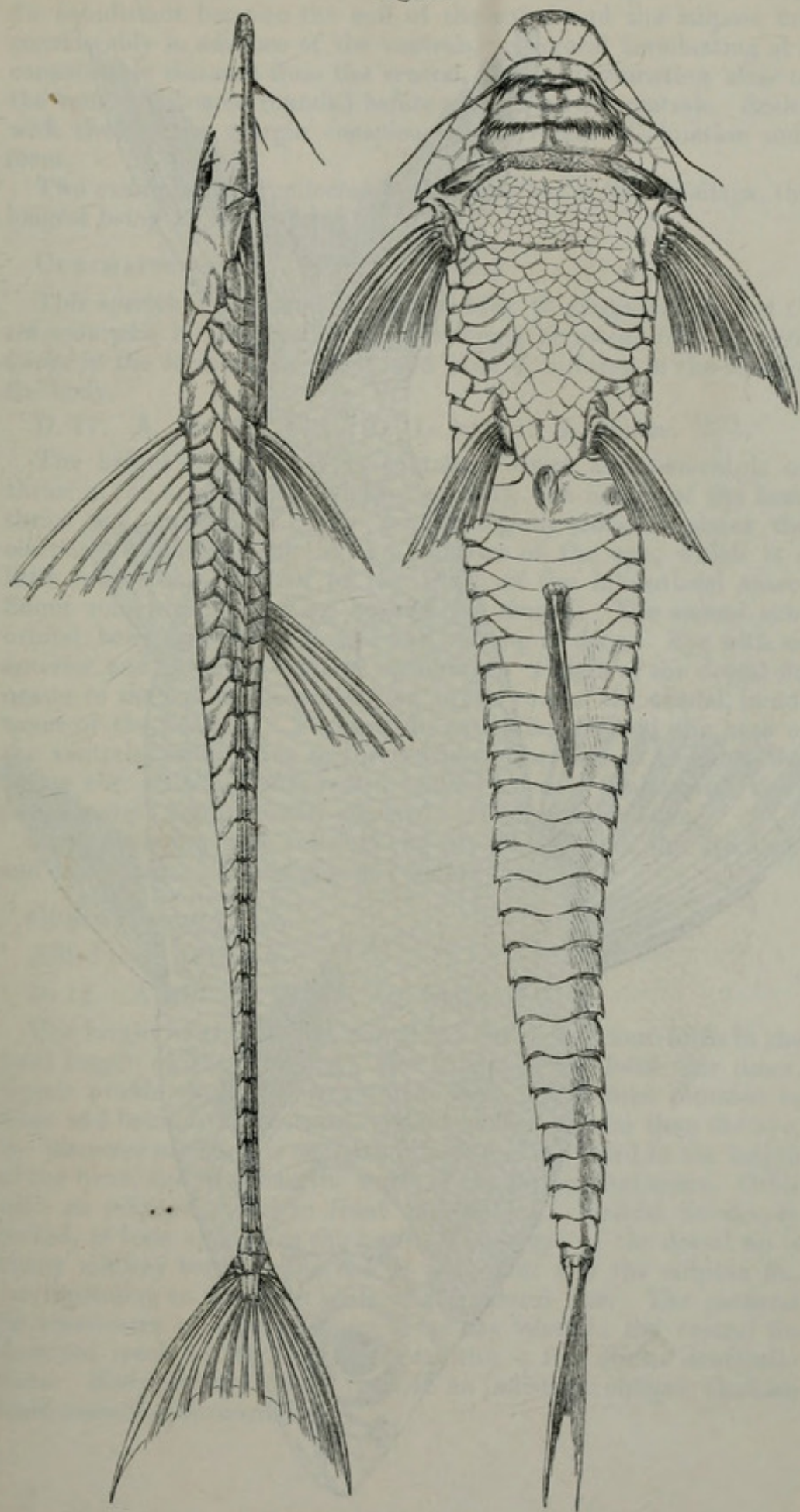




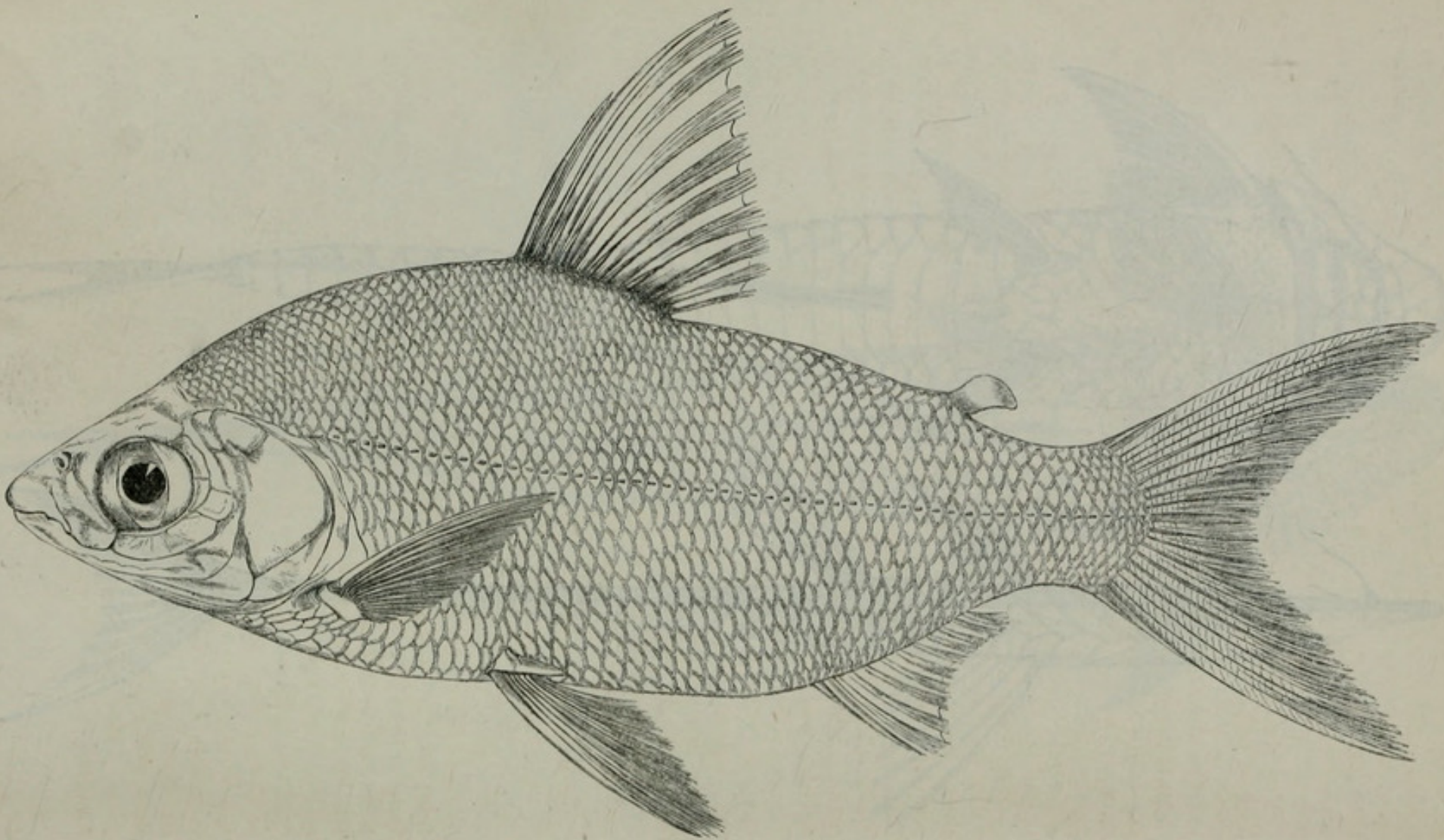
Fig. 7.



*Loricaria lamina*, p. 239.



Fig. 8.



*Curimatus asper*, p. 243.



narrow adipose membrane in front and behind. Origin of the dorsal fin equidistant between the end of the snout and the adipose fin, considerably in advance of the ventrals. Pectoral terminating at a considerable distance from the ventral, ventral terminating close to the vent. Abdomen rounded before and behind the ventrals. Scales with their entire margin conspicuously serrated. Coloration uniform.

Two examples were collected by Mr. Bartlett in the Huallaga, the longest being  $5\frac{1}{2}$  inches long.

**CURIMATUS ASPER.** (Fig. 8, p. 242.)

This species differs from *C. cyprinoides*, *C. essequibensis*, and *C. schomburgkii* in having the scales strongly serrated, from *C. rutiloides* in the form of the snout, and from *C. ciliatus* in the form of the body.

D. 11. A. 12-13. V. 9-10. L. lat. 51. L. transv.  $\frac{13-14}{9}$ .

The height of the body is contained twice and two-thirds or thrice in the total length (without caudal), the length of the head thrice and one-half. Upper profile slightly concave above the occiput. Snout as long as the diameter of the eye, which is a little more than one-half of the width of the interorbital space. Snout somewhat projecting beyond the mouth. The second sub-orbital bone is twice and one-half as long as deep. Eye with an anterior and posterior adipose membrane. Origin of the dorsal fin nearer to the end of the snout than to the root of the caudal, in advance of the ventrals. Pectoral fin extending beyond the base of the ventrals, ventral fins to, or nearly to, the vent. Abdomen flat before the ventrals, compressed behind them. Scales with their entire margin conspicuously serrated. Coloration uniform.

Four examples were collected by Mr. Bartlett on the Huallaga and at Xeberos. The largest is 7 inches long.

**CURIMATUS DOBULA.**

Allied to *C. troschelii*.

D. 12. A. 10. L. lat. 43. L. transv.  $6\frac{1}{7}$ .

The height of the body is contained thrice and four-fifths in the total length (without caudal), the length of the head four times. Upper profile slightly convex on the nape. Abdomen rounded in front and behind the ventrals. Snout rather shorter than the eye, the diameter of which is contained thrice and one-third in the length of the head, and less than the width of the interorbital space. Orbit with an adipose eyelid in front and behind. Caudal fin deeply forked, at least as long as the head. The origin of the dorsal fin is nearly midway between the end of the snout and the adipose fin, corresponding to the tenth scale of the lateral line. The pectoral fin terminates at some distance from the ventral; the ventral fin does not reach to the vent. Scales with a few obtuse denticulations. Body silvery; dorsal fin with an indistinct oblique blackish band ascending forwards.



Three examples,  $4\frac{1}{2}$  inches long, were collected by Mr. Bartlett on the Huallaga.

**HEMIODUS KAPPLERI.**

Allied to *H. notatus*, but with the body much more elongate.

D. 11. A. 11. V. 11. L. lat. 64. L. transv.  $13/8$ .

The scales below the lateral line are much larger than the others; there are six longitudinal series between the lateral line and ventral fin. The height of the body equals the length of the head, which is two-ninths of the total (without caudal). The depth of the head equals its length, without snout. The distance between the gill-opening and the vertical from the origin of the dorsal is but little less than the length of the head. Origin of the dorsal nearly midway between the end of the snout and the adipose fin, considerably in advance of the root of the ventral. Caudal peduncle longer than deep. Silvery; a round black spot above the lateral line, behind the dorsal fin, corresponding to the thirty-fourth scale of the lateral line. Each caudal lobe with a black longitudinal band.

Two specimens were sent by Hr. Kappler from Surinam. The larger is 9 inches long.

**LEPORINUS MEGALEPIS, Gthr.**

Xeberos. Young examples have the upper incisors distinctly notched.

**LEPORINUS FREDERICI, Bl.**

An example found by Mr. Bartlett at Xeberos, and 6 inches long, might be taken for a distinct species of *Anostomus*, as it has the teeth still distinctly notched. The three spots are confluent into an uninterrupted band—a peculiarity which I have also observed in examples from the Essequibo, though in a less marked degree.

**LEPORINUS HYPSELONOTUS. (Plate XXII.)**

D. 10. A. 13. V. 9. L. lat. 37-38. L. transv.  $6/7$ .

The height of the body is contained twice and one-half or twice and two-thirds in the total length (without caudal), the length of the head four times and one-half or four times and two-thirds. Back much elevated, with its profile very convex to the dorsal fin. Eye nearer to the end of the snout than to that of the opercle; its diameter is one-fourth of the length of the head, less than that of the snout, and one-half of the width of the interorbital space, which is very convex. Opercle two-thirds as long as deep. Incisors strong and broad, the form of their edges varying with the age of the tooth. Lips not fringed. Origin of the dorsal fin equidistant between the end of the snout and the adipose fin. Abdomen compressed behind the ventrals. Body with seven more or less broad oblique blackish cross bands; the two anterior in front of the dorsal; the third from the anterior dorsal rays to behind the ventral



fins; the fourth corresponding to the vent, the fifth to the middle of the anal, the sixth from the adipose fin, and the seventh round the last caudal scales. Anterior part of the base of the dorsal and the ventrals deep black; the other fins yellowish.

Several examples, the largest 6 inches long, were obtained by Mr. Bartlett at Xeberos. All of them have one side of the gill-cavity infested with a parasitic crustacean.

#### TETRAGONOPTERUS OVALIS.

D. 11. A. 26. L. lat. 31. L. transv.  $5\frac{1}{2}/6$ .

The height of the body is one-half of the total length (without caudal); the length of the head is contained thrice and two-thirds in it. Upper profile rather more convex than lower, slightly concave on the nape. The diameter of the eye is more than the width of the interorbital space, less than the length of the snout, and one-third of that of the head. The maxillary extends somewhat beyond the vertical from the front margin of the orbit. Origin of the dorsal fin immediately behind the root of the ventral. Pectorals extending beyond the ventrals, ventrals to the vent. There are four longitudinal series of scales between the lateral line and ventral fin. Humeral spot indistinct; caudal spot diffuse, extending over the base of the fin. Remainder of the body uniformly coloured.

A single example, 4 inches long, was obtained by Mr. Bartlett at Xeberos.

#### APHYOCHARAX, g. n.

This genus belongs to the *Tetragonopterina*, and is, technically, distinguished from *Chirodon* by the presence of maxillary teeth.

Dorsal fin placed in the middle of the length of the body, behind the ventrals; anal rather long. Body oblong, covered with scales of moderate size. Lateral line visible on a part of the scales only. Abdomen rounded before the ventrals. Cleft of the mouth narrow; maxillary short; intermaxillary, maxillary, and mandibles with a single series of pointed teeth, those in the intermaxillary having a minute lobe on one or both sides; all the others appear to be simply pointed.

#### APHYOCHARAX PUSILLUS.

D. 9. A. 18. V. 8. L. lat. 36. L. transv. 12.

The height of the body equals the length of the head, and is two-ninths of the total (without caudal). The diameter of the eye is two-sevenths of the length of the head, more than that of the snout, and less than the width of the interorbital space; maxillary extending somewhat beyond the vertical from the anterior margin of the orbit. Intermaxillary with about seven, mandible with nine teeth on each side; maxillary teeth very small, occupying about one-third of the length of the bone. Jaws even in front, the mandible projecting when the mouth is open. Origin of the dorsal fin midway between the end of the snout and the root of the caudal, behind the



root of the ventrals. Caudal fin slightly forked. Scales slightly striated at the base, the lateral line being visible on the eight anterior scales. Uniform olive-coloured; the middle caudal rays black.

Three examples,  $2\frac{1}{2}$  inches long, were collected by Mr. Bartlett on the Huallaga and at Xeberos.

*ANACYRTUS AFFINIS.*

D. 11. A. 55. L. lat. 80.

Upper and lower jaws on each side with a pair of short conical tooth-like processes directed forwards and outwards. Intermaxillary teeth in two irregular series, those of the mandible being in a single series, two pairs of them larger than the rest, canine-like. Maxillary with four or five distant short conical teeth. Back much elevated, the profile on the nape being deeply concave. The height of the body is contained twice and two-thirds in the total length (without caudal), the length of the head four times. Lower jaw considerably shorter than the upper; maxillary not extending to the vertical from the front margin of the eye. Suborbital touching the lower præopercular limb, slightly and irregularly striated. The diameter of the eye is equal to the width of the interorbital space, or to the length of the snout, and two-sevenths of that of the head; it is placed immediately below the upper profile. The humeral process in front of the pectoral terminates in an obtuse point behind, without projection in front. Origin of the dorsal fin opposite to that of the anal, rather nearer to the end of the snout than to the root of the caudal. Pectoral extending beyond the vent, ventral beyond the origin of the anal. Caudal forked. Humeral and caudal spots more or less indistinct; a narrow silvery band along and above the lateral line.

Two examples, 4 inches long, were collected by Mr. Bartlett on the Huallaga.

*ANACYRTUS (CYNOPOTAMUS) AMAZONUM.*

D. 11. A. 40. V. 8-9. L. lat. 110.

The height of the body is contained twice and two-thirds in the total length (without caudal), the length of the head thrice and three-fourths. Upper profile deeply concave on the nape, the back being much elevated. Abdomen not compressed, but with a median ridge from behind the ventrals. The intermaxillary teeth are of three sizes, viz.:—1, a pair of large canine teeth in front of the jaw, standing close together, and a second similar tooth close to the end of each bone; 2, a series of small teeth between the canines mentioned; 3, two smaller canines in a separate series inwards of the small teeth. The maxillary is armed with a series of very small teeth in its entire length. The teeth in the mandible are similar to those of the intermaxillary, but rather stronger, and *form a single series*; they stand in the following order:—(first) two small teeth, (secondly) a canine corresponding to the upper front canine,



(thirdly) a small canine, (fourthly) a very large canine fitting into a groove of the upper jaw, (fifthly) at some distance from the preceding a smaller canine corresponding to the upper posterior canine, and followed (sixthly) by a series of closely set small teeth\*. The upper jaw overlaps the lower slightly, the maxillary extending far behind the eye, which is rather small, placed in the middle of the depth of the head, nearer to the snout than to the gill-opening. Suborbital slightly and irregularly striated. Origin of the dorsal fin nearer to the end of the snout than to the root of the caudal, its last ray being opposite to the origin of the anal fin. Pectoral extending beyond the root of the ventral, ventral scarcely reaching the vent. Operculum very narrow; a naked space between the suborbital and lower limb of the opercle. Coloration uniform; a black spot on the end of the lateral line.

Two examples, 10 inches long, were collected by Mr. Bartlett at Xeberos.

**TETRAGONOPTERUS MELANURUS, Bl.**

Specimens from Surinam have the caudal fin whitish, with a broad black median band.

**MYLETES DURIVENTRIS, Cuv.**

D. 15-16. A. 33-34. Abdominal spines 39-48. Xeberos.

**CYNODON PECTORALIS, Gthr.**

D. 45-48. Xeberos.

**XIPHORHAMPHUS FALCIROSTRIS, Cuv.**

A. 22-27. Young, with a blackish longitudinal band. Xeberos, Pebas.

6. On the Supposed Arrest of Development of the Salmon when retained in Fresh water. By JAMES MURIE, M.D., F.L.S., F.G.S., Prosector to the Society.

(Plate XXIII.)

*Introductory Remarks.*—Lately there was brought to me a small fish of which the life-history is somewhat peculiar. So interesting, indeed, does it seem to me that I have not hesitated in bringing the facts of the case before the notice of this Society. I do so the more readily because it appears to me that, if it could be shown with certainty that the said fish is an undoubted *Salmo salar*, Linn., a physiological law of wide import would necessarily follow.

\* I have given this detailed description of the dentition because the other species referred to *Cynopotamus* have another series of small teeth within the outer. This is another proof that *Cynopotamus* is not a distinct genus.



