

II. ON THE SPECIES OF HASEMANIA, HYPHESSO-
BRYCON, AND HEMIGRAMMUS COLLECTED BY
J. D. HASEMAN FOR THE CARNEGIE MUSEUM.¹

BY MARION DURBIN ELLIS.

(Plates I-III.)

Genus HASEMANIA gen. nov.²

(Type, *Hasemania melanura* spec. nov.)

A Tetragonopterid, with two rows of premaxillary teeth, the maxillary without teeth, or with a few teeth in its upper angle, the lateral line incomplete, the caudal naked. No adipose fin. Like *Hyphessobrycon*, but without an adipose. Pectoral frequently archaic in small specimens.

- a. Maxillary equal to the eye, with two small tricuspid teeth. Premaxillary teeth narrow, tricuspid, or conical. Snout sharp; interorbital narrow, less than the eye, 4 in the head. D. 11; A. 19; scales 7-32-5 or 6.

maxillaris sp. nov.

- aa. Maxillary less than the eye, elliptical, without teeth. Teeth in the inner row of the premaxillary with more than three points. Interorbital 3, or less, in the head.

- b. Snout short and blunt. Dentary with four or five five- or six-pointed teeth. A distinct blackish caudal spot extending to the tips of the middle caudal rays. D. 11; A. 16 to 18; scales 6-33 to 36-5... *melanura* sp. nov.

- bb. Dentary with three broad, chisel-shaped, eight- or nine-pointed teeth. No distinct caudal spot; a heavy black lateral stripe; another black stripe along the under side of the caudal peduncle, extending to the base of the last anal ray, and continued in a straight line to just above the first anal ray. D. 11; A. 14 to 17; scales 5-33 or 34-4.... *bilineata* sp. nov.

1. *Hasemania maxillaris* sp. nov.

Plate I, fig. 1.

Type unique. 29 mm. C. M. No. 2937. Porto União, Rio Iguassú.

Head 3; depth 3; D. 11; A. 19; scales 7-32-5 or 6. Eye 3 in the head; interorbital less than the eye, about 4 in the head. Compressed,

¹ Contributions from the Zoölogical Laboratory of Indiana University, under the direction of C. H. Eigenmann. No. 115.

² For Mr. John D. Haseman, who collected all of the specimens of this genus thus far known.

depth of head at the base of the occipital process 1.2 in the greatest depth. Preventral region rounded. Predorsal region rounded, without a regular series of median scales. Occipital process a little more than 5 in the distance from its base to the dorsal. Interorbital nearly flat. Frontal fontanel triangular, as wide as the parietal, and two-thirds as long as the parietal without the occipital groove. Second suborbital with a wide naked margin behind and below. Snout pointed, rather short, mouth large. Maxillary equal to the eye. Mandible longer than the eye, 2.4 in the head. Premaxillary with five tricuspid and conical teeth in the inner row, and three conical teeth in the outer row. Maxillary with two conical teeth. Dentary with five or six tricuspid teeth, followed by three to six very small conical teeth on the sides. Gill-rakers $6 + 9$. Scales cycloid, striæ crooked, more numerous near the sides of the free margin of the scale, variable in number ($18 +$). Caudal naked. No anal sheath extending over the rays of the fin, but a series, or part of a series, of small scales along the base of the anal. Lateral line with pores developed on about six scales. Origin of the dorsal the length of the eye nearer to the caudal than to the snout, its longest ray about 4.5 in the length. Caudal probably about 1.33 in the head. Origin of the anal on the vertical from the ninth dorsal ray. Anal truncate. Ventrals on the vertical from the first dorsal ray, very short, just reaching the second scale in front of the anal. Pectorals archaic. Adipose lacking. No humeral spot, a faint caudal spot, not continued on the rays. Lateral stripe very faint. Dorsal, caudal, and ventrals uniformly dusky; distal half of anal dusky. All the scales, excepting those in the preventral region, outlined with dusky; much darker along the back. Silvery except along the back.

2. *Hasemanian melanura* sp. nov.

Plate I, fig. 2.

Type, one specimen, 35 mm. C. M. No. 3002. Porto União, Rio Iguassú.

Cotypes, forty-nine specimens, 25 to 44 mm. C. M. No. 3003. Porto União, Rio Iguassú.

Head 3.2 to 3.7; depth 2.6 to 2.8; D. 11; A. 16 to 18; scales 6–33 to 36–5; eye rather small, 3 in the head; interorbital equal to, or greater than, the eye, 2.8 to 3 in the head. Compressed, depth of head at the base of the occipital process 1.6 in the greatest depth.

Predorsal region rounded, with, or without, a complete series of eleven median scales. Occipital process short, about 6 in the distance from its base to the dorsal, bordered by two or three scales. Frontal fontanel an almost equilateral triangle, narrower than the parietal fontanel, and 1.6 in the parietal without the occipital groove. Second suborbital leaving a naked margin behind and below. Snout short and moderately blunt, less than the eye, 4 in the head. Maxillary shorter than the eye, equal to the length of the snout, elliptical in outline, the front and back not parallel. Mandible equal to the eye. Premaxillary with four or five five- to seven-pointed teeth in the inner row, and three three-pointed teeth in the outer row. Maxillary without teeth. Dentary with a graduated series of four or five five- or six-pointed teeth, followed by four or five minute teeth on the sides. Gill-rakers 6 + 8. Anal sheath very short. Lateral line with pores developed on seven or eight scales. Origin of the dorsal half the length of the eye nearer to the caudal than to the snout. Longest dorsal ray 4.7 in the length. Origin of the anal on the vertical from the third or fourth scale behind the dorsal; anal truncate, the longest ray equal to the length of the base. Caudal shorter than the head, 4 in the length. Ventrals on the vertical from the first dorsal ray, very small, reaching the third or fourth scale in front of the anal. Pectorals normal, but small, reaching the third to fifth scale in front of the ventrals. No humeral spot. Lateral stripe narrow, lead-gray, extending from the humeral region to the triangular caudal spot. Caudal spot narrowed abruptly behind and continued to the tips of the middle caudal rays. Dorsal, anal, ventrals, and pectorals unmarked, but somewhat dusky. Scales silvery below the lateral line.

3. *Hasemania bilineata* sp. nov.

Plate I, fig. 3.

Type, one specimen, 41 mm. C. M. No 3004. Alto da Serra, São Paulo, in a creek.

Cotypes, four specimens, 38 to 20 mm. C. M. No. 2938. Mogy das Cruzes.

Cotypes, four specimens, 16 to 14 mm. C. M. No. 2939. Mogy das Cruzes.

Head 3.5; depth 2.8 to 3; D. 11; A. 14 to 17; scales 5-33 or 34-4. Eye 2.5 to 3 in the head; interorbital equal to the eye. Compressed, depth of head at the base of the occipital process 1.33 in the greatest depth. Preventral region rounded, without complete series of median

scales. Predorsal region rounded, with a regular series of about eleven scales. Occipital process short, 6 or more in the distance from its base to the dorsal. Interorbital almost flat. Frontal fontanel truncate, not so wide as the parietal, three-fourths as long as the parietal without the occipital groove. Second suborbital with narrow naked margin behind and below. Maxillary less than the eye, 3.6 in the head. Mandible equal to the eye. Premaxillary with four seven-pointed teeth in the inner row, and one conical or tricuspid tooth representing the outer series. Maxillary without teeth. Dentary with three broad, chisel-shaped teeth with eight or nine points. Gill-rakers $8 + 11$. Scales cycloid. Probably no interpolated scales or rows of scales. Anal sheath very short or lacking. Lateral line with pores on the first three to six scales. Origin of the dorsal equidistant from the snout and caudal, the longest ray 3.8 in the length. Origin of the anal on the vertical from the last dorsal ray. Anal rounded, the longest ray equal to the base. Ventrals on the vertical from the third or fourth scale in front of the dorsal. Ventrals reaching to the third or fourth scale in front of the anal. Pectorals (of fishes over 16 mm. in length) normal in form, and reaching the fourth or fifth scale in front of the ventrals. Pectorals of specimens of less than 16 mm. in length archaic. Adipose lacking. No true humeral or caudal spots. A heavy black lateral stripe from the caudal peduncle to the head, much fainter over the region of the body-cavity. An almost straight black line from the caudal along the under side of the caudal peduncle to a point just above the origin of the anal. Last four scales of the back black. Fins all unmarked. Scales above the lateral stripe heavily outlined with dusky.

Genus HYPHESSOBRYCON Durbin.

4. *Hyphessobrycon taurocephalus* sp. nov.

Plate I, fig. 4.*

Type, 55 mm. C. M. No. 3007. Serrinha Paraná, Rio Iguassú.

Cotypes, thirty-two specimens, 39 to 55 mm. C. M. No. 3008. Serrinha Paraná, Rio Iguassú.

Cotypes, twenty-two specimens, 30 to 45 mm. C. M. No. 3009. Porto União, Rio Iguassú.

* The figure is incorrect, in that it does not show the pygiform, which is located vertically above the posterior extremity of the insertion of the anal.—Editor.

Cotypes, thirteen specimens, 27 to 36 mm. C. M. No. 3010. Porto União, Rio Iguassú.

Head 3.8-4; depth 3; D. 11; A. 14 to 16; scales 5 or 6-32 to 36-4 to 5. Eye 3 to 3.25; interorbital much wider than the eye, 2.2 in the head. Little compressed, depth of the head at the base of the occipital process 1.25 in the greatest depth. Preventral region rounded, without complete series of median scales. Predorsal region rounded. Occipital process a little more than 4 in the distance from its base to the dorsal, bordered by two or three scales. Frontal fontanel triangular, as wide as the parietal, two-thirds as long as the parietal without the occipital groove. Second suborbital leaving a narrow naked margin behind and below. *Maxillary margin very convex, the proximal third much constricted, very short, 1.5 in the eye or nearly 5 in the head; mandible also short, equal to the eye, about 3 in the head. Mouth moderately large; snout very short, equal to the maxillary. Premaxillary with three three- to five-pointed teeth in the outer row, and five broad five- to seven-pointed teeth in the inner row; the last of the inner series is often much reduced. Maxillary without teeth. Dentary with graduated series of four or five five- to seven-pointed teeth, followed by one or two small notched teeth on the sides. Gill-rakers 7 + 10. Anal sheath rudimentary. Lateral line with pores developed on five to nine scales. Origin of the dorsal the length of the eye nearer to the caudal than to the snout, the longest ray 4.6 in the length. Caudal equal to the head. Origin of the anal on the vertical from the second or third scale behind the dorsal. Anal emarginate; the longest rays almost equal to the anal base, which about equals the head without the preopercle. Anal armature developed on the first six or seven rays. Ventrals on the vertical from the first or second scale in front of the dorsal; reaching the first, second, or third scale, in front of the anal. Pectorals reaching the second, or third scales, in front of the ventrals. Humeral spot lacking. Caudal spot sharply constricted behind, and continued to the end of the middle caudal rays, continued forward as a heavy lateral stripe, which often reaches the upper angle of the preopercle. The lateral stripe overlaid with dull silvery. Dorsal, caudal, pectorals, and first five anal rays, dusky. Scales of the back outlined with dusky. Bluish iridescent on the sides over and below the lateral stripe.*

5. *Hyphessobrycon parvellus* sp. nov.

Plate II, fig. 1.

Type, 30 mm. C. M. No. 3011. Alagoinhas, Rio Catú.

Cotypes, three specimens, 20 to 22 mm. C. M. No. 3012. Alagoinhas, Rio Catú.

Cotype, one specimen, 22 mm. C. M. No. 3013. No label.

Cotypes, seven specimens, 13 to 19 mm. C. M. No. 2932. Queimadas, Rio Itapicurú.

Cotype, 1 specimen, 17 mm. C. M. No. 3014. Aqua Quente.

Cotype, one specimen, 18 mm. C. M. No. 2930. Ribeirão, Azula Lagôa.

Cotype, one specimen, 12 mm. C. M. No. 2931. Rio Tieté.

Head 3.5; depth 2.75; D. 11; A. 20 or 21; scales 5-32 to 34-3 to 4. Eye 2.3 in the head; interorbital less than the eye, about 2.7 in the head. Compressed, depth of head at the base of the occipital process 1.25 in the greatest depth. Occipital process bordered by two and a half scales. Interorbital convex. Frontal fontanel triangular, very small. Second suborbital leaving a narrow naked margin behind and below. Mouth rather small; snout very short, about 1.66 in the eye. Maxillary less than the eye, 2.6 in the head. Mandible equal to the eye. Premaxillary with three or four narrow, conical teeth in the outer row, and five or six tricuspid teeth in the inner row. Maxillary with, or without, one small, conical tooth. Dentary with a graduated series of four tricuspid teeth followed by three conical teeth on the side. Gill-rakers 11 + 9, short and strong. Anal sheath composed of six scales covering the base of the first ten rays. Lateral line with pores developed on the first six to eight scales. Origin of the dorsal equidistant from the snout and the caudal. Longest dorsal ray 3.5 in the length. Caudal a little longer than the head. Origin of the anal on the vertical from the last dorsal ray. Anal usually emarginate. Ventrals on the vertical from the first scale in front of the dorsal; ventrals just reaching the anal. Pectorals just reaching the ventrals. No humeral spot. Caudal spot either diffused or condensed. Lateral stripe narrow, faint, overlaid with silvery. Anal often with a dark margin. *Longest anal and dorsal rays tipped with white.* Sides, exclusive of the region over body cavity, with numerous chromatophores.

6. *Hyphessobrycon reticulatus* sp. nov.

Plate II, fig. 2.

Type, 48 mm. C. M. No. 3018. Campos.

Cotype, one specimen, 49 mm. C. M. No. 3010. Morretes.

Cotypes, seven specimens, 40 to 43 mm. C. M. No. 3020. Muniz Freire.

Cotype, one specimen, 45 mm. C. M. No. 3021. Mogy das Cruzes, Rio Tieté.

Cotypes, eight specimens, 20 to 46 mm. C. M. No. 3022. Iguapé, in fresh water near the sea. Five specimens, 15 to 18 mm. (without caudal), have archaic pectorals.

Cotype, one specimen, 26 mm. C. M. No. 2946. Cacequy.

Cotype, one specimen, 30 mm. C. M. No. 3586. Rio Doce, May 26, 1908.

Head 3.5-3.7; depth 2.5 or 2.6; D. 11; A. 18 to 21; scales 6 to 7-31 to 34-4 to 5 eye 2.7 to 3 in the head. Interorbital a little more than the eye, 2.2 in the head. Compressed, depth of the head at base of the occipital process 1.5 in the greatest depth. Peventral region rounded, without complete median series of scales. Predorsal region usually with a regular series of eleven to fourteen median scales. Occipital process 6 in the distance from its base to the dorsal, bordered by two scales. Interorbital nearly flat. Frontal fontanel triangular, as wide as the parietal, and three-fourths as long as the parietal without the occipital groove. *Second suborbital in contact with the preopercle below and behind.* Maxillary equal to the eye, mandible a little longer than the eye, 2.1 in the head. Mouth large, snout very short. Premaxillary with three to five tricuspid teeth in the outer row, and five three- to five-pointed teeth in the inner row. *Maxillary rarely without teeth, usually with one small three- to five-pointed tooth.* Dentary with a graduated series of four or five three- to five-pointed teeth, followed by one or two small tricuspid teeth and five or six very minute conical teeth on the side. Gill-rakers 7 + 9. Anal sheath of about nine scales covering the bases of the first ten rays. Lateral line with pores developed on the first five to seven rays. Origin of the dorsal the length of the eye nearer to the caudal than to the snout, penultimate ray 2.5 in the longest, which is 4.25 in the length. Caudal a little longer than the head. Origin of the anal on the vertical from the seventh or eighth dorsal rays. *Base of anal convex.* Anal subtruncate or only slightly emarginate, the longest ray 1.5 in the base. Ventrals on the vertical from the fourth scale in front of the dorsal. Ventrals just reaching the anal. Pectorals little more than just reaching the ventrals. *Humeral spot intense black, round, but with faint vertical elongations*, sometimes surrounded, more often followed, by a light area. *Caudal spot* irregular, more intense on the fin than on the caudal peduncle, *never extending as far as half-way to the end of the middle caudal rays.* A narrow but intense lateral stripe in the region above the anal, fading out just before it joins the caudal spot and just in front of the vertical from the dorsal.

A dark line along the base of the anal. Fins all dusky, especially the anal and lower lobe of the caudal. Scales all clearly outlined with brownish. Cheeks and back thickly peppered with brown chromatophores.

7. *Hyphessobrycon duragenys* sp. nov.

Plate II, fig. 3.

Type, 68 mm. C. M. No. 3023. Mogy das Cruzes, Rio Tieté.

Cotypes, five specimens, 45 to 53 mm. C. M. No. 3024. Mogy das Cruzes.

Cotypes, nine specimens, 28 to 43 mm. C. M. No. 3025. Jacarehy.

Head 3.25-3.7; depth 2.5; D. 10 to 12; A. 16 to 18; scales 5 or 6-32 to 36-4 to 5. *Eye small, 3.0 to 3.5 in the head; interorbital wider than the length of the eye, 2.8 to 3.2 in the head.* Compressed, depth of the head at the base of the occipital process 1.5 in the greatest depth. Preventral and predorsal regions rounded, usually without complete series of median scales. Occipital process about 5 in the distance from its base to the dorsal, bordered by three or four scales. Interorbital only slightly convex. Frontal fontanel triangular, as wide as the parietal, and one-half to three-fourths as long as the parietal without the occipital groove. *Second suborbital usually in contact with the preopercle. Third suborbital about one-half as wide as the eye.* Mouth moderately large; snout short; maxillary equal to the eye; mandible longer than the eye, 2.5 to 3 in the head. Pre-maxillary with three or four tricuspid teeth in the outer row and a graduated series of five three- to five-pointed teeth in the inner row. *Maxillary with one tricuspid tooth.* Dentary with a graduated series of four five-pointed teeth, followed by three or four narrow, conical teeth on the sides. Gill-rakers 8 + 10. Anal sheath short, of about five scales, covering the base of the first seven rays. Lateral line with pores developed on nine to twelve scales. Origin of the dorsal a little more than one-half the eye nearer to the caudal than to the snout; penultimate ray one-half the longest, which is 3.5 to 4 in the length. Caudal not as long as the head. Origin of the anal on the vertical from the first or second scale behind the dorsal. Anal obliquely truncate, the longest ray 1.33 in the base. Ventrals on the vertical from the third scale in front of the dorsal. Ventrals reaching the second or third scale in front of the anal. Pectorals reaching the first or second scale in front of the ventrals. Humeral spot narrow and vertically elongate. *Caudal spot intensely black, tapering forward into the lateral stripe, more*



suddenly constricted behind and continued to the end of the middle caudal rays. Lateral stripe overlaid with silvery. Distal third of the anal more or less dusky. Scales of the back dusky. Scales of the sides, especially below the lateral stripe, with a silvery blue iridescence.

One specimen 73 mm., Rio das Velhas (C. M. Cat. No. 3076a) differed from typical specimens as follows: Depth 3.2. Maxillary with three small tricuspid teeth. Caudal spot and lateral stripe quite diffuse; humeral spot intense, and somewhat widened dorsally.

8. *Hyphessobrycon bifasciatus* sp. nov.

Plate II, fig. 4, ♂; Plate III, fig. 1, ♀.

Type, 44 mm. ♂, 37 mm. ♀. C. M. No. 3026. Campos.

Cotypes, thirty-five specimens, 29 to 44 mm. C. M. No. 3027. São João da Barra.

Cotypes, two specimens, 41 and 38 mm. C. M. No. 3028. Xiririca.

Cotype, one specimen, 40 mm. C. M. No. 3029. Porto Alegre.

Cotypes, two specimens, ♂, 35 mm.; and ♀, 47 mm. C. M. No. 3030. Morretes.

Cotypes, forty-two specimens, 26 to 46 mm. C. M. No. 2936. Muniz Freire.

Cotypes, thirteen specimens, 31 to 44 mm. C. M. No. 3032. Lagôa Feia, Tocas.

Cotypes, seventy-eight specimens, 29 to 47 mm. C. M. No. 3034. Campos.

Cotypes, twenty-seven specimens, 16 to 24 and 44 mm. C. M. No. 2935. Cacequy.

Head 3.8; depth 2.5; D. 11; A. 29-32; scales 6 or 7-33 to 36-5 or 6; eye 2.3 to 2.5 in the head. Interorbital almost equals the eye, 2.8 in the head. Compressed, depth of the head at the base of occipital process 1.67 in the greatest depth. Preventral and predorsal regions rounded, without complete series of median scales. Occipital process about 5 in the distance from its base to the dorsal. Interorbital slightly convex; frontal fontanel triangular, as wide as the parietal and four-fifths as long as the parietal without the occipital groove. *Second suborbital leaving a naked margin, equal to half its own width, behind and below.* Maxillary not quite equal to the eye, a little more than 3 in the head. Mandible equal to the eye. Mouth moderate, snout .5 in the eye. Premaxillary with three or four narrow tricuspid or broadly conical teeth in the outer row, and four or five five- to seven-pointed teeth in the inner row. *Maxillary with one three- or five-pointed tooth of medium size.* Dentary with a weakly graduated series of four, sometimes five, five- to seven-pointed teeth, followed by two or three quite small teeth on the sides. Gill-rakers 6 + 10. Scales on the ventral half of the sides facing a little obliquely backwards

and downwards, especially in the region directly over the base of the anal, where they are often more or less crowded. *A small scale interpolated at the base of each anal ray.* The first eleven to thirteen of these interpolated scales larger, and extending upon the base of the rays so as to form a short anal sheath. Lateral line with pores on the first six to nine scales. Origin of the dorsal equidistant from the snout and caudal; penultimate ray about one-third of the longest—which is 3.33–3.67 in length. Caudal a little shorter than the head. Origin of the anal on the vertical from the eighth dorsal ray. *Anal of male somewhat rounded, the last ray one-half the longest which is almost twice the length of the eye.* Anal armature developed as a series of small recurved hooks on each of the first fifteen to twenty rays. Anal of the female emarginate, the longest ray 1.67 in the base; the last rays much shorter than in the males of equal size. *Ventrals* on the vertical from the first or second scale in front of the dorsal, *barely reaching the anal in females, but prolonged to the base of the seventh to tenth anal rays in males.* Pectorals just reaching the ventrals. *A vertically elongate humeral spot, followed by a bright bar, and a second dusky bar extending almost entirely across the sides. Seven to twelve black V-shaped lines, the angle toward the head, along the very faint silvery lateral stripe. No caudal spot.* Fins all somewhat dusky, except along the outside of the ventrals of the males and sometimes at the bases of the caudal and anal in females. Scales of the back and upper half of the sides outlined with dusky. The region over the anal with many large pale chromatophores. The very young specimens, sixteen to twenty-four millimeters long, from Cacequey, had all the markings very poorly developed, the chromatophores being more evenly distributed.

9. *Hyphessobrycon melanopleurus* sp. nov.

Plate III, fig. 2.

Type, 34 mm. C. M. No. 3035. Alto da Serra, São Paulo.

Cotypes, two specimens, 32 and 35 mm. C. M. No. 3036. Alto da Serra, São Paulo.

Head 3.8; depth 3.2 to 3.5; D. 10 or 11; A. 26 to 28; scales 6 or 7–30 to 36–5; eye 3 in the head; interorbital a little greater than the eye, 2.5 in the head. Compressed; depth of head at the base of the occipital process 1.3 in the greatest depth. Preventral and predorsal regions narrowly rounded, without complete series of median scales.

Occipital process short, about 8 in the distance from its base to the dorsal. Interorbital nearly flat; frontal fontanel narrowly triangular, as wide as the parietal and 1.5 in the parietal without the occipital groove. Maxillary a little less and mandible a little more than the eye. Snout very short, 1.8 in the head; mouth rather large. Pre-maxillary with four tricuspid teeth in the inner row and two or three slightly narrower teeth in the outer row; maxillary with four or five narrow tricuspid to conical teeth; dentary with a series of four strong tricuspid teeth, followed by about seven minute conical teeth on the side. Gill-rakers 6 + 9, each with a single row of very small retrorse spines. Lateral line with pores developed on seven to nine scales. Origin of the dorsal nearly the length of the eye nearer the caudal than to the snout; highest dorsal ray 1.3 in the head. Origin of the anal on the vertical from the third dorsal ray. Anal rather deeply emarginate; longest anal ray about 2 in the base of anal and about 1.7 in the head. Ventrals on the vertical from the fourth or fifth scale in front of the dorsal; short and weak, scarcely reaching the first long anal rays. Pectorals large, reaching beyond the middle of the ventrals. Ground-color light; a broad backish stripe from the eye to the end of the middle caudal rays, becoming fainter behind the adipose; a very faint vertical elongation of the lateral stripe in the region of the humeral spot. A faint, dusky, oblique stripe across the dorsal from the base of the first to the tips of the seventh and eighth rays. All of the fins a little dusky. Scales of the back heavily outlined with dusky, top of the head and lips quite dark. Sides and head silvery between the lateral stripes.

10. *Hyphessobrycon callistus* (Boulenger).

Four specimens, 31 to 39 mm. C. M. No. 3037. From vicinity of Corumbá.

Six specimens, 25 to 38 mm. C. M. No. 3038. Jaurú.

Eight specimens, 26 to 38 mm. C. M. No. 3039. Cáceres.

Fourteen specimens, 33 to 38 mm. C. M. No. 3040. Puerto Suarez.

11. *Hyphessobrycon santæ* (Eigenmann).

Six specimens, 33 to 42 mm. C. M. No. 3033. Sete Lagoas.

One specimen, 58 mm. C. M. No. 3034. Mogi das Cruzes.

12. *Hyphessobrycon anisitsi* (Eigenmann).

Thirty-six specimens, 30 to 45 mm. C. M. No. 3046. Miguel Calmoré, in a lake four miles from the town.

Twenty-one specimens, 21 to 44 mm. C. M. No. 3017. Jundaihy, São Paulo.

Seven specimens, 41 to 57 mm. C. M. No. 3015. Sapuçay.
Two specimens, 53 to 55 mm. C. M. No. 3072. Aregua, Paraguay.
Three specimens, 26 to 35 mm. C. M. No. 2947. Casequy.

13. *Hyphessobrycon lütkeni* (Boulenger).

Fifty-eight specimens, 25 to 69 mm. C. M. No. 3047. Campos.
Sixty-six specimens, 31 to 69 mm. C. M. No. 3041. Porto Alegre.
Eleven specimens, 40 to 54 mm. C. M. No. 3042. Lagôa Feia.
Thirteen specimens, 38 to 48 mm. C. M. No. 3005. Muniz Freire.
Six specimens, 40 to 48 mm. C. M. No. 2950. São João da Barra.
Twelve hundred and fifty-one specimens, 19 to 60 mm. C. M. No. 2934. Jacarehy.

Eleven specimens, 26 to 48 mm. C. M. No. 3006. Cacequy.
Four specimens, 12 to 19 mm. C. M. No. 2933. Jacarehy.
One specimen, 45 mm. C. M. No. 3073. Aregua, Paraguay.
Two specimens, 41 to 51 mm. C. M. No. 3074. Sapuçay, Paraguay.

14. *Hyphessobrycon heterorhabdus* (Ulrey).

Two specimens, 29 and 30 mm. C. M. No. 3004. Bragança.

15. *Hyphessobrycon rosaceus* Durbin.

Three specimens, 24 to 34 mm. C. M. No. 3078. Bastos.

16. *Hyphessobrycon stictus* Durbin.

Four specimens, 33 to 36 mm. C. M. No. 3079. Santarem.
Two specimens, 36 to 40 mm. C. M. No. 3080. Manáos.

17. *Hyphessobrycon serpæ* Durbin.

Two specimens, 27 to 42 mm. C. M. No. 3086. Maciel, Rio Guaporé.
One specimen, 23 mm. C. M. No. 3087. Caceres.

Genus HEMIGRAMMUS Gill.

18. *Hemigrammus marginatus* sp. nov.

Plate III, fig. 3.

Type, 38 mm. C. M. No. 3053. Queimadas, Rio Itapicurú.

Cotypes, twenty-two specimens, 13 to 39 mm. C. M. No. 3054. Queimadas, Rio Itapicurú.

Cotypes, three specimens, 23 to 29 mm. C. M. No. 3055. Boqueirão, near mouth of Rio Preto.

Cotypes, four specimens, 28 to 30 mm. C. M. No. 3056. Santa Rita.

Cotypes, three specimens, 29 to 33 mm. C. M. No. 3057. Lagôa da Porto.

Cotypes, six specimens, 26 to 38 mm. C. M. No. 3058. Jacobina, Rio Jacobina.

Cotypes, eighteen specimens, 33 to 38 mm. C. M. No. 3059. Pirapora.

Cotypes, forty-two specimens, 18 to 42 mm. C. M. No. 3060. Lagôa Pereira.

Cotypes, five specimens, 37 to 42 mm. C. M. No. 3061. Jaguará.

Cotypes, five specimens, 32 to 39 mm. C. M. No. 3062. Rio Paiaia.

Cotypes, eight specimens, 32 to 38 mm. C. M. No. 3063. Barreiras, Lagoas of Rio Grande.

Cotypes, six specimens, 22 to 38 mm. C. M. No. 3064. Sete Lagoas.

Cotypes, three specimens, 29 to 35 mm. C. M. No. 3065. Tinho, Rio Itapicuru.

Cotype, one specimen, 40 mm. C. M. No. 3082. Maciel, Rio Guaporé.

Cotype, one specimen, 28 mm. C. M. No. 3084. Mogy Mirim, a creek in São Paulo.

Cotypes, two specimens, 40 and 42 mm. C. M. No. 3584. Rio Zinga, Nov. 7, 1907.

Cotypes, nine specimens, 26 to 32 mm. C. M. No. 3066. Ribeirão, Azula Lagoa, 12 miles from Tieté.

Cotype, one specimen, 21 mm. C. M. No. 3067. Sapucaý.

Cotype, one specimen, 40 mm. C. M. No. 3077. Cáceres.

Cotype, one specimen, 34 mm. C. M. No. 3083. Rio Itapicuru, six miles north of Bom Fim.

Head 3.6 to 3.8; depth 2.8 to 3.25; D. 11; A. 20 to 24; scales 5-29 to 34-3 to 4. Eye 2 in the head. Interorbital less than the eye, 2.75 in the head. Compressed; depth of head at the base of the occipital process 1.5 in the greatest depth. Preventral and predorsal regions rounded, without complete series of median scales.

Occipital process 5 or 6 in the distance from its base to the dorsal; bordered by three scales. Interorbital slightly convex. Frontal fontanel triangular, almost as wide as the parietal, and as long as the parietal without the occipital groove. Second suborbital little more than half the eye in width, usually with narrow naked margins behind and below. Mouth large; snout little more than half the length of the eye. Maxillary slender, just, or not quite, equal to the eye, 2 to 2.3 in the head. Mandible equal to the eye. Premaxillary with three or four tricuspid teeth in the outer row, and four or five, rarely six, three- to five-pointed teeth in the inner row. Maxillary with two or three, less often four, three- to five-pointed teeth, the posterior one sometimes conical. Dentary with a graduated series of four or five three- to five- and seven-pointed teeth, followed by a series of seven to twelve minute, conical teeth on the sides. Gill-rakers 6 + 10. Caudal scaled over the basal one-half. Anal sheath short, consisting of about six scales over the bases of the first ten rays. Lateral line with pores developed on five to fourteen scales. Origin of the dorsal equidistant from the snout and caudal; penultimate ray short, one-fourth of the longest, which is 3.67 in the length. Origin of the anal on the vertical from the first scale behind the dorsal. Anal emarginate,

the longest ray 1.25 in the length of the base. Ventrals on the vertical from the first scale in front of the dorsal. Ventrals just reaching the anal. Pectorals just, or not quite, reaching the ventrals. No humeral spot. Caudal spot faint or lacking. A heavy leaden, lateral stripe, often somewhat expanded near the end of the caudal peduncle, narrowed in the region just below the dorsal. Dorsal and anal somewhat dusky. A broad, black, marginal, or submarginal, band across the caudal lobes. When this band is submarginal, the middle caudal rays also are black. The base of the caudal lobes hyaline, probably orange or red in life. Scales of the back and sides above the lateral stripe outlined with dusky. Sides below the lateral stripe with pale bluish iridescence.

19. *Hemigrammus brevis* sp. nov.

Plate III, fig. 4.

Type, 35 mm. C. M. No. 3068. Barreiras. Lagôas of Rio Grande.

Cotypes, two specimens, 31 to 33 mm. C. M. No. 3069. Penedo, Rio São Francisco.

Cotypes, three specimens, 34 to 36 mm. C. M. No. 3070. Barreiras, Lagôas of Rio Grande.

Cotypes, thirty-three specimens, 20 to 27 mm. C. M. No. 3071. Boqueirão, near the mouth of Rio Preto.

Head 3.5; depth 2.6; D. 11; A. 20 to 22; scales 5-29 to 33-3 to 4. Eye 2 to 2.3 in the head; interorbital less than the eye, 2.7 in the head. Compressed; depth of head at the base of the occipital process about 1.6 in the greatest depth. Preventral and predorsal regions rounded. Occipital process about 5 in the distance from its base to the dorsal, bordered by two scales. Interorbital slightly convex. Frontal fontanel triangular, as wide as the parietal, and almost equal to the parietal without the occipital groove. *Second suborbital in contact with the preopercle.* Mouth large, snout short, little more than one-half the eye. Maxillary and mandible approximately equal to each other and to the eye. Premaxillary with three to five tricuspid teeth in the outer row; and five, rarely four, three- to five-pointed teeth in the inner row. Maxillary with one to three three- to five-pointed teeth. Dentary with a graduated series of five five-pointed teeth, followed by a series of seven to eleven minute tricuspid and conical teeth on the sides. Gill-rakers 10 + 9 with five minute spines behind the last two on the shorter limb. Caudal scaled over the basal one-half. Anal sheath short, composed of five scales covering



the bases of the first nine anal rays. Lateral line with pores developed on the first five to nine scales. Origin of the dorsal equidistant from the snout and the caudal; penultimate ray about one-fifth of the highest, which is 3.67 in the length. Caudal very little longer than the head. Origin of anal on the vertical from the last dorsal ray. Anal deeply emarginate, the longest ray 1.25 in the anal base. Ventrals on the vertical from the first scale in front of the dorsal. Ventrals reaching the second to fourth anal ray. Pectorals reaching to the first scale in front of the ventrals or to the second scale behind the ventrals. No humeral spot. *Caudal spot not quite as wide as the caudal peduncle, but extending from the tips of the middle caudal rays to the vertical from one of the last five anal rays*, more diffuse at the anterior end. Lateral stripe very faint, heavily overlaid with silvery. Fins all a little dusky. Scales of the back outlined with dusky. Cheeks and sides below the lateral stripe with bluish iridescence.

20. **Hemigrammus levis** Durbin.

Two specimens, 31 to 38 mm. C. M. No. 3088. Santarem.

21. **Hemigrammus ulreyi** (Boulenger).

One specimen, 39 mm. C. M. No. 3048. From a slough near Petas, Bolivia.

Four specimens, 38 to 41 mm. C. M. No. 3049. Caceres.

Sixteen specimens, 35 to 44 mm. C. M. No. 3050. Jaurú.

Four specimens, 38 to 42 mm. C. M. No. 3051. Rio Santa Rita.

22. **Hemigrammus cœruleus** Durbin.

Three specimens, 49 to 58 mm. C. M. No. 3052. Manáos.

23. **Hemigrammus unilineatus** Gill.

Twenty-four specimens, 27 to 48 mm. C. M. No. 3043. Bragança.

Nine specimens, 31 to 38 mm. C. M. No. 3044. Maciel, Rio Guaporé.

24. **Hemigrammus rodwayi** Durbin.

Six specimens, 31 to 40 mm. C. M. No. 3045. Bragança.

One specimen?; 27 mm. C. M. No. 3049. Above Cachoeira, Rio Nova, Gagaz Piabana.

25. **Hemigrammus ocellifer** (Steindachner).

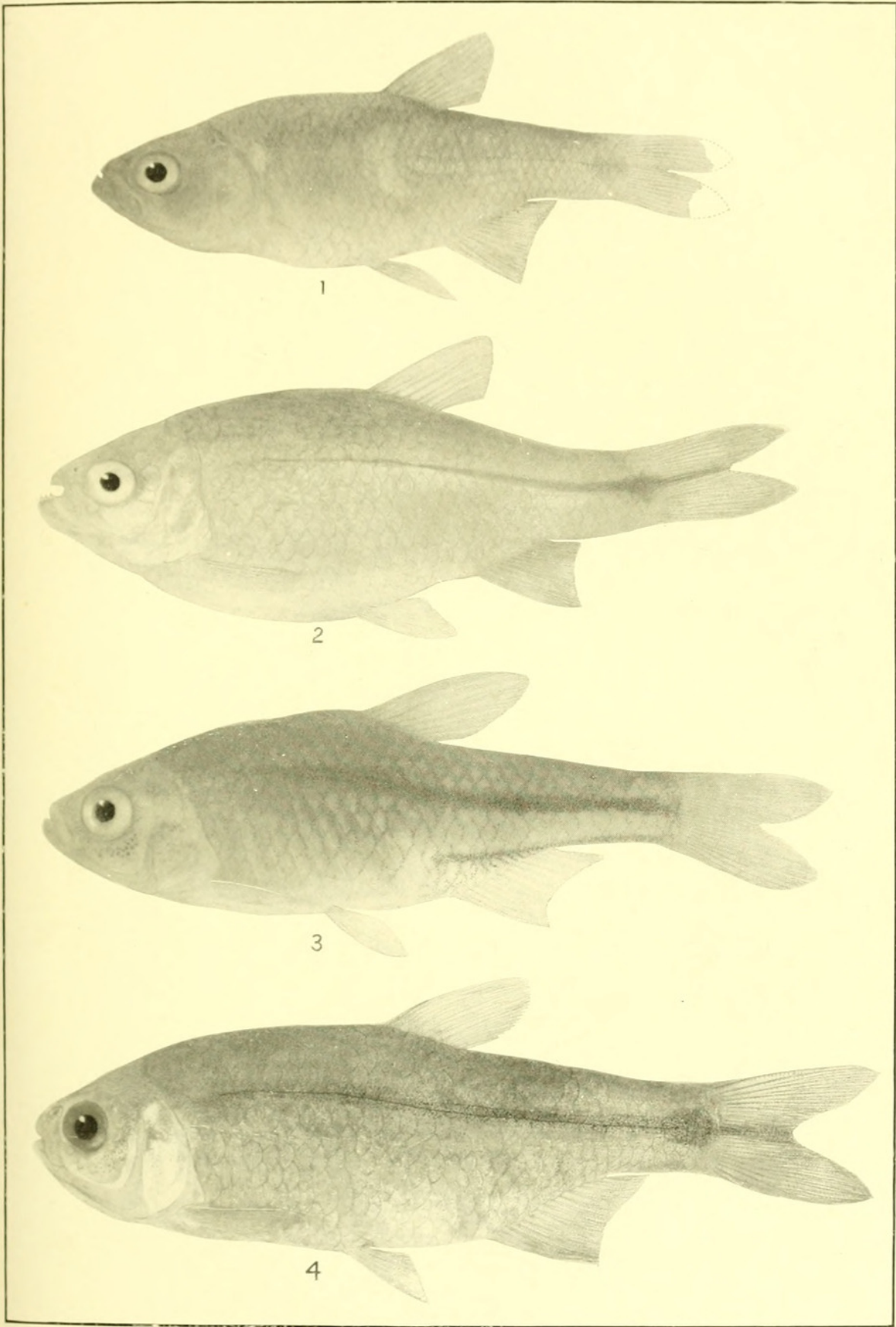
Eleven specimens, 31 to 40 mm. C. M. No. 3046. Bragança.

26. **Hemigrammus lunatus** Durbin.

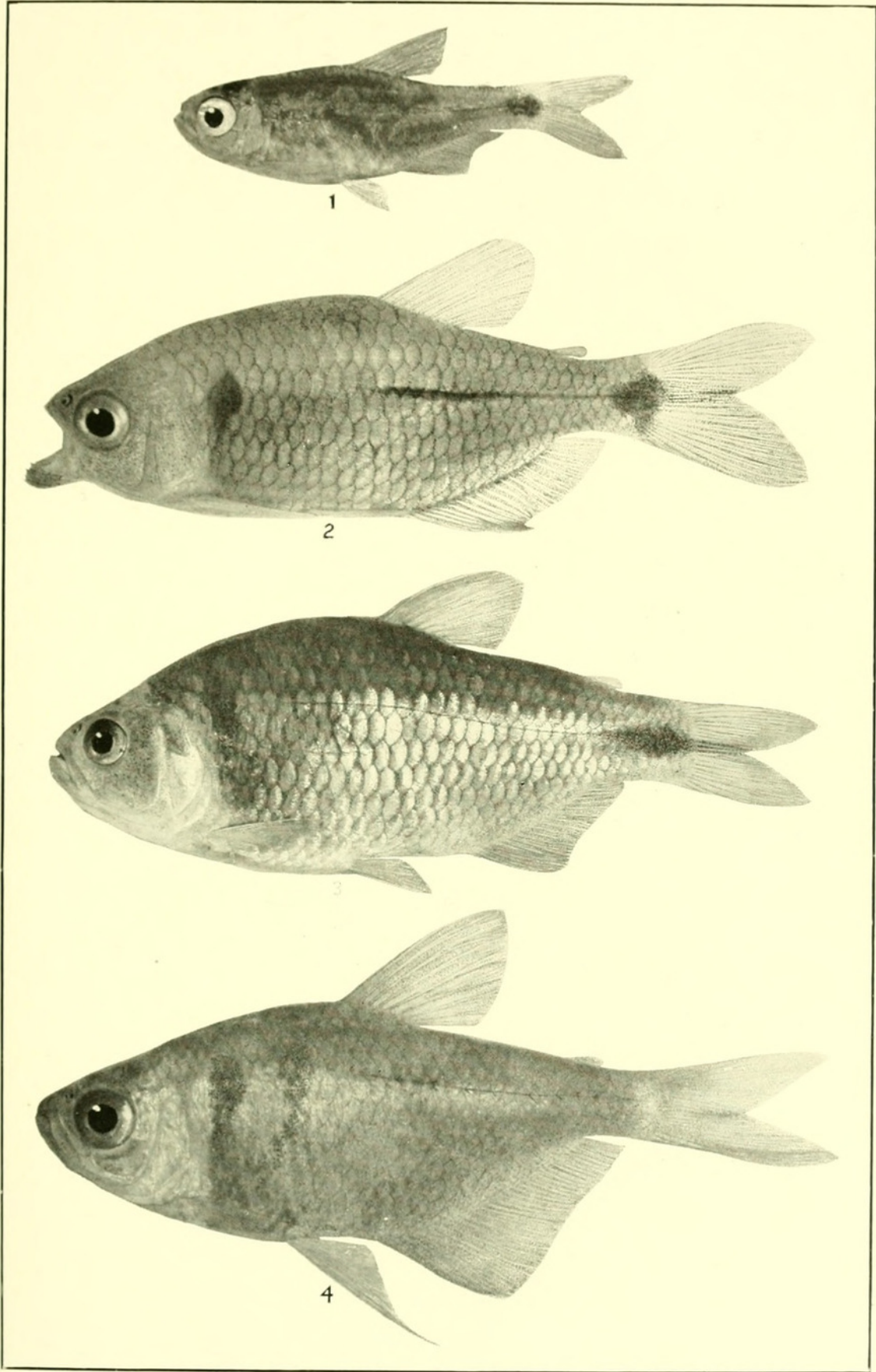
Five specimens, 24 to 45 mm. C. M. No. 3081. Caceres.

Two specimens, 46 and 48 mm. C. M. No. 2942. Jaurú.

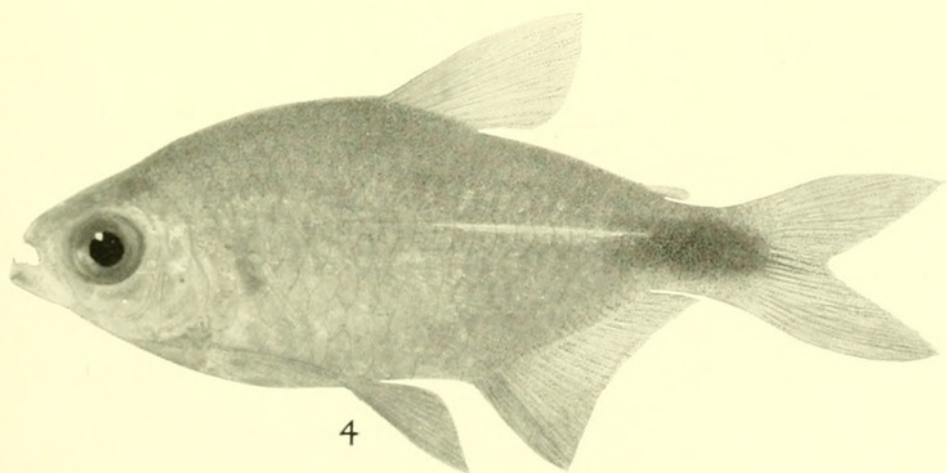
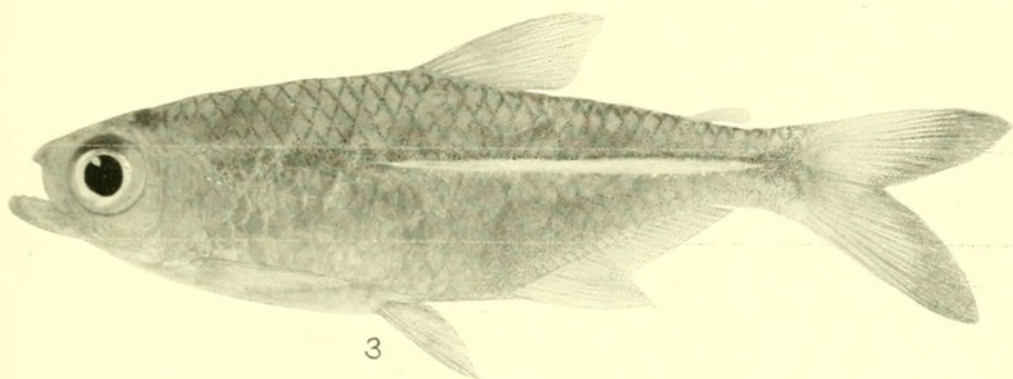
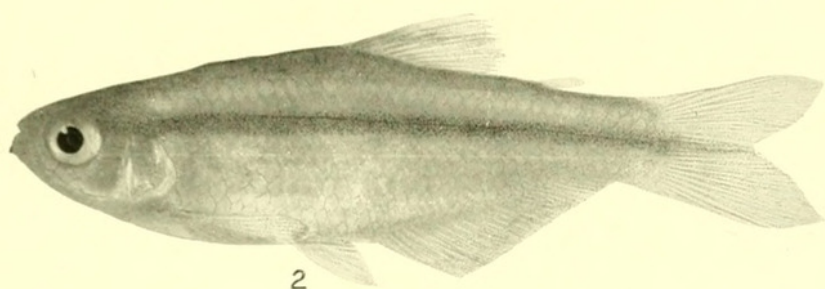
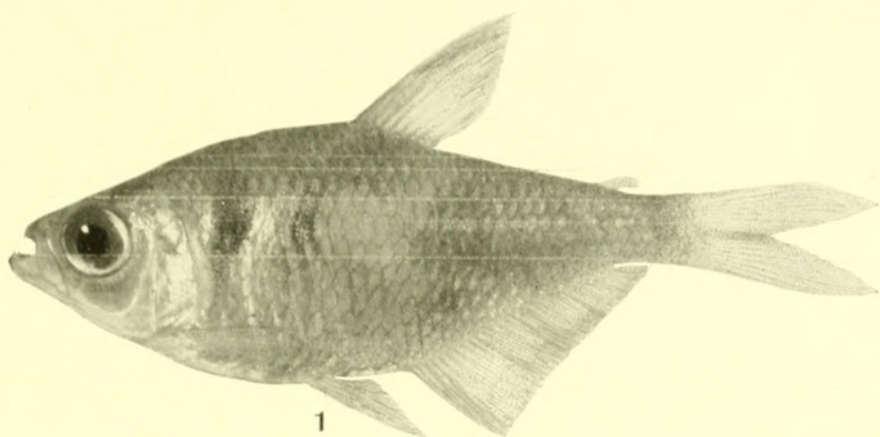
Two specimens, 45 and 48 mm. C. M. No. 2943. Rio Boa Ventura.



HASEMANIA AND HYPHESSOBRYCON.



HYPHESSOBRYCON.



HYPHESOBRYCON AND HEMIGRAMMUS.

27. *Hemigrammus schmardæ* Steindachner.

One specimen, 39 mm. C. M. No. 3085. Santarem.

28. *Hemigrammus microstomus* Durbin.

Seven specimens, 29 to 34 mm. C. M. No. 2944. Santarem.

29. *Hemigrammus orthus* Durbin.

Five specimens, 26 to 31 mm. C. M. No. 2945. Santarem.

30. (?) *Hemigrammus analis* Durbin.

One specimen, 30 mm. C. M. No. 3585. Santarem, Dec. 11, 1909, Haseman.

EXPLANATION OF PLATES.

PLATE I.

FIG. 1. *Hasemania maxillaris* Mrs. Ellis. (Type.) 29 mm. Carn. Mus. No. 2937.

FIG. 2. *Hasemania melanura* Mrs. Ellis. (Type.) 35 mm. Carn. Mus. No. 3002.

FIG. 3. *Hasemania bilineata* Mrs. Ellis. (Type.) 41 mm. Carn. Mus. No. 3004.

FIG. 4. *Hyphessobrycon taurocephalus* Mrs. Ellis. (Type.) 55 mm. Carn. Mus. No. 3007. (See footnote on p. 151.)

PLATE II.

FIG. 1. *Hyphessobrycon parvellus* Mrs. Ellis. (Cotype.) 29 mm. Carn. Mus. No. 2937.

FIG. 2. *Hyphessobrycon reticulatus* Mrs. Ellis. (Type.) 48 mm. Carn. Mus. No. 3018.

FIG. 3. *Hyphessobrycon duragenys* Mrs. Ellis. (Type.) 68 mm. Carn. Mus. No. 3023.

FIG. 4. *Hyphessobrycon bifasciatus* Mrs. Ellis. (Type.) ♂. 44 mm. Carn. Mus. No. 3026a.

PLATE III.

FIG. 1. *Hyphessobrycon bifasciatus* Mrs. Ellis. (Type.) ♀. 37 mm. Carn. Mus. No. 3026.

FIG. 2. *Hyphessobrycon melanopleurus* Mrs. Ellis. (Type.) ♀. 34 mm. Carn. Mus. No. 3035.

FIG. 3. *Hemigrammus marginalis* Mrs. Ellis. (Type.) 38 mm. Carn. Mus. No. 3053.

FIG. 4. *Hemigrammus brevis* Mrs. Ellis. (Type.) 35 mm. Carn. Mus. No. 3068.



Ellis, Marion Durbin. 1911. "On the species of Hasemania, Hyphessobrycon, and Hemigrammus collected by J. D. Haseman for the Carnegie Museum." *Annals of the Carnegie Museum* 8(1), 148–163. <https://doi.org/10.5962/p.14706>.

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