STUDIES ON THE FAUNA OF CURAÇAO AND OTHER CARIBBEAN ISLANDS: No. 48.

THE FRESH-WATER FISHES OF THE ISLAND OF TRINIDAD

by

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SPECIES DEALT WITH IN THIS PAPER

× occurring in Trinidad according to specimens studied
– occurring in Trinidad according to literature
? of doubtful occurrence in Trinidad
. not yet collected in Trinidad

1	*Tarpon atlanticus*	–	38	*Mollienesia sphenops*	×
2	*Curimata argentea*	×	39	*Oostethus lineatus*	?
3	*Aphyocharax axelrodi*	×	40	*Pseudophallus mindii*	.
4	*Pristella riddlei*	–	41	*Agonostomus monticola*	×
5	*Odontostilbe pulcher*	×	42	– *percoides*	–
6	*Moenkhausia bondi*	×	43	– *microps*	?
7	*Hemigrammus unilineatus*	×	44	*Mugil cephalus*	.
8	*Astyanax bimaculatus*	×	45	– *liza*	–
9	*Hemibrycon taeniurus*	×	46	– *incilis*	.
10	– *guppyi*	×	47	– *curema*	–
11	*Corynopoma riisei*	×	48	– *trichodon*	–
12	*Roeboides dayi*	×	49	*Centropomus undecimalis*	×
13	*Hoplias malabaricus*	×	50	– *ensiferus*	×
14	*Hoplerythrinus unitaeniatus*	×	51	– *parallelus*	–
15	*Gasteropelecus sternicla*	×	52	– *pectinatus*	×
16	*Gymnotus carapo*	×	53	*Lutjanus griseus*	
17	*Arius spixii*	×	54	*Eucinostomus argenteus*	–
18	*Selenaspis herzbergii*	×	55	*Polycentrus schomburgkii*	×
19	*Rhamdia sebae*	×	56	*Crenicichla alta*	×
20	– *quelen*	×	57	*Aequidens pulcher*	×
21	*Caecorhamdia urichi*	–	58	*Cichlasoma bimaculatum*	×
22	*Trachycorystes galeatus*	–	59	*Tilapia mossambica*	–
23	*Pseudauchenipterus nodosus*	–	60	*Dormitator maculatus*	×
24	*Haemomaster venezuelae*	?	61	*Gobiomorus dormitor*	×
25	*Callichthys callichthys*	×	62	*Eleotris pisonis*	×
26	*Hoplosternum littorale*	×	63	– *amblyopsis*	.
27	– *thoracatum*	?	64	*Guavina guavina*	×
28	*Corydoras aeneus*	×	65	*Bathygobius soporator*	×
29	*Hypostomus robinii*	×	66	*Lophogobius cyprinoides*	×
30	*Ancistrus cirrhosus*	×	67	*Awaous taiasica*	×
31	*Anguilla rostrata*	×	68	*Ctenogobius fasciatus*	–
32	*Synbranchus marmoratus*	×	69	*Evorthodus lyricus*	×
33	*Anableps anableps*	–	70	*Sicydium punctatum*	×
34	– *microlepis*	×	71	*Sicydium plumieri*	
35	*Rivulus hartii*	×	72	*Trinectes maculatus fasciatus*	–
36	*Poecilia vivipara*	×	73	*Achirus lineatus*	
37	*Lebistes reticulatus*	×	74	*Colomesus psittacus*	×

INTRODUCTION

A few years ago, an interesting collection of fresh-water fishes from Trinidad was presented to the Leiden Museum by Mr. J. S. KENNY, fish culturist of the Trinidad Department of Agriculture. For this gift we are also greatly indebted to Dr. P. WAGENAAR HUMMELINCK of the Zoological Laboratory at Utrecht, who kindly acted as intermediary. Most specimens were collected by Mr. J. L. PRICE, a few by Mr. W. A. KING-WEBSTER or by Mr. KENNY himself; a few more were added by Dr. WAGENAAR HUMMELINCK. All examples had already been identified and, evidently, represent part of the material assembled during a survey of the fresh-water fishes of the island, reported upon by PRICE (1955) in a valuable though rather scarce publication.

During the usual examination preceding addition to our collections, a procedure which was expected to be merely a matter of routine, questions arose concerning the identifications of various samples. Some of these will be discussed in the annotated list of species in the present paper.

The same difficulties were encountered in using PRICE's publication — as was to be expected, since the present material was probably also used for its composition. It seemed obvious that most disagreements were the inevitable outcome of the inadequacy of the literature available to that author.

These circumstances made it seem worth-while to compose the present report, which consists successively of a short historical review; keys to the families and species; an annotated list of the species found or expected to occur on the island; some final general remarks; a complete list of localities taken both from the present collection and from previous literature; and a bibliography presumed to be about complete.

Of the literature listed in the biliography, two items (LÉOTAUD & VERTEUIL, 1858; GÜNTHER, 1869) are apparently not available in the Netherlands. As regards the first item, only a copy of the second edition (LÉOTAUD & VERTEUIL, 1884) could be consulted; the two editions presumably being identical, the pagination has been assumed to be the same for the purpose of references to the original edition. The

second item presented less difficulties, since the three species recorded are all mentioned in the title; the only drawback is that the exact pagination could not be given in the concerning references. Furthermore, it may be emphasized that aquarium literature, except where necessary for the discussion and when on a sufficiently high scientific level, is completely omitted.

In the list of species, the literature enumerated for the various forms generally includes items relating to material from Trinidad only. Moreover, all original descriptions are referred to, no matter where the original locality may be situated; however, if not based on material from Trinidad, the references are sometimes taken from quotations in the literature, the original not being consulted, and the item is not included in the bibliography.

The authorship of species usually attributed to both CUVIER and VALENCIENNES has been corrected in accordance with a proposal on the subject made by BAILEY (1951, 1957).

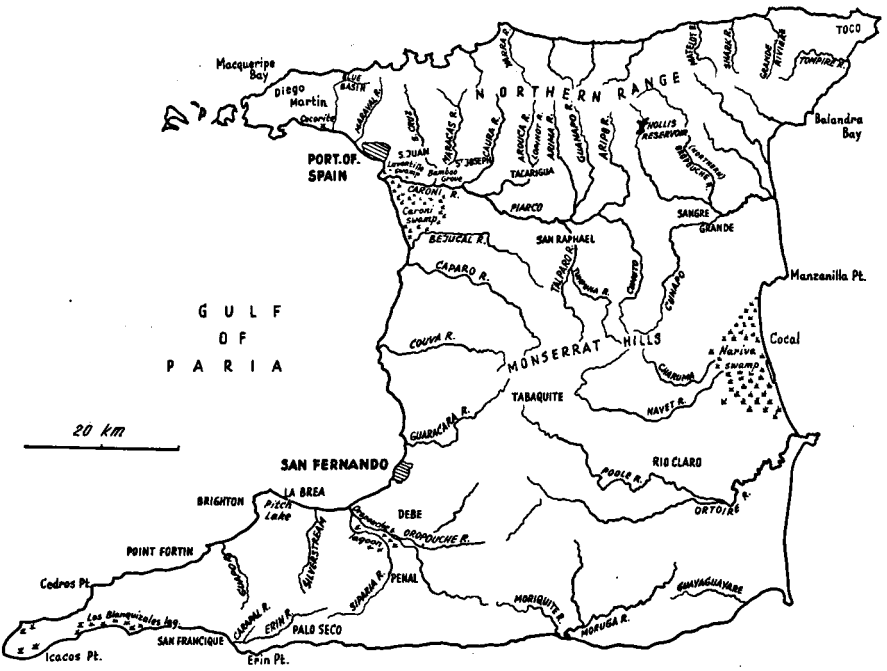

Fig. 36. Map of the island of Trinidad, showing rivers and other localites mentioned in this paper.

For each species, the present author has tried to give a complete enumeration of the vernacular names found in previous literature. It should be emphasized that only names used on the island are given; consequently the words "none given in literature" only mean that no vernacular names have been recorded from Trinidad.

Regrettable though it may be, the scope of the present paper, and the insufficiency and incompleteness of the material available, made it inadvisable to give extensive descriptions of the various species, the mere copying of descriptive data being considered unsatisfactory.

Finally, whenever in the enumeration of species no collector of the examined material is mentioned, the listed specimen(s) was (were) assembled by Mr. J. L. PRICE.

Sincere gratitude is due to those persons already mentioned in the first paragraph; to Dr. E. TREWAVAS and Mrs. A. J. MARTIN (British Museum, Natural History); to Professor J. GUIBÉ and Mr. M. BLANC (Muséum National d'Histoire Naturelle, Paris); and to Dr. R. R. ROFEN (George Vanderbilt Foundation, Stanford); for the loan of important material, for furnishing useful information, for assistance and hospitality, and for helping to obtain literature.

HISTORICAL REVIEW

The first record of a fresh-water fish from Trinidad seems to date back only to 1831, when BENNETT, during the meeting of the Zoological Society of London on July 26th, reported on *"Chromis Taenia"*, a cichlid from the island which he erroneously considered to be new to science. An account of this meeting was published in exactly the same wording in two different periodicals (BENNETT, 1831, 1831a), and was essentially copied by LESSON (1831) in a french translation.

A few years later, MARTIN (1834, p. 233) merely mentioned the occurrence of "a great quantity of mullet and small fish" at Pitch Lake. Next, VALENCIENNES (1840, pp. 233, 370 (314, 501)) described two new species of catfishes from material sent to him from Trinidad by Mr. ROBIN.

The first attempt to compile a more complete account of the fishes of Trinidad was made by LÉOTAUD and VERTEUIL (1858; 2nd ed., 1884). In this work, VERTEUIL published a short catalogue of both fresh-water and marine fishes from Trinidad, compiled by

LÉOTAUD (pp. 388–390), to which he added interesting additional information (pp. 100, 101, 390–395). Of the fresh (and brackish) water species, except in the cases of *"Centropomus Undecimalis"* and *"Cobitis Anableps"*, only the names of the genera and the number of species included are given. The total number of these species amounts to 20, excluding *"Gobius"* (without indication of the number of species) and those forms indicated by a vernacular name only ("coscorob", "trout"), but including three species of *"Mugil"*. Since LÉOTAUD was primarily an ornithologist, several names are rather peculiar and often difficult to identify (see also GILL, 1858, pp. 365–369).

A second attempt, restricted to the fresh-water species of the "Western Portion" of the island, was made by GILL (1858). His paper, though printed in the same year, already contains an extensive critical review of LÉOTAUD's catalogue. In all GILL described in this paper 23 species wholly confined to fresh water.

During the next fifteen years, little was added to our knowledge of the subject (GILL, 1859; GÜNTHER, 1868a, 1869). Then LÜTKEN (1874, 1875, 1875a) published his important accounts on the armoured catfishes and characins of Trinidad; these consist mainly of detailed critical reviews of GILL's species belonging to these groups, but important new information is also given. BOULENGER (1890) and REGAN (1906) likewise referred to Trinidad species, describing one form new to science.

A third comprehensive list was compiled by REGAN (1906a), who made use of extensive collections and notes provided by Mr. LECHMERE GUPPY. REGAN starts with another discussion of GILL's major paper on the subject (1858), and reduces the number of species enumerated by that author from 23 to 20, while of the 19 species described by GILL as new to science, only 10 remain, the other 9 being considered identical with forms previously described. In his subsequent annotated enumeration of species, REGAN increases the number recorded from fresh water on Trinidad to 41.

Scattered contributions of varying extent and importance gradually enlarged our knowledge of the subject during the next fifty years. FOWLER (1915b) enumerates about 35 species from fresh or brackish water. JORDAN (1923) reports on the habits and habitat

of *Rivulus hartii* (Boulenger). NORMAN (1926) describes a new blind catfish from the Guacharo Cave. FOWLER (1931) enumerates about 22 fresh-water species. LAMONTE (1932) presumes *Stevardia aliata* Eigenmann to be synonymous with *Corynopoma riisei* Gill, and describes colour variation in the "guppy", *Lebistes reticulatus* (Peters). GUPPY (1934) gives a general account of the better known species, with numerous distributional and biological data. WEBER (1938) adds a short note on two species. HUBBS (1938) gives a general account of cave-inhabiting species. GÜNTERT (1942) reports on catfishes, partly from Trinidad, in the collection of the museum at Basle, Switzerland. FOWLER (1943) reports on some fresh-water fishes and (1946) enumerates fishes from Trinidad including 12 fresh-water species. Finally, INGER (1949) gives interesting information on *Roeboides dayi* (Steindachner) and *Hypostomus robinii* Valenciennes.

Only recently (1955), a new attempt to compile a complete catalogue of the fresh-water fish species of Trinidad was made by PRICE, who published an annotated list of 51 species. As has already been said in the introduction to the present paper, this list is not without imperfections. Interesting information is given, especially regarding the distribution of several species on the island, but the enumeration of species is incomplete, some names are erroneous, and the synonymy is incomplete and arbitrarily chosen. Fortunately these defects, obviously caused by the insufficiency of the literature consulted, do not seriously diminish the usefulness of Price's paper. Finally, TRAVASSOS (1959) described a new fresh-water species from Trinidad.

In the following keys and enumeration, 74 species are listed, but a few of these, which only venture occasionally into entirely fresh water, may as well be regarded as belonging to the brackish water fauna.

KEYS TO THE FRESH-WATER FISHES OF TRINIDAD

KEY TO THE FAMILIES

(The numbers given with the family names indicate the sequence in the keys to the species and in the annotated list of species)

1. Body covered [1] 2
   Body naked 10
2. Body covered with scales 3
   Body covered with bony plates 15
3. Without spinous rays 4
   With spinous rays 20
4. Scales large; last dorsal ray much produced . . . . . 1. Fam. *Megalopidae*
   Scales moderate or small; last dorsal ray not produced . . 5
5. Body not eel-shaped 6
   Body eel-shaped 9
6. With adipose fin . . . . . 2. Fam. *Characinidae*
   Without adipose fin 7
7. Teeth with 3–7 cusps; male opercle prolonged . . . . . 2. Fam. *Characinidae*
   Teeth unicuspid; male opercle not prolonged 8
8. Mouth large, subhorizontal; canines prominent . . . . . 2. Fam. *Characinidae*
   Mouth small, cleft steep; or head asymmetrical 17
9. Without dorsal fin . . . . . 3. Fam. *Gymnotidae*
   With dorsal fin. . . . . 10. Fam. *Anguillidae*
10. Teeth coalesced, dentition beak-like 25. Fam. *Tetraodontidae*
    Teeth not coalesced 11
11. A single median ventral gill opening . 11. Fam. *Synbranchidae*
    Two separate lateral gill openings 12

[1] Indistinct in *Anguillidae*.

12. Nostrils approximate . . . . . 4. Fam. *Ariidae*
Nostrils remote 13

13. Gill membranes free from isthmus . . 5. Fam. *Pimelodidae*
Gill membranes joined to isthmus 14

14. With adipose fin . . . . . 6. Fam. *Auchenipteridae*
Without adipose fin . . . . . 7. Fam. *Pygidiidae*

15. Slender, elongate; with tubiform snout 15. Fam. *Syngnathidae*
Stout, tail tapering; snout not tubiform 16

16. Two lateral rows of bony plates . . 8. Fam. *Callichthydidae*
Four or five lateral rows of bony plates 9. Fam. *Loricariidae*

17. Head asymmetrical, both eyes on same side . . . . . 24. Fam. *Achiridae*
Head symmetrical 18

18. Eyes bulging, in elevated sockets . . . 12. Fam. *Anablepidae*
Eyes normal, not elevated 19

19. Anal fin not modified in ♂♂, rays 11 or more . . . . . 13. Fam. *Cyprinodontidae*
Anal fin modified in ♂♂, rays 10 or less . 14. Fam. *Poeciliidae*

20. Gill openings restricted, membranes attached 26
Gill openings wide, membranes free 21

21. Two dorsal fins 22
One continuous dorsal fin 23

22. First dorsal fin with 4 spines . . . . . 16. Fam. *Mugilidae*
First dorsal fin with 7–8 spines . . . 17. Fam. *Centropomidae*

23. Lateral line continuous 24
Lateral line interrupted or lacking 25

24. Mouth moderately protractile . . . . 18. Fam. *Lutjanidae*
Mouth excessively protractile . . . . . 19. Fam. *Gerridae*

25. Lateral line lacking . . . . . 20. Fam. *Polycentridae*
Lateral line interrupted . . . . . 21. Fam. *Cichlidae*

26. Ventral fins separate . . . . . .22. Fam. *Eleotridae*
Ventral fins united . . . . . 23. Fam. *Gobiidae*

Keys to the Species

1. Fam. *Megalopidae*

Only a single species on Trinidad . . . 1. *Tarpon atlanticus*

2. Fam. *Characinidae*

1. With adipose fin 2
   Without adipose fin 12
2. Without teeth . . . . . 2. *Curimata argentea*
   Teeth present 3
3. Lateral line incomplete 4
   Lateral line complete 7
4. Breast expanded, trenchant . . 15. *Gasteropelecus sternicla*
   Breast normal 5
5. Teeth conical, in single row on both jaws . . . . . 3. *Aphyocharax axelrodi*
   Teeth notched, premaxillary with two rows 6
6. Anal fin with subapical blotch . . . . . 4. *Pristella riddlei*
   Anal fin with distinct oblique bar 7. *Hemigrammus unilineatus*
7. Premaxillary teeth in single row . . 5. *Odontostilbe pulcher*
   Premaxillary teeth in more rows 8
8. Caudal fin at least one-fourth scaled 6. *Moenkhausia bondi*
   Caudal fin naked or scales at base only 9
9. Depth 2.0–2.6 in standard length 10
   Depth 3.0–3.3 in standard length 11
10. Anal fin with less than 40 rays . . 8. *Astyanax bimaculatus*
    Anal fin with more than 45 rays . . . . . 12. *Roeboides dayi*
11. Eye 0.8–0.9 in interorbital width . . 9. *Hemibrycon taeniurus*
    Eye 1.0–1.1 in interorbital width . . 10. *Hemibrycon guppyi*
12. Teeth with 3–7 cusps, no canines . . 11. *Corynopoma riisei*
    Teeth conical, with canines 13

13. More than 12 dorsal rays . . . . 13. *Hoplias malabaricus*
Less than 12 dorsal rays . 14. *Hoplerythrinus unitaeniatus*

3. Fam. *Gymnotidae*

Only a single species on Trinidad . . . 16. *Gymnotus carapo*

4. Fam. *Ariidae*

1. No internarial membrane or vomerine teeth 17. *Arius spixii*
Internarial membrane, vomerine teeth . . . . . 18. *Selenaspis herzbergii*

5. Fam. *Pimelodidae*

1. Eyes well developed 2
Eyes reduced. . . . . 21. *Caecorhamdia urichi*

2. Maxillary barbel rarely to middle of adipose fin . . . . . 20. *Rhamdia quelen*
Maxillary barbel to beyond middle of adipose fin . . . . . 19. *Rhamdia sebae*

6. Fam. *Auchenipteridae*

1. Caudal fin obliquely truncate. . . 22. *Trachycorystes galeatus*
Caudal fin deeply forked . 23. *Pseudauchenipterus nodosus*

7. Fam. *Pygidiidae*

Possibly a single species on Trinidad . . . . . 24. *Haemomaster venezuelae*

8. Fam. *Callichthyidae*

1. Occipital process reaching dorsal plate . 28. *Corydoras aeneus*
   No occipital process 2
2. Coracoids ventrally covered with skin . . . . . 25. *Callichthys callichthys*
   Coracoids exposed ventrally 3
3. Preadipose plates extending to dorsal fin . . . . . 26. *Hoplosternum littorale*
   Preadipose plates not reaching dorsal fin . . . . . 27. *Hoplosternum thoracatum*

9. Fam. *Loricariidae*

1. Interoperculum spinate; barbels on snout . . . . . 30. *Ancistrus cirrhosus*
   No spines on interopercle; no barbels 29. *Hypostomus robinii*

10. Fam. *Anguillidae*

Only a single species on Trinidad . . . 31. *Anguilla rostrata*

11. Fam. *Synbranchidae*

Only a single species on Trinidad . . . . . 32. *Synbranchus marmoratus*

12. Fam. *Anablepidae*

1. Scales in longitudinal series 50–55 . 33. *Anableps anableps*
   Scales in longitudinal series 80–90 . 34. *Anableps microlepis*

13. Fam. *Cyprinodontidae*

Only a single species on Trinidad . . . . . 35. *Rivulus hartii*

14. Fam. *Poeciliidae*

1. Usually a dark humeral spot . . . . . 36. *Poecilia vivipara*
   No humeral spot 2
2. No spots (seldom ocellus) on dorsal fin . . . . . 37. *Lebistes reticulatus*
   Series of dark spots on dorsal fin . . 38. *Molliensia sphenops*

15. Fam. *Syngnathidae*

1. Rings about 19–20 + 23–27; with anal fin . . . . . 39. *Oostethus lineatus*
   Rings about 14 + 35 — 38; without anal fin . . . . . 40. *Pseudophallus mindii*

16. Fam. *Mugilidae*

1. Teeth villiform, very small, in bands; 2 anal spines 2
   Teeth ciliiform, longer, in one or few series; 3 anal spines . 4
2. Maxillary extending to below middle of eye (in adult) . . 3
   Maxillary not beyond anterior third of eye . . . . . 41. *Agonostomus monticola*
3. Snout subconical; upper lip moderate . . . . . 42. *Agonostomus percoides*
   Snout truncate; upper lip thick . . 43. *Agonostomus microps*
4. Second dorsal fin almost naked 5
   Second dorsal fin covered with scales 6
5. Scales in longitudinal series 38–43 . . . 44. *Mugil cephalus*
   Scales in longitudinal series 32–36 . . . . . 45. *Mugil liza*

6. Anal fin usually with 8 soft rays . . . . 48. *Mugil trichodon*
   Anal fin usually with 9 soft rays 7
7. Scales in longitudinal series 42–45 . . . . 46. *Mugil incilis*
   Scales in longitudinal series 36–39 . . . . 47. *Mugil curema*

17. Fam. *Centropomidae*

1. Second and third anal spines subequal 2
   Second anal spine longer than third 3
2. Anal fin with 7 soft rays . . . . 52. *Centropomus pectinatus*
   Anal fin with 6 soft rays . . . . 49. *Centropomus undecimalis*
3. Scales in longitudinal series 52–58 50. *Centropomus ensiferus*
   Scales in longitudinal series 75–90 51. *Centropomus parallelus*

18. Fam. *Lutjanidae*

Only a single species on Trinidad . . . 53. *Lutjanus griseus*

19. Fam. *Gerridae*

Only a single species on Trinidad . 54. *Eucinostomus argenteus*

20. Fam. *Polycentridae*

Only a single species on Trinidad 55. *Polycentrus schomburgkii*

21. Fam. *Cichlidae*

1. Preopercle finely serrate . . . . . 56. *Crenicichla alta*
   Preopercle entire 2
2. Anal fin with 3 spines 3
   Anal fin with 4 spines 4

3. Scales in longitudinal series 23–24 . . 57. *Aequidens pulcher*
   Scales in longitudinal series 30–34 . 59. *Tilapia mossambica*
4. Scales in longitudinal series 30–34 . 59. *Tilapia mossambica*
   Scales in longitudinal series 25–27 . . . . . 58. *Cichlasoma bimaculatum*

22. Fam. *Eleotridae*

1. Jaws equal anteriorly . . . . . 60. *Dormitator maculatus*
   Lower jaw projecting 2
2. Gill opening extending to below eye . . . . . 61. *Gobiomorus dormitor*
   Gill opening not reaching to below eye 3
3. Antrorse spine at preopercular angle 4
   No preopercular spine . . . . . 64. *Guavina guavina*
4. Scales in longitudinal series 54–68 . . 62. *Eleotris pisonis*
   Scales in longitudinal series 40–48 . 63. *Eleotris amblyopsis*

23. Fam. *Gobiidae*

1. Teeth on lower jaw in 2 or more rows 2
   Teeth on lower jaw in single row, a horizontal row on lip . 5
2. Upper pectoral rays free, silk-like . 65. *Bathygobius soporator*
   Upper pectoral rays not free or silk like 3
3. Nape with fleshy longitudinal crest . . . . . 66. *Lophogobius cyprinoides*
   Nape without fleshy crest 4
4. Scales in longitudinal series 65 or more . 67. *Awaous taiasica*
   Scales in longitudinal series about 32 . . . . . 68. *Ctenogobius fasciatus*
5. Ventral sucking disk not adnate . . . 69. *Evorthodus lyricus*
   Ventral sucking disc adherent to belly 6

6. Scales in longitudinal series about 60 70. *Sicydium punctatum*
Scales in longitudinal series about 84 71. *Sicydium plumieri*

24. Fam. *Achiridae*

1. Branchial septum entire . . 72. *Trinectes maculatus fasciatus*
Branchial septum perforated by foramen 73. *Achirus lineatus*

25. Fam. *Tetraodontidae*

Only a single species on Trinidad . . 74. *Colomesus psittacus*

ANNOTATED LIST OF FRESH-WATER SPECIES

Family **Megalopidae**

1. **Tarpon atlanticus** (Valenciennes)

Megalops atlanticus VALENCIENNES, 1846, Hist. Nat. Poiss. *19*, p. 287 (398) (Guadeloupe, Santo Domingo, Martinique, Porto Rico; marine, occasionally in fresh water).

Megalops thrissoides, GÜNTHER, 1868, p. 472 (Trinidad).

Tarpon atlanticus, FOWLER, 1915b, p. 522 (Trinidad); GUPPY, 1934, p. 118 (Trinidad; small tidal pools); PRICE, 1955, p. 9 (Trinidad; Nariva and Moruga Rivers, fresh water at Cedros, reservoirs near La Brea and Point Fortin).

Of this species, no material was received from Trinidad. The tarpons are generally found in schools near the coast, but often occur in river mouths and bays, entering fresh water. They range along the Atlantic coasts of America from Nova Scotia to Brazil.

Vernacular names: tarpon, grande écaille (PRICE).

Family **Characinidae**

2. **Curimata argenta** Gill

Curimatus argenteus GILL, 1858, p. 422 (Trinidad); GÜNTHER, 1864, p. 289 (copied after Gill); LÜTKEN, 1875, p. 225 (Trinidad); LÜTKEN, 1875a, p. 30 (Trinidad); EIGENMANN & EIGENMANN, 1891, p. 47 (Trinidad); REGAN, 1906a, pp. 378, 385,

pl. 21 fig. 3 (Trinidad; ravines of Streatham Lodge Estate); EIGENMANN, 1910, p. 421 (Trinidad); FOWLER, 1915b, p. 530 (Trinidad; references); EIGENMANN, 1922, p. 230 (Trinidad, in reference); GUPPY, 1934, pp. 121, 122 (Trinidad; not very abundant).

Curimata argentea, SCHULTZ, 1944a, p. 250 (Trinidad, in reference); FOWLER, 1943, p. 65, fig. 1 (Trinidad); FOWLER, 1946, p. 2 (Trinidad; Tumpuna River); PRICE, 1955, p. 10 (Trinidad; Caroni, Caparo, and northern Oropouche drainages).

Curimata spec., PRICE, 1955, pp. 5, 8, pl. 3 (northern Trinidad).

Material: two specimens, from a pond 15½ mile along Churchill-Roosevelt Road, east of Port-of-Spain, 1 June 1954, 4.9–5.1 (6.5–6.7) cm (cat. no. 21542).

Fin rays: D 3.9; A 3.7. Scales in longitudinal series 36, in transverse series to insertion of ventral fins 5½–1–5½. According to Price (l.c.), this species is found only in the northern part of the island, in muddy streams, water holes, and drains. It has also been reported from Dominica, Venezuela, and Colombia.

Vernacular names: silverfish (GILL), stout sardine (REGAN, GUPPY, FOWLER, PRICE), hump-backed sardine (PRICE).

3. **Aphyocharax axelrodi** Travassos

Pristella riddlei, PRICE, 1955, p. 11 (pro parte?; Trinidad, south of Northern Range).

Aphyocharax axelrodi TRAVASSOS, 1959, pp. 5, 48, col. pl., figs. (Trinidad; near Piarco Airport).

Material: two specimens, 1 mile on Freeport Todd's Road, 22 July 1954. 2.6–2.7 (3.3–3.4) cm (cat. no. 21553).

This recently discovered species apparently occurs only in Trinidad. It superficially resembles the next species, *Pristella riddlei*, but distinctly differs by having conical teeth placed in a single row (in *P. riddlei* notched teeth, on premaxillary in double row), a maxillary with a few teeth anteriorly only (in *P. riddlei* along entire margin), a larger dark blotch on dorsal fin, and a more diffuse humeral spot.

The present specimens were identified as *Pristella riddlei* and, obviously, thus recorded by PRICE (l.c.). This species may also occur among (mixed) material from Trinidad, recorded by previous authors as *Pristella riddlei* (see literature for next species).

Vernacular name: none given in literature.

4. **Pristella riddlei** (Meek)

Holopristes riddlei MEEK, 1907, Proc. U.S.Nat. Mus. *33*, p. 11. (in EIGENMANN & OGLE, 1907; Los Castillas, Venezuela).

Pristella riddlei, FOWLER, 1931, p. 393 (Trinidad; brackish water near La Brea and Point Fortin, Guapo River); GUPPY, 1934, pp. 117, 121 (Trinidad; localities copied); PRICE, 1955, p. 11 (pro parte?; Trinidad, south of Northern Range).

Of this species, no material was received from Trinidad. PRICE (l.c.) records *Pristella riddlei* as abundant and widespread in stagnant muddy and brackish waters, but his references may (partly or wholly) be based on material belonging to the previous species.

The present species is known to occur also on the South American mainland, from Venezuela to the lower Amazon.

Vernacular names: riddlei, pristella (PRICE).

5. **Odontostilbe pulcher** (Gill)

Poecilurichthys pulcher GILL, 1858, p. 419 (Trinidad); GÜNTHER, 1864, p. 317, note (reference to Gill).

Tetragonopterus pulcher, LÜTKEN, 1875, p. 232 (reference to Gill); LÜTKEN, 1875a, p. 30 (reference to Gill).

Chirodon (*Odontostilbe*) *pulcher*, LÜTKEN, 1875, p. 236 (Trinidad).

Chirodon pulcher, LÜTKEN, 1875, p. 237 (Trinidad); REGAN, 1906a, pp. 378, 385, pl. 22 fig. 2 (Trinidad; in drains and ravines in the high woods, Cumuto); GUPPY, 1934, p. 122, fig. 5 (Trinidad; plentiful, usually in dams).

Odontostilbe pulcher, EIGENMANN & EIGENMANN, 1891, p. 54 (Trinidad; references to Gill and Lütken); EIGENMANN, 1910, p. 429 (Trinidad); FOWLER, 1915, p. 530 (Trinidad; references); GUPPY, 1934, p. 118 (Trinidad; occasionally in water holes in the Northern Range, at Palo Seco, Débé, Penal, and Siparia); SCHULTZ, 1944a, p. 318 (Trinidad, in reference); PRICE, 1955, p. 11 (Trinidad; Caroni, Caparo, and northern Oropouche drainages).

Odontostilbe pulchra, FOWLER, 1943, p. 65, fig. 2 (Trinidad).

Chirodon (*Odontostilbe*) spec., GUPPY, 1934, p. 121 (Trinidad).

Odontostilbe spec., PRICE, 1955, p. 5, fig. 3 (Trinidad; south of Northern Range).

Material: one specimen, Tumpuna River at El Quemado, 9 June 1954, 4.2 (5.3) cm (cat. no. 21557).

Fin rays: D 2.8; A 3.21. Scales in longitudinal series 33, in transverse series $5\frac{1}{2}$–1–$4\frac{1}{2}$. According to PRICE (l.c.), the present species is curiously restricted on Trinidad to "certain watersheds south of the

Northern Range", though it also has been reported from Venezuela.

Vernacular names: sardine (GILL), sardine dorée (REGAN, GUPPY, FOWLER).

6. **Moenkhausia bondi** (Fowler)

Phenacogaster bondi FOWLER, 1911, p. 419 (Corisal, Venezuela).
Tetragonopterus chalceus, PRICE, 1955, pp. 5, 12 (Trinidad; Cedros(?), near Erin).
Tetragonopterus spec., PRICE, 1955, p. 7 (Trinidad; Cedros).

Material: one specimen, Carapal River, 21 August 1954, 3.6 (4.7) cm (cat. no. 21554).

Fin rays: D 2.9; A 3.29. Scales in lateral line 33.2, in transverse series between dorsal origin and insertions of ventral fins 8–1–7, between origins of dorsal and anal fins 8–1–8/9. Depth of body 1.75 in standard length. Lateral line but little decurved in front.

This specimen was identified with *Tetragonopterus chalceus* Aggassiz and thus recorded by PRICE (l.c.), but obviously belongs to the present species. *Moenkhausia bondi* was already known to occur in the Orinoco River delta, but this seems to be its first record from Trinidad. According to PRICE, the species was found "only in one stream" (l.c., p. 7), but he gives as locality Cedros (p. 5) and a stream near Erin (p. 12), while Erin (or San Francique) is not situated in Cedros. As the Carapal River happens to be located near Erin, this locality at least can be accepted with certainty. On the South American continent the species appears to range from the Caribbean coast to Pará and Peru.

Vernacular name: silver tetra (PRICE).

7. **Hemigrammus unilineatus** (Gill)

Poecilurichthys unilineatus GILL, 1858, p. 420 (Trinidad).
Poecilurichthys (*Hemigrammus*) *unilineatus*, GÜNTHER, 1864, p. 317, note (reference to Gill).
Tetragonopterus unilineatus, LÜTKEN, 1875, p. 232 (Trinidad; reference to Gill); EIGENMANN & EIGENMANN, 1891, p. 54 (Trinidad; reference to Gill); REGAN, 1906a, p. 378, pl. 22 fig. 5 (Trinidad; reference to Gill); GUPPY, 1934, p. 122 (Trinidad; abundant, usually in dams).
Tetragonopterus (*Hemigrammus*) *unilineatus*, REGAN, 1906a, p. 384 (Trinidad; drains and ravines in the high woods, Cumuto).

Hemigrammus unilineatus, EIGENMANN & OGLE, 1907, p. 12 (Trinidad; distribution, key); EIGENMANN, 1910, p. 436 (Trinidad); EIGENMANN, 1912, p. 332, pl. 48 fig. 1 (Trinidad, in reference); FOWLER, 1915b, p. 530 (Trinidad; references); EIGENMANN, 1918, p. 141, pl. 21 fig. 5, pl. 78 fig. 8 (Trinidad, in reference); FOWLER, 1943, p. 65, fig. 3 (Trinidad); SCHULTZ, 1944a, p. 349 (Trinidad, in reference); PRICE, 1955, p. 12 (Trinidad; south of Northern Range, Aripo Savannah).

Tetragonopterus (*Hemigrammus*) spec., GUPPY, 1934, p. 121 (Trinidad; habits).

Material: three specimens, Aripo River, Waller Field, 31 May 1954, 3.1–3.5 (4.1–4.6) cm (cat. no. 21552).

This well known species is widespread on the South American mainland, where it occurs from Venezuela to Brazil (Amazon basin). On Trinidad, it seems to be abundant south of the Northern Range, mostly in muddy waters and in brown-stained forest pools (PRICE).

Vernacular names: sardine dorée (REGAN, GUPPY, FOWLER, PRICE), featherfin (PRICE).

8. **Astyanax bimaculatus** (Linnaeus)

Salmo bimaculatus LINNAEUS, 1758, Syst. Nat., ed. 10, p. 311 (South America).

Poecilurichthys brevoortii GILL, 1858, p. 417 (Trinidad); GÜNTHER, 1864, p. 317, note (reference to Gill).

Tetragonopterus brevortii, LÜTKEN, 1875, p. 232 (Trinidad); LÜTKEN, 1875a, p. 30 (Trinidad).

Tetragonopterus brevoortii, EIGENMANN & EIGENMANN, 1891, p. 53 (Trinidad; reference to Lütken).

Tetragonopterus maculatus, REGAN, 1906a, pp. 378, 384 (Trinidad; Maracas River); GUPPY, 1934, pp. 121, 122 (Trinidad; Maracas and St. Joseph Rivers and similar streams; abundant in Northern Valley streams, dams, etc.).

Poecilurichthys bimaculatus, EIGENMANN, 1912, p. 359 (Trinidad, in reference); FOWLER, 1915a, p. 261 (Trinidad; San Juan River near San Juan).

Astyanax bimaculatus, FOWLER, 1915b, p. 530 (Trinidad; Diego Martin River near Port-of-Spain; references); FOWLER, 1931, p. 393 (Trinidad; Tobago Dam at Brighton, Plaisance Dam at Brighton, Vessigny Dam at Brighton, Guapo River, Lever "B" Dam at Brighton, stream near Moruga); FOWLER, 1943, p. 65 (Trinidad); FOWLER, 1946, p. 2 (Trinidad; La Cruz River, Port-of-Spain market, Maracas River, Tumpuna River).

Astyanax (*Poecilurichthys*) *bimaculatus*, EIGENMANN, 1921, p. 249, pl. 62 figs. 1, 2, 4, 6; pl. 95 fig. 6 (Trinidad).

Astynax bimaculatus, PRICE, 1955, p. 12 (Trinidad; south of Northern Range).

Material: two specimens, Aripo River, Waller Field, 31 May 1954, 7.2–7.5 (9.1–9.4) cm (cat. no. 21540).

This is a common South American species, occurring on the main-

land southward to around Buenos Aires. It appears to be abundant on Trinidad south of the Northern Range (cf. PRICE).

Vernacular names: sardine (GILL), pink(-)finned sardine (REGAN, GUPPY, FOWLER), sardine dorée (PRICE).

9. Hemibrycon taeniurus (Gill)

Poecilurichthys taeniurus GILL, 1858, p. 418 (Trinidad); GÜNTHER, 1864, p. 317, note (reference to Gill).

Tetragonopterus trinitatis LÜTKEN, 1875, pp. 232, 235 (Trinidad); LÜTKEN, 1875a, pp. 30, 31 (Trinidad); EIGENMANN & EIGENMANN, 1891, p. 53 (Trinidad; reference to Lütken); REGAN, 1906a, p. 384 (Trinidad; synonymy).

Tetragonopterus taeniurus, LÜTKEN, 1875, pp. 232, 233 (Trinidad); LÜTKEN, 1875a, pp. 30, 31 (Trinidad); EIGENMANN & EIGENMANN, 1891, p. 53 (Trinidad; reference to Lütken); REGAN, 1906a, pp. 378, 383, pl. 22 fig. 4 (Trinidad); GUPPY, 1934, p. 122 (Trinidad; usually in mountain streams).

Tetragonopterus (Hemibrycon) trinitatis LÜTKEN, 1875, p. 234 (Trinidad).

Hemibrycon taeniurus, EIGENMANN, 1910, p. 432 (Trinidad); EIGENMANN, 1927, p. 412, pl. 39 fig. 2 (Trinidad, in reference).

Astyanax taeniurus, FOWLER, 1915b, p. 530 (Trinidad; references).

Hemibrycon dentatus, PRICE, 1955, p. 12 (Trinidad; Caroni and northern Oropouche drainages; restricted to clear mountain streams).

Material: three specimens, Mausica River, 22 June 1954, 4.4–4.6 (5.7–6.0) cm (cat. no. 21550).

Fin rays: D 2.8, 2.8, 2.8; A 4.26, 4.27, 4.28. Scales in lateral line 38/38, 38/39, 39/39, all excluding 2 on base of caudal fin; in transverse series to insertions of ventral fins all 7½–1–5½, to midventral line 7½–1–7½; the lateral line but little decurved in front. Depth of body 3.25, 3.2, 3.2, head 4.1, 4.1, 4.0 in standard length. Diameter of eye 2.75 in head, slightly surpassing interorbital width (3.05–3.2 in head). Anterior dorsal rays subequal to length of head. Colour markings characteristic, the humeral spot still distinct.

SCHULTZ (1944a, p. 361) regarded the species of *Hemibrycon* recorded from Venezuela as being all subspecies of *dentatus* (Eigenmann). The latter species, if accepted as the only representative of *Hemibrycon* occurring on the mainland opposite Trinidad, might consequently be expected also to occur on the island (PRICE, 1955, p. 27).

However, according to the data provided by SCHULTZ, the number

of scales in the lateral line of dentatus is at least 41, and generally more, as against 38 or 39 in the present specimens. Furthermore, *jabonero* Schultz, the subspecies most closely resembling *taeniurus* in this character, appears to be restricted to the Maracaibo Basin. And finally, the Trinidad form has hitherto been found only in the northern half of the island (PRICE, pp. 12, 13), and not in the parts just opposite the mainland. For these three reasons, it seems at present advisable to separate the present species from *dentatus*. It should be added that, if PRICE's opinion had been accepted, the name *taeniurus* would have had priority over *dentatus*.

For a discussion of the differences between the species *taeniurus* and *guppyi* reference should be made to the notes on the next species (No. 10).

The present species consequently seems to be restricted to Trinidad. Apparently similar specimens from Venezuela, identified by EIGENMANN as *Hemibrycon taeniurus*, should probably be regarded as belonging to a subspecies of dentatus (SCHULTZ, l.c.).

Vernacular names: sardine (GILL, GUPPY), mountain stream sardine, band tail tetra (PRICE).

10. **Hemibrycon guppyi** (Regan)

Tetragonopterus guppyi REGAN, 1906a, p. 384, pl. 21 fig. 1 (Trinidad; clear pebbly brooks with rapid current; Glenside Estate Stream); GUPPY, 1934, pp. 121, 122, pl. (Trinidad; mountain streams).
Hemibrycon guppii, EIGENMANN, 1910, p. 432 (Trinidad); EIGENMANN, 1927, p. 411, pl. 2 fig. 3; pl. 39 fig. 6; pl. 76 fig. 1 (Trinidad).
Astyanax guppyi, FOWLER, 1915b, p. 530 (Trinidad; references).

Of this species, no material was received from Trinidad. It was known to differ from the previous species, *Hemibrycon taeniurus* (Gill), only in the following characters, as taken from literature (REGAN, 1906a, pp. 379, 383, 384; EIGENMANN, 1927, pp. 402, 411): head 4.5–4.75 in standard length (in *taeniurus* 4.0–4.33); eye 3.0–3.5 in head (in *taeniurus* 2.5–2.75), slightly less than interorbital width (slightly more in *taeniurus*); scales $8\frac{1}{2}$–38/40–$5\frac{1}{2}$/$6\frac{1}{2}$ (in *taeniurus* $7\frac{1}{2}$–38/39–$5\frac{1}{2}$), the transverse series being counted to insertions of ventral fins.

These differences, though apparently sufficient for specific discrimination, left some room for doubt, especially since the variability in the discriminative characters still remained to be determined. Furthermore, EIGENMANN (1927), in his description of *guppyi*, gives the following information on the squamation: "scales 7–38 or 40–5" (p. 411), whereas in his key the different numbers "8½–38–40–5½ or 6½" are given, the first being in almost complete agreement with the same character in taeniurus.

To enable a better founded opinion to be formed on the value of the apparent differences between *taeniurus* and *guppyi*, Mrs. A. J. MARTIN (British Museum, Natural History) kindly re-examined the types of *guppyi* and two specimens of *taeniurus* and *trinitatis* Lütken (= *taeniurus* Gill) in the British Museum collections. The results are shown in the accompanying table.

TABLE 7.

	Hemibrycon guppyi (Regan), syntypes						*Hemibrycon taeniurus* (Gill)					
	Br. Mus., 1906, 6.23. 13–17					range	B.M. 1876 1.10.67	RMNH, 21550a-c			B.M. 1906, 6.23.18	range
Stand. length	47	53	56.5	58	74	47–74	42	44	45	46	50	42–50
Depth in st.l.	3.0	3.1	3.3	3.3	3.0	3.0–3.3	3.15	3.25	3.2	3.2	3.25	3.15–3.25
Head [1] in st.l.	4.3	4.4	4.35	4.1	4.5	4.1–4.5	3.8	4.1	4.1	4.0	4.15	3.8–4.15
Eye in head	3.15	3.0	3.25	3.1	3.3	3.0–3.3	2.5	2.75	2.75	2.75	2.7	2.5–2.75
Int. orb. in hd.	2.75	3.0	2.9	3.1	3.0	2.75–3.1	3.15	3.15	3.05	3.2	3.0	3.0–3.2
Eye in int. orb.	1.1	1.0	1.1	1.0	1.1	1.0–1.1	0.8	0.85	0.9	0.85	0.9	0.8–0.9
Gill rakers	12	12	12	12	12	12	11	11/12	12	11	11	11–12
Scales lin. lat.	39.2 [2]	38.2	39.2	39.2	39.2	38–39.2	?	38.2	38/39.2	39.2	38.2	38–39.2
Scales transv.	8½/7½	8½/7½	8½/7½	8½/7½	8½/8½	8½/7½–8½	?	7½/7½	7½/7½	7½/7½	7½/6½ ?	7½/6½–7½

[1] Head measured from tip of lower jaw to bony edge of opercle.
[2] 39 in lateral line, 2 on base of caudal fin.

Though the data given in the table are still based on limited material, mostly not of comparable sizes, they seem to conform in varying degrees the differences taken from literature. There appears to be a small difference in the ratio of head to standard length; a more distinct difference in the ratios of eye diameter to head, and of interorbital width to head; a very distinct difference in the ratio of eye diameter to interorbital width; and small differences in the

numbers of scale rows above the lateral line, and in the average number of gill rakers.

In consequence it seems justified to maintain *guppyi* as a separate species, apparently restricted to Trinidad.

Vernacular names: mountain stream sardine (REGAN), sardine (GUPPY).

11. Corynopoma riisei Gill

Stevardia albipinnis GILL, 1858, pp. 370, 425 (Trinidad; Orange Grove near Tacarigua?); EIGENMANN & EIGENMANN, 1889, p. 114 (Trinidad; references); EIGENMANN & EIGENMANN, 1891, p. 46 (Trinidad; reference); EIGENMANN, 1910, p. 438 (Trinidad); FOWLER, 1931, p. 393 (Trinidad; Guapo River, Point Fortin in brackish water, Vessigny Dam at Brighton, stream near Horoga, Tabaquite).

Corynopoma riisei GILL, 1858, p. 426 (Trinidad); GÜNTHER, 1864, p. 287 (Trinidad; copied after Gill); LÜTKEN, 1875, pp. 223, 224 (Trinidad); LÜTKEN, 1875a, p. 31 (Trinidad); EIGENMANN & MYERS, 1929, p. 470, pl. 83 figs. 2, 3 (Trinidad; after Regan, references); LAMONTE, 1932, p. 33 (Trinidad); PRICE, 1955, p. 13 (Trinidad; south of Northern Range).

Corynopoma veedonii GILL, 1858, pp. 370, 427 (Trinidad; Orange Grove near Tacarigua?); GÜNTHER, 1864, p. 287 (Trinidad; copied after Gill).

Nematopoma searlesii GILL, 1858, pp. 370, 429 (Trinidad; Orange Grove near Tacarigua?).

Corynopoma albipinne, GÜNTHER, 1864, p. 287 (Trinidad; copied after Gill).

Corynopoma searlesii, GÜNTHER, 1864, p. 288 (Trinidad; copied after Gill); LÜTKEN, 1875, p. 223, fig. (Trinidad).

Corynopoma scarlesii, LÜTKEN, 1875a, p. 30 (Trinidad).

Corynopoma (Nematopoma) searlesii, LÜTKEN, 1875, p. 223 (Trinidad).

Stevardia riisei, EIGENMANN & EIGENMANN, 1889, p. 114 (Trinidad; references); EIGENMANN & EIGENMANN, 1891, p. 46 (Trinidad; reference).

Stevardia veedonii, EIGENMANN & EIGENMANN, 1889, p. 114 (Trinidad; references); EIGENMANN & EIGENMANN, 1891, p. 46 (Trinidad; reference).

Stevardia searlesii, EIGENMANN & EIGENMANN, 1889, p. 114 (Trinidad; references); EIGENMANN & EIGENMANN, 1891, p. 46 (Trinidad; reference).

Corynopoma riisii, REGAN, 1906a, pp. 378, 382, pl. 22 figs. 3, 3a (Trinidad; Tacarigua River); GUPPY, 1934, pp. 117, 118, 122, figs. 4, 4a (Trinidad; near Northern Hills, Palo Seco, Débé, Penal, Siparia; usually in dams).

Stevardia altipinnis, FOWLER, 1915b, p. 530 (Trinidad; references).

Stevardia spec., EIGENMANN & EIGENMANN, 1891, p. 16 (Trinidad).

Material: two specimens, Cunupia River, 4 June 1954, 2.4–3.0 (3.1–4.6) cm (cat. no. 21556).

Until recently, two separate species of *Corynopoma* have been distinguished — *aliata* Eigenmann from Colombia and the present species. As long ago as 1929 EIGENMANN & MYERS (p. 470) indicated

that both these species might eventually prove identical, a supposition supported by LAMONTE (1932, p. 33) and by RACHOW (no date, pp. 735–737). Strangely to say, HOEDEMAN (1954, p. 148) again separates the two forms as different species.

In the present material, the male has the posterior anal ray produced, the caudal fin completely divided, with the three or four lower fulcra separated, and a scaly pouch on the lower posterior part of the caudal peduncle. As these characters used to be considered discriminative for the Colombian *aliata* Eigenmann, this seems to confirm the synonymy of the latter species with *riisei* Gill, as presumed by previous authors. The species consequently ranges from Trinidad, through Venezuela, to eastern Colombia.

Vernacular names: swallow(–)tail(ed) sardine (REGAN, GUPPY, PRICE), sword-tail tetra (PRICE).

12. **Roeboides dayi** (Steindachner)

Anacyrtus (Rhaeboides) dayi STEINDACHNER, 1879, Denkschr. Ak. Wiss. Wien *39*, p. 61 (Rio Magdalena, Colombia).

Charax gibbosa, GUPPY, 1934, pp. 117, 121, 122, fig. 1 (Trinidad; Sangre Grande, Rio Claro).

Charax gibbosus, WEBER, 1938, p. 205 (Trinidad).

Roeboides dayi, INGER, 1949, p. 300 (Trinidad; Brickfield, Mt. Harris); PRICE, 1955, pp. 5, 10, fig. 2 (Trinidad; rivers draining to east and south coasts, from (n.) Oropouche to Moriquite River; northern Oropouche, Nariva, Ortoire, Moriquite drainages).

Material: two specimens, Moriquite River, 20 May 1954, 4.9–5.3 (6.1–6.6) cm (cat. no. 21546).

Fin rays: D 11; A 49, 50 (4.45, 4.46); P 16; V 9. Scales in longitudinal series 60, 62. The humeral and caudal spots (still) distinct.

The first record of the present species from Trinidad was made by GUPPY (l.c.) under the wrong name of *Charax gibbosa*, while INGER (l.c.) appears to have been the first author to use the right name. This second author also compares his Trinidad material with the original description of the subspecies *dientonito* Schultz (1944a, pp. 304–307), and finds only a slight difference in fin ray counts, apparently of little importance. The present material agrees essentially with the data provided by both authors, except for the

number of scales in longitudinal series, which agrees far better with the subspecies *dayi*. However, since the available material is insufficient, no further comment can be made on the subspecific status of the Trinidad form, though it is interesting to note that, according to SCHULTZ, the nominate subspecies has been recorded (with some doubt) not farther eastward in Venezuela than Lake Valencia, while the subspecies *dientonito* has been reported only from the Maracaibo Basin.

Vernacular names: hunch(-)back sardine, glass(-)fish (GUPPY, PRICE).

13. **Hoplias malabaricus** (Bloch)

Esox malabaricus BLOCH, 1794, Naturgesch. ausl. Fische *8*, p. 149, pl. 392 (Tranquebar, erroneous locality).

Macrodon ferox GILL, 1858, p. 411 (Trinidad).

Macrodon trahira, GÜNTHER, 1868a, p. 239 (Trinidad); REGAN, 1906a, pp. 378, 382 (Trinidad; Cumuto).

Macrodon malabaricus, EIGENMANN & EIGENMANN, 1889, p. 102 (Trinidad, in references).

Hoplias malabaricus, EIGENMANN & OGLE, 1907, p. 36 (Trinidad); EIGENMANN 1912, p. 414, pl. 62 fig. 2 (Trinidad, in references); FOWLER, 1915b, p. 530 (Trinidad; references); MEEK & HILDEBRAND, 1916, p. 305 (Trinidad, in reference); FOWLER, 1931, p. 393 (Trinidad; Tobago Dam at Brighton, L'Espérance Dam at Brighton, Vessigny Dam at Brighton, water hole at Cedros); GUPPY, 1934, p. 117 (Trinidad; southern part of the island); EIGENMANN & ALLEN, 1942, p. 280 (Trinidad); PRICE, 1955, pp. 7, 11 (Trinidad; most rivers, ponds and drains south of Northern Range).

Hoplias spec., PRICE, 1955, p. 9 (Trinidad; name misspelled "*Hoplais*").

Material: one specimen, St. Joseph River, 21 May 1954, 12.5 (16.0) cm (cat. no. 21525).

This seems to be a very common species on Trinidad as well as on the mainland, occurring frequently throughout the wide area between Panama and northern Argentina. The first record from Trinidad was apparently by VERTEUIL and LÉOTAUD (1858, pp. 100, 390, 391), who described the species as being "very common in ponds, ravines, and rivers", and "found in rivers and deep ponds, particularly in the Bejucal, and other ponds in the neighbourhood of Caroni, and the Cocal".

Vernacular names: guabin(e) (VERTEUIL pp. 100, 390, 391, LÉOTAUD p. 390,

REGAN, GUPPY, PRICE), yarrow? (GILL; obviously erroneous, interchange of the names of both erythrinine species), dormeuse (REGAN).

14. **Hoplerythrinus unitaeniatus** (Spix)

Erythrinus unitaeniatus SPIX, 1829, in AGASSIZ, Selecta Gen. et Spec. Pisc. Bras., p. 42, pl. 19 (San Francisco); GÜNTHER, 1868a, p. 239 (Trinidad); EIGENMANN & EIGENMANN, 1889, p. 105 (Trinidad; references); EIGENMANN & EIGENMANN, 1891, p. 45 (Trinidad; reference); REGAN, 1906a, pp. 378, 382 (Trinidad; all over the island in muddy streams).

Erythrinus cinereus GILL, 1858, p. 413 (Trinidad); GÜNTHER, 1864, p. 283, note (Trinidad; reference to Gill).

Hoplerythrinus unitaeniatus, EIGENMANN & OGLE, 1907, p. 36 (Trinidad); EIGENMANN, 1910, p. 448 (Trinidad); EIGENMANN, 1912, p. 418 (Trinidad, in references); EIGENMANN & ALLEN, 1942, p. 281 (Trinidad); PRICE, 1955, pp. 7, 11 (Trinidad; water hole near Sangre Grande, Nariva Swamp).

Hoploerythrinus unitaeniatus, FOWLER, 1915b, p. 531 (Trinidad; references).

Hoplerythrinus spec., PRICE, 1955, p. 9 (Trinidad).

Material: one specimen, 4½ mile along Toco Road (from Sangre Grande), 10 June 1954, 20.0 (26.5) cm (cat. no. 21519).

This species appears to be much less common than the previous one, and seems to have been recorded from Trinidad for the first time by VERTEUIL and LÉOTAUD (1858, pp. 100, 390, 391), who reported it as occurring "only in clear rivulets". However, REGAN (1906a, p. 382), quoting GUPPY's notes, records an occurrence "all over the island in muddy streams".

The species is known to inhabit a considerable part of the South American mainland, occurring southward as far as the Rio la Plata.

Vernacular names: yarrao (VERTEUIL pp. 100, 390, 391, LÉOTAUD p. 390), waubeen? (GILL; probably erroneous, interchanged with the vernacular name for *Hoplias malabaricus*), yarrow (REGAN, PRICE).

15. **Gasteropelecus sternicla** (Linnaeus)

Clupea sternicla LINNAEUS, 1758, Syst. Nat., ed. 10, p. 319 (Surinam).

Thoracothorax maculatus, PRICE, 1955, p. 10 (Trinidad; only in two streams in Cedros).

Thoracothorax spec., Price, 1955, pp. 5, 7 (Trinidad; Cedros, in streams flowing into the Serpent's Mouth).

Material: two specimens, "B 1/69" Southern Main Road, 20 August 1954, 3.8–5.2 (4.7–6.5) cm (cat. no. 21547).

Fin rays: D 2.9, 2.9; A 3.28, 3.29. Scales in longitudinal series 34, 34; in lateral line 16/17, 18/18. Premaxillary teeth in a single row. Mouth damaged, in both specimens only a single maxillary tooth left. Colour markings distinct and characteristic.

Both examples were identified with *Thoracothorax maculatus* (Steindachner), and thus recorded by PRICE (l.c.). The name *Thoracothorax* appears to be new in ichthyology, and obviously *Thoracocharax* was meant.

The species *Gasteropelecus sternicla* (Linnaeus) is known to occur in the Guianas and in eastern Venezuela (near Upata and El Callao, cf. WEITZMAN, 1954, p. 238), consequently in the part of the mainland opposite Trinidad, while *maculatus* appears to occur only in Panama, Colombia, and the Venezuelan Maracaibo Basin (SCHULTZ, 1944a, p. 275; FRASER-BRUNNER, 1950, p. 962; WEITZMAN, l.c.). The present identification agrees with the known distribution of the species and is, moreover, decisively confirmed by the remains of the colour markings in the material available. A comparison with the British Guiana subspecies *morae* HOEDEMAN (1952, p. 11; type seen by present author) can be omitted, since the discriminating characters are not convincing and apparently insufficient for establishment of a separate subspecies. They even differ in that author's description and accompanying table, though he appears to have examined only a single example.

On Trinidad the present species was found only in the S.W. of the island, in the part opposite the delta of the Orinoco River, in streams which "flow into the Serpent's Mouth where the water may become fresh during flooding of the Orinoco" (PRICE, p. 5). On the mainland, it seems to occur southward as far as Brazil and Peru.

Vernacular name: silver hatchet fish (PRICE).

Family **Gymnotidae**

16. **Gymnotus carapo** Linnaeus

Gymnotus carapo LINNAEUS, 1758, Syst. Nat., ed. 10, p. 246 (America).
Carapus fasciatus, GÜNTHER, 1870, p. 9 (Trinidad); REGAN, 1906a, p. 386 (Trinidad; Bejucal swamp, Cumuto).

Giton fasciatus, EIGENMANN & WARD, 1905, pp. 159, 177, 179, pl. 10 fig. 15 (Trinidad; references, distribution).

Gymnotus carapo, ELLIS, 1913, pp. 117, 157, figs. 2, 19–22, 29; pls. 15, 16, 20 (Trinidad); FOWLER, 1915b, p. 531 (Trinidad; reference to Regan); FOWLER, 1943, p. 65, fig. 4 (Trinidad); PRICE, 1955, p. 13 (Trinidad; probably distributed in muddy stagnant water throughout region south of Northern Range).

Material: one specimen, "C 1/7" Caroni Road, 4 June 1954, 22.3 cm (tail mutilated) (cat. no. 21531).

This species occurs rather frequently on the mainland, in the large area between Guatemala and the Rio la Plata, east of the Andes. The first record from Trinidad was apparently by VERTEUIL and LÉOTAUD (1858, pp. 389, 390, 391), who provided the information that the cutlass fish was "found in ponds and ravines", "inhabits muddy ravines", and was caught "in isolated pools formed by the partial drying up of ravines".

Vernacular names: cutlass fish (VERTEUIL, LÉOTAUD, REGAN, FOWLER, PRICE), coutelas (LÉOTAUD), tiger knife fish (PRICE).

Family **Ariidae**

17. **Arius spixii** (Agassiz)

Pimelodus spixii AGASSIZ, 1829, Selecta Gen. et Spec. Pisc. Bras., p. 19 (Equatorial Brazil).

Arius laticeps GÜNTHER, 1864, p. 171, 2 figs. (Trinidad).

Tachisurus spixii, EIGENMANN & EIGENMANN, 1890, p. 88 (Trinidad, in reference); FOWLER, 1915b, p. 529 (Trinidad; references).

Arius spixii, REGAN, 1906a, p. 386 (Trinidad; mouth of Caroni River); SCHULTZ, 1944, p. 184 (Trinidad, in reference); VAN DER STIGCHEL, 1946, 1947, p. 36 (Trinidad; references); PRICE, 1955, p. 13 (Trinidad; some larger rivers, such as Caroni).

Material: one specimen, Caroni River at Bamboo Grove, 7 August 1954, 11.7(14.9) cm (cat. no. 21526).

Essentially, this is not a fresh-water species, though it frequently ventures upstream into completely fresh water. On the mainland it has been reported from Brazil, the Guianas, and Venezuela.

Vernacular name: silver catfish (PRICE).

18. **Selenaspis herzbergii** (Bloch)

Silurus herzbergii BLOCH, 1794, Naturgesch. ausl. Fische *8*, p. 33, pl. 367 (Surinam).
Arius herzbergii, REGAN, 1906a, p. 386 (Trinidad).
Selenaspis herzbergii, FOWLER, 1915b, p. 529 (Trinidad; reference to Regan); SCHULTZ, 1944, p. 184 (Trinidad, in reference); VAN DER STIGCHEL, 1946, 1947, p. 28 (Trinidad, in references); PRICE, 1955, p. 14 (Trinidad; habitat as in *Arius spixii*).
Tachysurus herzbergii, FOWLER, 1931, p. 394 (Trinidad; Brighton Pier, mouth of Godineau River about 8 miles from Brighton, Brighton Beach).
Selenaspis dowii, VAN DER STIGCHEL, 1946, 1947, p. 30 (Trinidad; not references).

Material: two specimens, 3 miles along South Trunk Road, 5 June 1954, 7.5–9.5 (9.3–12.0) cm (cat. no. 21533). Additional: one specimen, anchorage, Trinidad, 1903 or 1904, coll. P. Buitendijk, 36.0 (42.0) cm (cat. no. 8416).

Like the previous species, the present form is not restricted to fresh water, as is shown by the specimen collected at an anchorage, probably off Port-of-Spain. It also inhabits about the same area as *Arius spixii*.

Vernacular name: silver catfish (PRICE).

Family **Pimelodidae**

19. **Rhamdia sebae** (Valenciennes)

Pimelodus sebae VALENCIENNES, 1840, p. 125 (169) (Surinam, Cayenne, Rio de Janeiro, Buenos Aires, La Plata; not Guayaquil).
Pimelotus vilsoni GILL, 1858, p. 391 (Trinidad).
Pimelodus wilsoni, GÜNTHER, 1864, p. 122 (Trinidad; copied after Gill); REGAN, 1906a, p. 378 (reference to Gill).
Rhamdia sebae kneri, EIGENMANN & EIGENMANN, 1890, p. 126 (Trinidad, in reference); GÜNTERT, 1942, p. 32 (Trinidad; upper Nariva River).
Pimelodus (*Rhamdia*) *wilsoni*, REGAN, 1906a, p. 386 (Trinidad; plentiful all over the island).
Rhamdia vilsoni, EIGENMANN, 1910, p. 385 (Trinidad); FOWLER, 1915, p. 209 (Trinidad); FOWLER, 1915b, p. 529 (Trinidad; references); GOSLINE, 1945, p. 36 (Trinidad).
Rhamdia sebae, GÜNTERT, 1942, p. 31 (Trinidad; upper Nariva River).
Rhamdia quelen, VAN DER STIGCHEL, 1946, 1947, p. 48, table 1 (partly?; Trinidad, in references).
Pimelodella gracilis, PRICE, 1955, p. 14 (Trinidad; stagnant muddy waters south of Northern Range).
Pimelodus spec., *Rhamdia* spec., GUPPY, 1934, p. 122 (Trinidad).

Material: two specimens, 8¾ miles along Talparo Road, 9 June 1954, 9.2–12.0 (11.9–15.5) cm (cat. no. 21549).

The maxillary barbels reach to the end of the adipose fin; gill rakers 2.1.6(or 5); occipital process does not reach dorsal plate; pectoral spines serrated along both margins; head less than 4 in standard length; upper jaw extending slightly beyond lower jaw.

In his key, SCHULTZ (1944, pp. 194, 195) records 4.8 gill rakers in *Rhamdia quelen* (Quoy & Gaimard), and 5.14 in the present species, while in his description 4.8 and 4.10 gill rakers are recorded for *sebae*. The rest of his description closely agrees with the present specimens.

There is also a close resemblance to *Pimelodus wilsoni* (Gill), as described by REGAN (l.c.), a species probably identical with *sebae* or, if *sebae* = *quelen* (cf. VAN DER STIGCHEL, l.c.), with *quelen* Quoy & Gaimard. The principal difference, viz., the relative length of the jaws, may be due to some variation and deformation of the specimens examined by GILL and REGAN.

Both the present specimens were identified as *Pimelodella gracilis* (Valenciennes), probably by PRICE (see Price, l.c.), and evidently erroneously, since the occipital process does not reach the dorsal plate. Moreover, the two records of *gracilis* from the northern part of South America (Orinoco, Rupununi) both need confirmation, as all the further (and numerous) localities mentioned in the literature (cf. VAN DER STIGCHEL, 1946, 1947, p. 55) are restricted to southern Brazil, Bolivia, Paraguay, and northern Argentina. *Pimelodella gracilis* is therefore presumed not to occur on Trinidad.

The present species was reported from Trinidad for the first time by VERTEUIL and LÉOTAUD (1858, pp. 100, 389, 390) as "*Mysus*" or "*Mystus*", while GÜNTERT (l.c.) seems to have been the first to apply the right name. It has also been reported from a considerable part of the South American mainland, from the Rio Magdalena to Rio de Janeiro, and beyond.

Vernacular names: barbe(l) (VERTEUIL, LÉOTAUD, GILL), (common) catfish (LÉOTAUD, GILL), machoiran (LÉOTAUD), river catfish (PRICE).

20. **Rhamdia quelen** (Quoy & Gaimard)

Pimelodus quelen QUOY & GAIMARD, 1824, Voyage Uranie, Zool., p. 228, pl. 49 figs. 3, 4 (Montevideo).

Rhamdia queleni, NORMAN, 1926, p. 325, fig. 2 (comparison with *Caecorhamdia urichi* n.sp., from Trinidad).

Rhamdia quelen, HUBBS, 1938, pp. 264, 267 (ancestor of *Caecorhamdia urichi* from Trinidad); VAN DER STIGCHEL, 1946, 1947, p. 48 (partly?; Trinidad, in references).

Pimelodella chagresi, PRICE, 1955, p. 14 (Trinidad; similar in distribution to previous species).

Material: one specimen, St. Joseph River, (?) 4 June 1954, 21.5 (27.0) cm (cat. no. 21520).

The maxillary barbels reach to halfway down the adipose fin; gill rakers approximately 2.1.8; occipital process not reaching dorsal plate; pectoral spines serrated along posterior and distal anterior margins; head slightly more than 4, depth 5.25 in standard length; interorbital width 2.8 in head.

The present identification is in complete accordance with SCHULTZ's key (1944, p. 194). As stated before, in the remarks pertaining to the previous species, both *Rhamdia sebae* and *Pimelodus vilsoni* were considered identical with *quelen* by VAN DER STIGCHEL (l.c.) — an opinion not yet shared by any other authors.

The existence of a dark lateral line in *sebae* (PRICE, 1955, p. 26; "*Pimelodella gracilis*"), a character used by PRICE for discriminating between *sebae* and *quelen* ("*Pimelodella chagresi*"), seems of little importance, since it is known to be merely a juvenile character (SCHULTZ, 1944, p. 196).

The present specimen was identified as *Pimelodella chagresi* (Steindachner), and thus recorded by PRICE (l.c.). This is an obvious misidentification as, for instance, the dorsal plate is distinctly separated from the occipital process; moreover, *chagresi* has apparently never been reported from any locality east of the Maracaibo Basin, and consequently cannot be expected to occur on Trinidad.

Rhamdia quelen is known to occur in a considerable part of the South American mainland, southward to the Rio la Plata, and was probably also referred to by VERTEUIL and LÉOTAUD (1858, pp. 100, 389, 390), with the names "*Mysus*" and "*Mystus*".

Vernacular names: as previous species.

21. **Caecorhamdia urichi** Norman

Caecorhamdia urichi NORMAN, 1926, p. 325, fig. 1 (Trinidad; Guacharo Cave); GUPPY, 1934, p. 117 (Trinidad, after Norman); HUBBS, 1938, p. 267 (Trinidad; derivation of *urichi*); GOSLINE, 1941, p. 84 (Trinidad; reference); GOSLINE, 1945, p. 40 (Trinidad; reference).
Caecorhamdella urichi, HUBBS, 1938, p. 264 (Trinidad).

No material of the present species was received from Trinidad. According to the literature, it appears to closely resemble *Rhamdia quelen*, differing principally in the degeneration of the eyes, and a derivation from the latter species seems likely.

NORMAN's specimens seem to be the only examples recorded, hence the distribution of the species appears to be restricted, and its occurrence rare.

Vernacular name: blind catfish (GUPPY).

Family **Auchenipteridae**

22. **Trachycorystes galeatus** (Linnaeus)

Silurus galeatus LINNAEUS, 1766, Syst. Nat., ed. 12, *1*, p. 503 (based on Seba, Locupl. rer. nat. thes. acc. descr. . . . *3*, pl. 29 fig. 7, 1758).
Parauchenipterus paseae REGAN, 1906a, p. 387, not pl. 23 (Trinidad; Caroni River, pool near Frederick Estate, uncommon).
Pseudauchenipterus guppyi REGAN, 1906a, pl. 24, not p. 387 (Trinidad, as in previous reference).
Pseudauchenipterus paseae, EIGENMANN, 1910, p. 396 (Trinidad); Gosline, 1945, p. 14 (Trinidad; reference to Regan).
Trachycorystes galeatus, FOWLER, 1915b, p. 529 (Trinidad; reference to Regan); VAN DER STIGCHEL, 1946, 1947, p. 99 (Trinidad, in reference).
Pseudauchenipterus nodosus, VAN DER STIGCHEL, 1946, 1947, p. 101 (references to *Parauchenipterus paseae* Regan, 1906, p. 387, and to *Pseudauchenipterus guppyi* Regan, 1906, pl. 24, both erroneously included).

Of this species, no specimens were received from Trinidad. It has been omitted in PRICE's report (1955), although it was previously recorded from the island by REGAN (l.c.) as *Parauchenipterus paseae*, and figured by the same author as *Pseudauchenipterus guppyi*.

Some difficulties concerning REGAN's species *paseae* and *guppyi* were caused by the fact that in his paper the coloured figures of the two species, though not the legends, were interchanged. This had

already been observed by FOWLER (1911, p. 434; 1915b, p. 529) and by TREWAVAS (personal communication). Nevertheless, VAN DER STIGCHEL (l.c.) rather strangely put both REGAN's species in the synonymy of *Pseudauchenipterus nodosus* (Bloch), obviously without looking at the very accurate plates or seriously reading the equally accurate descriptions.

The present species is known to occur on the mainland over a large area, from the Orinoco and Peru to the Rio São Francisco (E. Brazil).

Vernacular name: grouper cat-fish (REGAN).

23. **Pseudauchenipterus nodosus** (Bloch)

Silurus nodosus BLOCH, 1794, Naturgesch. ausl. Fische *8*, p. 35, pl. 368 fig. 1 (Tranquebar, erroneous locality).

Pseudauchenipterus guppyi REGAN, 1906a, p. 387, not pl. 24 (Trinidad; Caroni River, especially near outlets of small rivulets); EIGENMANN, 1910, p. 396 (Trinidad); GOSLINE, 1945, p. 14 (Trinidad; references).

Parauchenipterus paseae REGAN, 1906a, pl. 23, not p. 387 (Trinidad; Caroni River).

Pseudauchenipterus nodosus, EIGENMANN, 1912, p. 201, pl. 20 fig. 2 (Trinidad, in references); FOWLER, 1915b, p. 529 (Trinidad; reference to Regan); SCHULTZ, 1944, p. 239 (synonymy); VAN DER STIGCHEL, 1946, 1947, p. 101 (Trinidad, in references, though partly erroneous); PRICE, 1955, p. 14 (Trinidad; Caroni River near Piarco).

No specimens of the present species were received from Trinidad, where it has apparently been reported only from the Caroni River. On the mainland it is widespread, occurring from Bahia and the Guianas to Peru.

Some difficulties were caused by an interchange of plates by REGAN (l.c.); for details and for the erroneous references by VAN DER STIGCHEL (l.c.) reference is made to the discussion of the previous species.

Vernacular name: yellow catfish (REGAN, PRICE).

Family **Pygidiidae**

24. **Haemomaster venezuelae** Myers

Haemomaster venezuelae MYERS, 1927, Bull. Mus. Comp. Zool. Harvard, *68*, p. 131 (Venezuela; Playa Matepalma, Santa Barbara, Playa Tama-Tama, Bifurcation, Orinoco); PRICE, 1955, p. 15 (Trinidad; Matelot River).
Haemomaster spec., PRICE, 1955, p. 5 (Trinidad; north coast streams).

Of this species no material from Trinidad was received, and confirmation of the only record from there seems desirable. According to the original record, *Haemomaster venezuelae* occurs only in the upper reaches of the Orinoco, while PRICE reports it only from northern Trinidad and Tobago. The apparently widely discontinuous distribution is easily explained by PRICE (p. 5) by considering the species to be "probably euryhaline"; but this is hardly likely in the present species. As PRICE seems to have made a few further errors in his identifications of catfishes, it seems advisable to take the present record with some reserve.

Vernacular name: none given in literature.

Family **Callichthyidae**

25. **Callichthys callichthys** (Linnaeus)

Silurus callichthys LINNAEUS, 1758, Syst. Nat., ed. 10, p. 307 (American rivers).
Callichthys kneri GILL, 1858, p. 394 (Trinidad); REGAN, 1906a, pp. 378, 388 (Trinidad; Bejucal Swamp, all over island); EIGENMANN, 1910, p. 402, note (Trinidad; reference to Regan); GÜNTERT, 1942, p. 39 (Trinidad; Moruga).
Callichthys tamoata, BLEEKER, 1864, p. 22 (Trinidad, in reference).
Callichthys knerii, GÜNTHER, 1864, p. 227 (Trinidad; copied after Gill); LÜTKEN, 1874, p. 214 (Trinidad); LÜTKEN, 1875a, p. 26 (Trinidad).
Callichthys callichthys, EIGENMANN & EIGENMANN, 1890, p. 452 (Trinidad; references); EIGENMANN & EIGENMANN, 1891, pp. 12 (footnote), 43 (Trinidad; distribution and synonymy); EIGENMANN, 1910, p. 402 (Trinidad); ELLIS, 1913, p. 386 (Trinidad); FOWLER, 1915b, p. 529 (Trinidad; references); FOWLER, 1931, p. 395 (Trinidad; drain in cocoa field at Sobo); GOSLINE, 1940, p. 6 (Trinidad); EIGENMANN & ALLEN, 1942, p. 170 (Trinidad; references); GOSLINE, 1945, p. 72 (Trinidad); VAN DER STIGCHEL, 1946, 1947, p. 119 (Trinidad, in references); PRICE, 1955, p. 15 (Trinidad; stagnant waters south of Northern Range).
Callichthys spec., GUPPY, 1934, p. 118 (Trinidad; plentiful in rice fields).

Material: two specimens, from a pond 15½ mile along Churchill-Roosevelt Road, 1 June 1954, 7.1–7.9 (9.0–9.9) cm (cat. no. 21537).

This well-known species, which inhabits an area on the mainland reaching from Patagonia to the Guianas and the Peruvian Andes, was apparently first recorded from Trinidad by VERTEUIL (1858, pp. 101, 392) as a rather unsavoury "cat-fish" or "chat".

Vernacular names: cascadura (GILL, GUPPY), flat(–)head(ed) cascadura (REGAN, PRICE), chato, panzerwels (PRICE).

26. **Hoplosternum littorale** (Hancock)

Callichthys littoralis HANCOCK, 1828, Zool. Journ. *4*, p. 244 (Demerara); GÜNTHER 1864, p. 227 (Trinidad); LÜTKEN, 1874, pp. 214, 215 (Trinidad; synonymy); LÜTKEN, 1875a, p. 26 (Trinidad; synonymy); REGAN, 1906a, pp. 378, 388 (Trinidad; in muddy swamps, rivers and ravines with muddy bottoms).

Callichthys laevigatus, VALENCIENNES, 1840, p. 233 (314) (Trinidad).

Hoplosternum laevigatum, GILL, 1858, p. 396 (Trinidad); BLEEKER, 1864, p. 24 (Trinidad, in reference); LÜTKEN, 1874, pp. 214, 215 (Trinidad; synonymy); LÜTKEN, 1875a, p. 26 (Trinidad; synonymy).

Hoplosternum sapidissimum GILL, 1858, p. 401 (Trinidad; alternative name).

Hoplosternum stevardii GILL, 1858, p. 401 (Trinidad); LÜTKEN, 1874, p. 215 (Trinidad; synonymy); LÜTKEN, 1875a, p. 26 (Trinidad; synonymy).

Hoplosternum stevardi, LÜTKEN, 1874, p. 214 (Trinidad; synonymy).

Hoplosternum littorale, EIGENMANN & EIGENMANN, 1890, p. 456 (Trinidad, in references); EIGENMANN & EIGENMANN, 1891, pp. 12, 44 (Trinidad; synonymy); EIGENMANN, 1910, p. 402 (Trinidad); EIGENMANN, 1912, p. 217, pl. 24 fig. 1 (Trinidad, in references); ELLIS, 1913, p. 388 (Trinidad); FOWLER, 1915, p. 229 (Trinidad); FOWLER, 1915b, p. 529 (Trinidad; references); FOWLER, 1931, p. 395 (Trinidad; Nariva Swamp); GOSLINE, 1940, p. 8 (Trinidad); EIGENMANN & ALLEN, 1942, p. 171 (Trinidad); SCHULTZ, 1944, p. 276 (Trinidad, in reference); GOSLINE, 1945, p. 73 (Trinidad; synonymy); VAN DER STIGCHEL, 1946, 1947, p. 122 (Trinidad, in references); PRICE, 1955, pp. 7, 15 (Trinidad; Nariva Swamp, scattered south of Northern Range).

Callichtys thoracatus, REGAN, 1906a, p. 378 (Trinidad; reference to Gill).

Material: one specimen, El Socorro, 4 May 1954, coll. J. S. Kenny, 10.9(14.2) cm (cat. no. 21528).

The present species was reported from Trinidad for the first time by VALENCIENNES (l.c.), though under a wrong name; GÜNTHER (l.c.) was the first to apply the right name and synonymy. It was also referred to as "cascaradura" ("*Callicthys*" or "*Callichthys*") by VERTEUIL and LÉOTAUD (1858, pp. 100, 390, 392), who reported it as being caught in enormous quantities in the ponds in the Grand Savannah, since it is very delicate food. Further on in the same publication, it is stated that "the cascaraduras are found in immense numbers in

nearly all our large ponds, but particularly those in the Caroni savannah, and the marshy parts of Nariva, where even a small ravine bears the name of Cascaradura". PRICE (l.c.) only states that the species is fished commercially in the Nariva Swamp and occurs south of the Northern Range, but does not record an extraordinary abundance at any locality. On the other hand, he gives the impression that it is much less rare than our next species (*Hoplosternum thoracatum*).

The species also inhabits an extensive area on the South American mainland, from opposite Trinidad to the Rio la Plata and the Peruvian Andes.

Vernacular names: cascadura (GILL, GUPPY, PRICE), common cascadura (REGAN), cascaradura, cascadu (PRICE).

27. **Hoplosternum thoracatum** (Valenciennes)

Callichthys thoracatus VALENCIENNES, 1840, p. 230 (309), pl. 443 (Mana, Martinique); GÜNTHER, 1864, p. 228 (Trinidad); REGAN, 1906a, p. 388 (Trinidad; reference to Gill).

Hoplosternum thoracatum, FOWLER, 1915b, p. 530 (Trinidad; references); VAN DER STIGCHEL, 1946, 1947, p. 124 (Trinidad, in references); PRICE, 1955, p. 15 (*"thoraatum"*; Trinidad, not abundant or restricted in distribution).

Hoplosternum thoracatum thoracatum, SCHULTZ, 1944, p. 276 (Trinidad, in reference).

No material of the present species was received from Trinidad. In accordance with remarks by PRICE, this seems to indicate a much less frequent occurrence than that known for the previous species.

The only record based on material from Trinidad was by GÜNTHER (l.c.), who examined a stuffed specimen in the British Museum collections, while subsequent authors have never reported on additional material. In consequence, the occurrence of the species on Trinidad needs confirmation; the identification or the locality provided by GÜNTHER may possibly be wrong.

Having accepted the occurrence of two species of *Hoplosternum*, VERTEUIL and LÉOTAUD (1858) may have confounded the two forms in their references to, and remarks on, "cascaradura".

In the literature on the subject some further references to this species are based on a presumed record from Trinidad of *Hoplosternum longifilis* Valenciennes (= *H. thoracatum* (Valenciennes)) by

GILL ("1858, p. 396" (or "36")), viz.: BLEEKER (1864, p. 27; "*Hoplosternum longifile*"), EIGENMANN & EIGENMANN (1890, p. 458), EIGENMANN (1912, p. 218), and VAN DER STIGCHEL (1946, 1947, p. 124). This clearly illustrates the danger of uncritically copying erroneous references. Nowhere does GILL give a record of *longifilis* from Trinidad; he only mentions this name in an enumeration of the species to be included in his genus *Hoplosternum*. Exactly the same can be said of a presumed record from Trinidad of *Hoplosternum thoracatum*, also by GILL ("1858, p. 396" (or "36")), as referred to by BLEEKER (1864, p. 26) and VAN DER STIGCHEL (1946, 1947, p. 124).

On the South American mainland, the present species is known to range southward to the Amazon basin.

Vernacular names: cascadura, bush-fish (GÜNTHER), spotted cascadura, spotted panzerwels (PRICE).

28. **Corydoras aeneus** (Gill)

Hoplosoma aeneum GILL, 1858, p. 403 (Trinidad; abundant in clear streams); LÜTKEN, 1874, p. 214 (Trinidad, reference to Gill).

Callichthys aeneus, GÜNTHER, 1864, p. 230 (Trinidad, after Gill).

Corydoras aeneus, EIGENMANN & EIGENMANN, 1890, p. 471 (Trinidad; references); EIGENMANN & EIGENMANN, 1891, p. 44 (Trinidad; name only); REGAN, 1906a, pp. 378, 388 (Trinidad); EIGENMANN, 1910, p. 403 (Trinidad); REGAN, 1912, p. 218 (Trinidad); ELLIS, 1913, p. 404 (Trinidad); FOWLER, 1915b, p. 530 (Trinidad; references); FOWLER, 1931, p. 395 (Trinidad; stream near Moruga); GOSLINE, 1940, p. 19 (Trinidad, in references); EIGENMANN & ALLEN, 1942, p. 173 (Trinidad; references); SCHULTZ, 1944, p. 277 (Trinidad, in reference); GOSLINE, 1945, p. 75 (Trinidad; synonymy); FOWLER, 1946, p. 2 (Trinidad; Tumpuna River); PRICE, 1955, pp. 9, 16 (Trinidad; south of Northern Range).

Corydoras spec., GUPPY, 1934, p. 118 (Trinidad; in rice fields).

Material: two specimens, Aripo River, Waller Field, 31 May 1954, 4.8–5.2 (6.4–7.0) cm (cat. no. 21541).

This species is obviously the one referred to by LÉOTAUD (1858, p. 390) as *Callichthys* spec., "a small fish found in clear streams". According to PRICE (l.c.), it is most abundant in the southern part of the island, though its distribution extends to the Northern Range. It is said to inhabit muddy stagnant waters and clear streams all over this area. On the continent, its range seems to extend to São Paulo, the Matto Grosso, Bolivia, and Peru.

Vernacular names: cascadura (GILL), small cascadura (REGAN), pui-pui, goldfish (PRICE).

Family **Loricariidae**

29. **Hypostomus robinii** Valenciennes

Hypostomus robinii VALENCIENNES, 1840, p. 370 (501) (partly; Trinidad, not La Plata); GILL, 1858, p. 406 (Trinidad); GÜNTHER, 1864, p. 236, footnote only (Trinidad; reference to Gill); LÜTKEN, 1874, p. 214 (Trinidad; synonymy); LÜTKEN, 1875a, pp. 26, 27 (Trinidad; synonymy).

Plecostomus bicirrhosus, LÜTKEN, 1874, pp. 214, 216 (Trinidad; synonymy); LÜTKEN, 1875a, p. 27 (Trinidad; synonymy).

Plecostomus robinii, LÜTKEN, 1874, p. 216 (Trinidad); EIGENMANN & EIGENMANN, 1890, p. 412 (partly; Trinidad, references only); EIGENMANN & EIGENMANN, 1891, p. 41 (Trinidad; name only); EIGENMANN, 1910, p. 406 (partly; Trinidad); FOWLER, 1915b, p. 530 (Trinidad; reference to Regan); GOSLINE, 1945, p. 80 (partly; Trinidad); FOWLER, 1946, p. 2 (Trinidad; Maracas River); VAN DER STIGCHEL, 1946, 1947, p. 142 (partly; Trinidad, references only).

Hypostomus plecostomus, LÜTKEN, 1874, p. 214 (Trinidad; synonymy); SCHULTZ, 1944, p. 320 (Trinidad, in reference); PRICE, 1955, pp. 7, 9, 16 (Trinidad; south of Northern Range).

Plecostomus guacari, REGAN, 1904, p. 205 (partly; Trinidad); REGAN, 1906a, pp. 378, 389 (Trinidad); GÜNTERT, 1942, p. 36 (Trinidad; Nariva River, near source).

Plecostomus robini, REGAN, 1904, p. 215 (partly; Trinidad); REGAN, 1906a, p. 389 (Trinidad); INGER, 1949, p. 300 (Trinidad; discussion of synonymy).

Plecostomus plecostomus, EIGENMANN, 1910, p. 403 (partly; Trinidad); EIGENMANN, 1912, p. 223 (Trinidad, in reference); FOWLER, 1915b, p. 530 (Trinidad); MEEK & HILDEBRAND, 1916, p. 247 (Trinidad, in reference); GOSLINE, 1945, p. 77 (partly; Trinidad); VAN DER STIGCHEL, 1946, 1947, p. 134 (Trinidad, in references); INGER, 1949, p. 300 (Trinidad; Brickfield, San Rafael).

Material: one specimen, St. Joseph River, 14 May 1954, 10.0 (14.5) cm (cat. no. 2558). Additional material lent by the British Museum (Natural History), London: one specimen, Trinidad, 22 January 1866, coll. Cutter, 16.8 (23.5) cm (det. Regan, "*Plecostomus guacari*"); one specimen, Trinidad, 23 June 1906, coll. Guppy, 13.6 (18.8) cm (det. Regan, "*Plecostomus guacari*"); eight specimens, Trinidad, Lopinot River, 6 July 1949, coll. Senior-White, 4.7–7.6 (6.2–?) cm ("cf. *Plecostomus robini*"); three specimens, Trinidad, Maracas River, 2 August 1950, coll. Senior-White, 5.1–6.4 (?, caudals mutilated) cm ("cf. *Plecostomus robini*"); one specimen, Trinidad, Maracas River, among rocks, 9 April 1951, coll. Senior-White, 6.3 (8.7) cm ("cf. *Plecostomus robini*").

A close examination of the present, rather extensive, material shows almost complete agreement with our even more extensive material of *Hypostomus plecostomus* (Linnaeus), the only distinct

difference being the much larger number of teeth on each mandibular ramus: about 40–46 in the present species, as against (21)22–28(–30) in our examples of *plecostomus* (33 ex.). It should be emphasized that the jaws and teeth are often damaged, and that stumps or whole teeth are often embedded in the gums — consequently, the real number may differ slightly from those given above; this, however, applies equally to both species.

In the literature on the subject, information on the number of teeth in *H. plecostomus* is scanty: VALENCIENNES (1840, p. 362) records approximately 30, KNER (1854, pp. 263, 264) 16–18 "aufrecht stehenden Zähnen", while GÜNTHER (1864, p. 231) counted 16–26 on each mandible. Only REGAN (1907, p. 112) in a discussion, defends an identification with *H. plecostomus* of specimens from Panama with an average of 40 teeth on each mandible, as recorded by KNER & STEINDACHNER (1866, p. 61). The latter identification, already doubted by GÜNTHER (1868b, p. 477), was afterwards changed to *H. plecostomus panamensis* by EIGENMANN (1922, p. 69), and thus accepted by HILDEBRAND (1938, p. 237). However, it appears that, in the specimens from Panama, the occipital plate is bordered posteriorly by three or more small plates, while in the typical form, as well as in *robinii*, it is bordered by only a single plate. Since this character seems to be constant, *panamensis* should probably be considered a separate species, and can be omitted from further discussion. The specimens of "*plecostomus*" Regan used for comparison apparently came from Trinidad, and consequently belong to the species under consideration; they must be among the present material of *robinii* lent by the British Museum.

Another much slighter but remarkably constant difference between *plecostomus* and *robinii* (and *watwata* Hancock) is found in the relation between the length of the mandibular ramus and the interorbital width, as illustrated in the accompanying figure. Since the comparative material of *H. plecostomus*, though recently reviewed (VAN DER STIGCHEL, 1946, 1947, p. 134), proved to be composite and to contain 18 examples of *H. watwata* Hancock, the same data concerning the latter species are included in the figure. No further species are included, as these can easily be distinguished from *plecostomus* and *robinii* on account of other discriminating characters.

The ratio of mandibular ramus to interorbital width, as given in the figure, more or less differs from these data as provided by previous authors. This is obviously due to the fact that the data

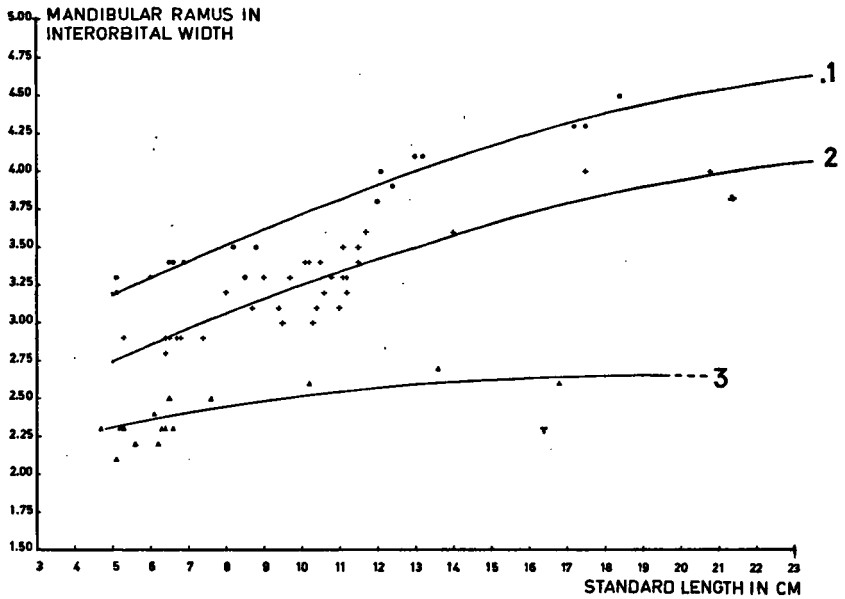

Fig. 37. The relation between the ratio of interorbital width to mandibular ramus and the standard length, in: 1. *Hypostomus watwata* Hancock; 2. *Hypostomus plecostomus* (Linnaeus); and 3. *Hypostomus robinii* Valenciennes (T = type).

vary considerably, in close dependence on the exact place of measurement, the pressure on the callipers used for measuring, and the condition of the specimens. It may again be remarked that all three species were measured in exactly the same way, so that the resulting figures are comparable without reserve. The pressure on the callipers was rather strong, and the measured length of the mandibular rami was the minimum value found.

During a visit to the Muséum National d'Histoire Naturelle in Paris *), the type material of *Hypostomus robinii* could be re-

*) This visit was made possible by a grant generously provided by the "Zoologisch Insulinde Fonds". Though, as intended, most of the time was spent in investigating indo-pacific *Pristidae* and *Carcharhinidae*, some time was available for the present examination.

examined. The principal example, from which the whole original description seems to have been made, is a stuffed specimen labelled "A. 9569. Type de *Hypostomus robinii* C.V., Trinité, Robin", with a standard length of 16.4 cm.

The results of this examination wholly confirmed the previous findings. Although the dentification was damaged, the number of teeth on each mandible could be established as about 45. In addition, as was to be expected, the mandibular rami, having dried and hardened, yielded little to pressure on the callipers, resulting in an apparently longer ramus and, consequently, in a ratio of ramus to interorbital width apparently smaller than was expected. Fortunately, this small aberration (2.3 as against an expected 2.6–2.8) only serves to make the difference in this character between *H. robinii* and *H. plecostomus* still greater (see figure).

The other types, collected near the Rio la Plata, obviously belong to a different species, and, since they were not used for the original description of *robinii*, can be omitted from further consideration. An examination of four additional specimens from Trinidad in the collections of the Paris Museum (Serre, 1920–11–14) also proved confirmative and extended the range of variation in the number of mandibular teeth to 52.

In addition to the number of teeth (about 40–46(–52) on each mandible) and the ratio interorbital width/mandibular ramus (2.1–2.7), some further data can be given regarding *H. robinii*. The number of scutes in the series starting behind the exposed bony upward extension of the pectoral girdle, and excluding the elongate scutes on the caudal base, is 27 (14 ex.) or 28 (1 ex.); the number between first dorsal and adipose fin is 6–7, excluding the small scale covering the base of the "adipose" spine. The snout is ovate in dorsal view, and rather constant in shape; the supraorbital margins are slightly raised, the median occipital ridge distinct though blunt, the temporal plates carinate. Except for the belly, the body is wholly covered with carinate scales, each with several horizontal parallel ridges ending posteriorly in sharp spines. The occipital process is always bordered posteriorly by a single, seldom asymmetrically divided, plate. The belly in larger specimens is almost wholly covered with small scales; with scattered minute scales or

indistinct prickles to almost nude in specimens measuring about 6.3–5.1 cm; and wholly nude in the smallest example of 4.7 cm standard length. Eye from 5.1 (smallest specimen) to 7.9 (largest specimen) in head; depth of caudal peduncle 3.0–3.3 in its length behind anal base. All specimens show numerous small dark spots which are sometimes partly faded, especially on the belly; the spots on the membranes of the first dorsal fin are in one or two rows along the spines, sometimes wholly vague, or only the second row vague.

All further characters seem to agree most closely with the well known *Hypostomus plecostomus* (Linnaeus), and need not be repeated here.

In the course of slightly more than a century, views on the identity of *H. robinii* Valenciennes and *H. robinii* Gill have varied considerably, and some authors even came to the conclusion that more than one form might occur on Trinidad. Consequently it seems worth while to give the following summary of the various authors and their opinions on the subject.

robinii Valenciennes = *robinii* Gill, a separate species: ??EIGENMANN & EIGENMANN, 1890; ?VAN DER STIGCHEL, 1946, 1947.

robinii Valenciennes = *robinii* Gill = *plecostomus* Linnaeus: ?LÜTKEN, 1874, 1875a; INGER, 1949.

robinii Valenciennes ≠ *robinii* Gill; *robinii* Valenciennes a separate species: GÜNTHER, 1864; REGAN, 1904, 1906a; EIGENMANN, 1910; FOWLER, 1915b; GOSLINE, 1945; FOWLER, 1946; ?PRICE, 1955.

robinii Valenciennes ≠ *robinii* Gill; *robinii* Valenciennes belongs to the *commersonii* group: GOSLINE, 1947.

robinii Valenciennes ≠ *robinii* Gill; *robinii* Gill a separate species: GÜNTHER, 1864.

robinii Valenciennes ≠ *robinii* Gill; *robinii* Gill = *plecostomus* Linnaeus: REGAN, 1904, 1906a; EIGENMANN, 1910, 1912; FOWLER, 1915b; MEEK & HILDEBRAND, 1916; GOSLINE, 1945; VAN DER STIGCHEL, 1946, 1947.

robinii not mentioned in references or synonymy: EIGENMANN & EIGENMANN, 1891; GÜNTERT, 1942; SCHULTZ, 1944.

Some short remarks should be added here. REGAN (1906a, p. 378) gives the following synonymy: "*Hypostomus robinii* C. & V. = *Plecostomus guacari*" (=

Hypostomus plecostomus). However, according to his first paragraph, this should read "*Hypostomus robinii* C. & V. cf. Gill = *Plecostomus guacari*". This also agrees with his subsequent enumeration (p. 389). VAN DER STIGCHEL (1946, 1947, p. 135) regards *robinii* Gill as a synonym of *plecostomus* Linnaeus, but further on in the same paper (p. 142) he also refers to it (with some doubt) as synonymous with *robinii* Valenciennes. He also maintains (p. 143) that he compared the original descriptions of both *robinii* Valenciennes and *robinii* Gill and "noticed important differences". If the actual substance of these descriptions, and the variability encountered in Hypostomid species are considered, this is very interesting, but no examples are given. INGER (1949, p. 300) only refers to *robinii* Valenciennes as presumably identical with *plecostomus* Linnaeus, obviously taking it for granted that *robinii* Gill should be synonymous too. He states: "there is no evidence that two populations of *Plecostomus* can be recognized on Trinidad". Finally, it may be noticed that, except for VALENCIENNES and GILL, only the following authors actually examined specimens from Trinidad: LÜTKEN, REGAN, GÜNTERT, FOWLER, INGER, and PRICE.

If the evidence provided by the present material is reconsidered, the following conclusions appear amply justified: a. it seems extremely improbable that more than one *Hypostomus* species should occur on Trinidad; this has already been suggested by several previous authors, from LÜTKEN to INGER. It should be noted that two examples of the present material, though identified by REGAN as *guacari* (= *plecostomus*), also proved to belong to *robinii*; b. the differences from *plecostomus* Linnaeus, as observed in the available material, including the type of *robinii*, seem sufficient for specific discrimination; c. the first to describe a separate species from Trinidad was VALENCIENNES (l.c.), who founded his *Hypostomus robinii* chiefly, if not wholly, on a dried specimen from Trinidad collected by ROBIN, measuring about 8 inches. VALENCIENNES also records some smaller examples from the La Plata basin, but these were obviously of little importance for the composition of his description, and apparently belong to a different species (e.g., one of the *commersonii* group, cf. GOSLINE, 1947, p. 128). It therefore seems safe to consider the present material as belonging to the only *Hypostomus* species occurring on the island, *Hypostomus robinii* Valenciennes.

Until recently, the name *Plecostomus* has been in rather current use for the present genus, though *Hypostomus* was also used occasionally. GOSLINE (1942, p. 41) defended the use of *Plecostomus*, regarding MEUSCHEN (1778, p. 39) as its first valid author. As MEUSCHEN's work has since been officially rejected for nomenclatorial purposes (HEMMING, 1954, pp. 265–280), *Hypostomus* Lacépède must be considered valid.

With regard to the literature cited for the present species, it is necessary to emphasize the fact that most references and synonyms given by previous authors now appear to be erroneous. Furthermore, whenever descriptions are given, they generally only concern *H. plecostomus* (Linnaeus), often mixed up with *H. watwata* Hancock; even when the author had material of *robinii* from Trinidad available, some confusion generally took place, as the separate status of the latter species was not perceived.

The present species is found only on Trinidad. It appears to occur in clear streams (VERTEUIL), and was collected during the recent survey in running or still waters throughout the area south of the Northern Range.

Vernacular names: tata (GILL), anne-marie (VERTEUIL & LÉOTAUD), teta, plecostomus (PRICE).

30. **Ancistrus cirrhosus** (Valenciennes)

Hypostomus cirrhosus VALENCIENNES, 1840, p. 378 (511) (Misiones, Buenos Aires, Rio de Janeiro).

Ancistrus guacharote, GILL, 1858, p. 409 (Trinidad); LÜTKEN, 1874, pp. 214, 216 (Trinidad); LÜTKEN, 1875, p. 234, footnote (Trinidad); REGAN, 1904, p. 238 (?Trinidad; references only); REGAN, 1906, p. 95 (Trinidad; synonymy); REGAN, 1906a, p. 378 (Trinidad, reference to Gill).

Chaetostomus trinitatis GÜNTHER, 1864, p. 246 (Trinidad, after Gill); LÜTKEN, 1874, pp. 214, 216 (Trinidad); LÜTKEN, 1875, p. 234, note (Trinidad); LÜTKEN, 1875a, p. 27 (Trinidad); REGAN, 1906, p. 95 (Trinidad; synonymy).

Hemiancistrus guacharote, EIGENMANN & EIGENMANN, 1890, p. 421 (?Trinidad; reference to Gill only); EIGENMANN & EIGENMANN, 1891, p. 41 (partly; Trinidad).

Hemiancistrus trinitatis, EIGENMANN & EIGENMANN, 1890, p. 421 (Trinidad); EIGENMANN & EIGENMANN, 1891, p. 41 (Trinidad; name only).

Xenocara cirrhosa, REGAN, 1904, p. 256 (Trinidad); GÜNTERT, 1942, p. 36 (Trinidad; Nariva River near source).

Ancistrus trinitatis, REGAN, 1906a, pp. 378, 389 (Trinidad).

Xenocara cirrhosum, REGAN, 1906a, p. 389 (Trinidad).

Ancistrus cirrhosus, EIGENMANN, 1910, p. 411 (Trinidad); EIGENMANN, 1912, p. 238 (Trinidad, in reference); FOWLER, 1915b, p. 530 (Trinidad; reference to Regan); GOSLINE, 1945, p. 95 (Trinidad); VAN DER STIGCHEL, 1946, 1947, p. 159 (Trinidad, in references).

Lasiancistrus guacharote, FOWLER, 1915b, p. 530 (Trinidad; references to Gill and Regan).

Ancistrus maracasae FOWLER, 1946, p. 2, figs. 1–4 (Trinidad; Maracas River).

Ancistrus triradiatus, PRICE, 1955, p. 16 (Trinidad; Caroni and Nariva drainages).

Material: one specimen, Maracas River, 29 June 1954, 8.2 (10.8) cm (cat. no. 21657).

Description: D 1.7; A 1.4. Scutes in longitudinal series 23, between posterior ray of first dorsal and adipose fin 6, behind anal fin 10. Depth at posterior margin of occipital about 5, at dorsal origin 4.6, head 3 in standard length. Head almost as wide as long, the interorbital width almost 2 in its length; eye 6 in head, 3.1 in interorbital width. Snout with a naked margin about as wide as

orbits, with 10 small and irregularly placed tentacles. Mandibular ramus 2.8 in interorbital width. Interopercular spines 10/12, the longest about 4 in head, 2 in interorbital width, 0.66 in eye diameter. First dorsal, laid back, reaching to a small scute on base of "adipose" spine; its first ray 1.4 in head, its length of base equal to distance between posterior ray and middle "adipose" spine. Longest caudal ray shorter than head, the caudal peduncle 2.5 times as long as deep. Few distinct colour markings remain: small dark spots on fins; a very intense small dark spot at base of first interradial membrane of first dorsal fin.

If the rather restricted naked portion of the snout is accepted as an obviously female character, the agreement with previous descriptions seems conclusive, taking into account the remarkable variability of the present species, individually as well as in dependence on size (age) and sex. This variability also seems to have induced previous authors to divide their "species" among such a number of genera.

The following forms have hitherto been distinguished on the basis of material from Trinidad: *guacharote* Gill (not Valenciennes?), afterwards renamed *trinitatis* Günther; *cirrhosa* Valenciennes, cf. REGAN; *maracasae* Fowler; and *triradiatus* Price. Of these, *guacharote* VALENCIENNES (1840, p. 375 (508)) is a species dubia, erroneously reported from Porto Rico, probably not identical with GILL's species. FOWLER's *maracasae* shows some differing characters, none of which, however, are of sufficient importance to justify specific discrimination. Moreover, in Fowler's original description there are some remarkable discrepancies between text and figures (e.g., eye in head 4.25 in text, about 5.4 in figures). PRICE's *triradiatus* is an obvious misnomer, since *triradiatus* Eigenmann has only been recorded from Colombia and western Venezuela (SCHULTZ, 1944, p. 302), and, moreover, differs in various characters.

This species was considered by GILL to be rare on Trinidad, and probably inhabits the same area on the island as the previous species. On the South American continent it ranges southward to the Paraguay River, and beyond.

Vernacular names: tata (GILL), bearded teta (REGAN), peignelle, plecostomus (PRICE).

Family **Anguillidae**

31. **Anguilla rostrata** (LeSueur)

Muraena rostrata LESUEUR, 1817, Journ. Acad. Nat. Sci. Philad., p. 81 (Cayuga Lake, New York).
Anguilla rostrata, PRICE, 1955, p. 17 (Trinidad; Matelot River).

Material: one specimen, Matelot River, 4 May 1954, coll. W. A. King-Webster, 33.0 (33.5) cm (cat. no. 21522).

This species seems to have been reported from Trinidad for the first time by VERTEUIL (1858, p. 391: "common eel (*Anguilla*)"). Subsequent authors ignored this information, and only PRICE (l.c.) recently confirmed its occurrence on Trinidad. The species seems to be rare and has thus far only been recorded from the Matelot River. Its general range extends from southeastern Canada, through the West Indies, to Panama.

Vernacular name: eel (PRICE).

Family **Synbranchidae**

32. **Synbranchus marmoratus** Bloch

Synbranchus marmoratus BLOCH, 1795, Naturgesch. ausl. Fische *9*, p. 87, pl. 418 (Surinam rivers); FOWLER, 1915b, p. 531 (Trinidad; references only); FOWLER, 1931, p. 395 (Trinidad; Belle Vue Dam at Brighton, Vessigny Dam at Brighton, Aripero Dam).
Symbranchus marmoratus, GÜNTHER, 1870, p. 15 (Trinidad); JORDAN & EVERMANN, 1896, p. 342 (Trinidad); REGAN, 1906a, p. 389 (Trinidad); PRICE, 1955, p. 17 (Trinidad; throughout low-lying parts).

Material: one specimen, Fish Farm, Bamboo Grove, Caroni River? [S. Joseph R.], 3 June 1954, 19.3 cm (cat. no. 21539).

The present species was reported from Trinidad as *Synbranchus* (or *Symbranchus*) species by VERTEUIL & LÉOTAUD (1858, pp. 101, 390, 391), together with vernacular names and the record "abundant in ponds and ravines". It is known to occur in a remarkably large area, reaching from Cuba and Mexico to Peru and the Rio la Plata.

Vernacular names: dog-headed eel (VERTEUIL, LÉOTAUD), anguille-tête-chien (LÉOTAUD), eel (REGAN, PRICE), zangie (REGAN), zange (PRICE).

Family **Anablepidae**

33. **Anableps anableps** (Linnaeus)

Cobitis anableps LINNAEUS, 1758, Syst. Nat., ed. 10, p. 303 ("India"); LÉOTAUD, in VERTEUIL, 1858, p. 389 (Trinidad); VERTEUIL, 1858, p. 393 (Trinidad).
Anableps tetrophthalmus, GÜNTHER, 1866, p. 337 (Trinidad); GÜNTHER, 1869, p. ? (Trinidad; not seen).
Anableps anableps, GARMAN, 1895, p. 77 (Trinidad); FOWLER, 1915b, p. 531 (Trinidad, reference to Günther).

Of this species, no material was received from Trinidad. It was omitted in PRICE's survey (1955), though already recorded from the island by previous authors. The first reference from Trinidad was by VERTEUIL & LÉOTAUD (l.c.), who, however, only reported the species from the coastal shallows.

One of GÜNTHER's papers (1869) was not available and consequently could not be consulted. The reference is taken from BASHFORD DEAN (1916, p. 517; "*Strableps*" is evidently a typographical mistake for *Anableps*).

On the South American mainland, the species is known to inhabit a large area, from Pará to Venezuela. As follows from the record by VERTEUIL, it also frequents brackish and salt waters.

Vernacular names: large-eyed fish (Léotaud), gros-yeux (VERTEUIL, LÉOTAUD).

34. **Anableps microlepis** Müller & Troschel

Anableps microlepis MÜLLER & TROSCHEL, 1844, Monatsb. Akad. Wiss. Berlin, pp. 35, 36 (Guiana); FOWLER, 1931, p. 396 (Trinidad; Brighton Beach, Cedros Beach).

Material: one specimen, Moruga Beach, 20 May 1954, 8.2 (10.0) cm (cat. no. 21658).

The principal characters of the single specimen are characteristic for the present species: D 10; A 11; scales in longitudinal series about 84, before dorsal origin 65. Interorbital width 1.2 in diameter of eye. Caudal fin obliquely truncate.

Like the previous species, *A. microlepis* was also omitted from PRICE's survey (1955). The only previous record from Trinidad was apparently given by FOWLER; VERTEUIL & LÉOTAUD (1858, pp. 389,

393) probably based their records on mixed material, containing both species of *Anableps*. On the mainland, *microlepis* occurs over a large area, from Pará to Guiana.

Some previous authors have referred to an original description of the present species in the "Monatsberichte über die Verhandlungen der Gesellschaft für Erdkunde zu Berlin", 1844, p. 36 (e.g., SCHULTZ, 1949, p. 85), but no such description could be found at the place indicated, or elsewhere, in the copy consulted.

Vernacular names: none given in literature; probably as in previous species.

Family **Cyprinodontidae**

35. **Rivulus hartii** (Boulenger)

Haplochilus hartii BOULENGER, 1890, p. 170 (Trinidad).

Rivulus micropus, GÜNTHER, 1866, p. 327 (Trinidad; = not *micropus* Steindachner); GÜNTHER, 1869, p. ? (Trinidad; not seen); EIGENMANN & EIGENMANN, 1891, p. 64 (partly; Trinidad, not Rio Negro; = not *micropus* Steindachner); GARMAN, 1895, p. 136 (partly; Trinidad; = not *micropus* Steindachner); EIGENMANN, 1910, p. 454 (partly; Trinidad, not Rio Negro; = not *micropus* Steindachner); EIGENMANN & ALLEN, 1942, p. 346 (partly; Trinidad, not Rio Negro or Peruvian Amazon; not references).

Haplochilus harti, Regan, 1906a, p. 389, pl. 21 fig. 2 (Trinidad); REGAN, 1907, p. 81, footnote only (Trinidad); GUPPY, 1934, p. 122, pl. 8 (Trinidad; usually in dams; Pitch Lake runnels, Brighton, La Brea).

Aplocheilus harti, EIGENMANN, 1910, p. 454 (Trinidad; reference to Regan).

Rivulus hartii, REGAN, 1912a, p. 501 (Trinidad); FOWLER, 1915b, p. 531 (Trinidad; references); FOWLER, 1931, p. 396 (Trinidad; Pitch Lake at Brighton, drain in golf links at Brighton, stream in cocoa field at Subo, Maraval River); SCHULTZ, 1949, p. 89 (Trinidad; Pitch Lake).

Rivulus harti, JORDAN, 1923, p. 69 (Trinidad; near Pitch Lake and Point Fortin); GUPPY, 1934, pp. 117, 118, 121, figs. 2, 3, 3a (Trinidad; near Northern Hills, Palo Seco, Débé, Penal, Siparia, Laventille, Claxton's Bay); HOEDEMAN, 1958, pp. 113, 114, 122–126, figs. 20–26, tables 3, 5 (Trinidad; Bamboo Grove, Barataria, New la Paille).

Rivulus (Haplochilus) harti, GUPPY, 1934, p. 121 (Trinidad; everywhere).

Rivulus hardi, PRICE, 1955, p. 17 (Trinidad; all over the island, including some rivers of the north coast).

Material: two specimens, Bamboo Grove, Control Pond, near Saint Joseph River, 29 January 1955, coll. P. Wagenaar Hummelinck, 2.7–3.7 (3.5–4.6) cm (cat. no. 20846); one specimen, St. Ann's River, 21 May 1954, 5.7 (6.9) cm (cat. no. 21545).

HOEDEMAN (1958), though he personally examined only six

specimens, nevertheless appears to be certain that at least two populations can be distinguished on Trinidad. Fortunately, his material being too limited and his localities too few, he wisely abstains from giving names. The recorded differences (D 8–9 against 9–10; A 14–15 against 16–17) seem unconvincing, taking into account the insufficiency of his material for establishment of the ranges of variability occurring.

One of GÜNTHER's papers (1869) was not available and could therefore not be consulted. The reference is taken from DEAN (1916, p. 517). Interesting information on the biology of the species is given by REGAN (1906a), JORDAN (1923), GUPPY (1934).

This species appears to occur rather abundantly all over the island. It also occurs on Tobago, Grenada, Margarita, and on the mainland, in the Guianas, Venezuela, and eastern Colombia.

Vernacular names: wabine (BOULENGER), small guabine (REGAN, GUPPY), guapin (JORDAN), leaping fish, leaping guabin (GUPPY), jumping guabine (PRICE).

Family **Poeciliidae**

36. **Poecilia vivipara** Bloch; Schneider

Poecilia vivipara Bloch; SCHNEIDER, 1801, Systema Ichthyologiae, p. 452, pl. 86 fig. 2 (Surinam); FOWLER, 1915b, p. 531, footnote (Leeward Islands, apparently not definitely from Trinidad); FOWLER, 1931, p. 396 (Trinidad; old pitch workings in brackish water at La Brea, tidal pool at La Brea); GUPPY, 1934, pp. 117, 118, 119, 121, 122, figs. 6, 7, 7a, 7b, 7c (Trinidad; Laventille, north bank of Pilot River (Guayaguayare), usually in brackish water, plentiful); PRICE, 1955, p. 17 (Trinidad; all around coast, primarily in brackish water, occasionally in fresh water).

Material: one specimen, El Socorro Road, 30 May 1954, 2.9 (3.8) cm (♀) (cat. no. 21610).

Humeral spot small, further coloration reticulate. A second specimen, previously identified as *P. vivipara* (♂), has been assigned to the next species.

The present species was referred to by VERTEUIL and LÉOTAUD (1858, pp. 389, 390, 391) as "*Poecilia*, a small fish found in rivulets, and even in wells, in Port of Spain", a record indicated to cover two species (*P. vivipara* and *Lebistes recticulatus?*). The species

seems to be abundant in the coastal areas of Trinidad, while it also occurs on the Leeward Islands, and on the mainland from Venezuela to the La Plata system; references exist even from Puerto Rico.

Vernacular names: millions (GUPPY), brackish water millions (GUPPY, PRICE).

37. **Lebistes reticulatus** (Peters)

Poecilia reticulata PETERS, 1859, Monatsb. Akad. Wiss. Berlin, p. 412 (Caracas in Rio Guaire); GARMAN, 1895, p. 62 (Trinidad; copied after Günther); JORDAN & EVERMANN, 1898, p. 2833 (Trinidad; after Günther and Garman).

Girardinus guppii GÜNTHER, 1866, p. 353 (Trinidad); GÜNTHER, 1869, p. ? (Trinidad; not seen); EIGENMANN & EIGENMANN, 1891, p. 65 (Trinidad; name only).

Girardinus guppyi, REGAN, 1906a, p. 390, pl. 22 figs. 1, 1a (Trinidad; "Dry River" at Belmont, near Port-of-Spain).

Acanthophacelus guppii, EIGENMANN, 1910, p. 458 (Trinidad).

Acanthophacelus reticulatus, EIGENMANN, 1912, p. 458, pl. 65 figs. 1–3 (Trinidad, in references).

Lebistes reticulatus, FOWLER, 1915a, p. 261 (Trinidad; San Juan River near San Juan, Blue Basin in Blue Basin Falls); FOWLER, 1915b, p. 531 (Trinidad; Diego Martin Stream); FOWLER, 1931, p. 396 (Trinidad; Pitch Lake at Brighton, Vessigny Dam at Brighton, Aripero Dam, old pitch workings at La Brea, Guapo River, Silverstream about 3 miles from Brighton, mouth of stream at Cedros, stream near Moruga, Maraval River); GUPPY, 1934, pp. 118, 119, 122 (Trinidad; near Northern Hills, Palo Seco, Débé, Penal, Siparia, Erin Dam, Streatham Lodge, Tunapuna, Pitch Lake runnels, Brighton, La Brea; usually in dams); FOWLER, 1943, p. 65 (Trinidad); PRICE, 1955, p. 18 (Trinidad; throughout the island, including some rivers of the north coast).

Material: thirteen specimens, small mountain river on Trinidad, 1904, coll. P. Buitendijk, 1.4–2.8 (?–3.5) cm (4 ♂♂, 9 ♀♀) (cat. no. 8415); two specimens, St. Ann's River, 21 May 1954, 2.0–2.5 (2.6–3.2) cm (1 ♂, 1 ♀) (cat. no. 21555); one specimen, El Socorro Road, 30 May 1954, 2.1 (2.8) cm (♂) (cat. no. 21551).

This is a common species, widely distributed throughout the island. It probably represents the second "*Poecilia*" referred to by VERTEUIL and LÉOTAUD (1858, pp. 389, 390, 391; see also previous species), reported to occur near Port-of-Spain. The present species seems originally to have inhabited a rather small area, approximately covering Venezuela, the Guianas, Trinidad, and Barbados, but it has been introduced for mosquito control into many tropical places in both hemispheres.

One paper by GÜNTHER (1869) was not available, and could therefore not be consulted. The reference is taken from DEAN (1916, p. 517).

Vernacular names: belly(-)fish (REGAN, GUPPY, FOWLER), millions (GUPPY, PRICE), rainbow-fish, guppy-fish (GUPPY), guppy, mosquito fish (PRICE).

38. **Mollienesia sphenops** Valenciennes

Poecilia sphenops VALENCIENNES, 1846, Hist. Nat. Poiss. *18*, p. 98 (130), pl. 526 (Vera Cruz).

Mollienisia sphenops, FOWLER, 1915b, p. 531 (Leeward Islands, apparently not definitely from Trinidad); PRICE, 1955, p. 18 (Trinidad; only in Maraval River, abundant).

Mollienisia spec., PRICE, 1955, p. 7 (Trinidad; Maraval River).

Material: two specimens, Maraval River, 27 July 1954, 4.5–4.9 (5.7–6.2) cm (1 ♂, 1 ♀) (cat. no. 21543).

On Trinidad the present species seems to occur only in the Maraval River, not far from Port-of-Spain. PRICE's supposition (l.c.) that it may have been introduced there by an aquarist seems likely, and is supported in our next paragraph. It occurs in salt, brackish, and fresh water, and has been reported from an extensive coastal area, stretching from southeastern Texas and Sinaloa (Mexico) to Venezuela and the Leeward Islands.

This species or species group, is extremely variable, and the actual status of the various forms previously described is still being discussed. According to HUBBS (1926, p. 77), the following forms may be provisionally regarded as subspecies: *Mollienesia sphenops cuneata* (Garman), occurring from southeastern Texas and Sinaloa to Colombia, and *Mollienesia sphenops vandepolli* (Van Lidth de Jeude), occurring in the Netherlands West Indies and western Venezuela (?; area near Maracaibo, cf. SCHULTZ, 1949, p. 99). Since the specimens from Trinidad show no humeral spot, while the male example lacks a retrorse segment at the end of the posterior branch of the fifth anal ray, both should be regarded as belonging to the subspecies *cuneata* (cf. HUBBS, l.c.), although the membraneous hood appears to be well developed. If SCHULTZ's identification is accepted (see above), this would seem to show that the two forms inhabit strangely discontinuous areas, acceptable only if we take the species as having been introduced on Trinidad by human intervention, or if we doubt the identification by SCHULTZ.

Some controversy also exists concerning the generic name. The

present name, *Mollienesia* (not *Mollienisia*), has been accepted in accordance with BAILEY & MILLER (1950, p. 318).

Vernacular name: liberty molly (PRICE).

Family **Syngnathidae**

39. **Oostethus lineatus** (Kaup)

Doryichthys lineatus KAUP, 1856, Cat. Lophobr. Fish Coll. Brit. Mus., p. 59 (Bahia, Vera Cruz, Mexico, Guadeloupe); REGAN, 1906a, p. 391 (Trinidad); FOWLER, 1915, p. 531 (Trinidad; reference to Regan).
Doryrhamphus lineatus, EIGENMANN, 1912, p. 463 (Trinidad, in reference).

No specimens of the present species were received from Trinidad. The only original record seems to have been by REGAN (l.c.), who, since he does not mention the possession of any material from Trinidad, may have based it entirely on information received from GUPPY.

The species appears to be chiefly an inhabitant of brackish water, though it also ventures into purely fresh and probably into salt water. It occurs all along the tropical Atlantic coasts of America, and has been reported from several Caribbean islands. It seems to be fairly common.

Vernacular name: none given in literature.

40. **Pseudophallus mindii** (Meek & Hildebrand)

Syngnathus mindii MEEK & HILDEBRAND, 1923, Publ. Field Mus. Nat. Hist. (zool.) *15*, p. 261, pl. 18 fig. 2 (brackish creek at Mindi, Canal Zone).

No material of this species was received from Trinidad. It has not yet been reported from the island, but, in view of its known distribution, will presumably be found there some day, occurring in the same habitat as the previous species. It appears to be rather scarce, and has hitherto been reported only from the following localities: Mindi (Canal Zone), Virgin Islands, Jamaica, Santa Cruz (?, southeastern Brazil?; Thayer Expedition) (all cf. HERALD, 1942, p. 132), and the Ríos Sanchón and Cumboto in Venezuela (cf.

SCHULTZ, 1949, p. 101). The total number of specimens recorded by these authors amounts only to eleven.

The present species can easily be distinguished from the previous one by its lack of an anal fin.

Vernacular name: none given in literature.

Family **Mugilidae**

41. **Agonostomus monticola** (Bancroft)

Mugil monticola BANCROFT, 1836, Cuvier's Animal Kingdom (ed. Griffith), p. 367, pl. 36 (Jamaica).

Agonostomus monticola, REGAN, 1906a, p. 391 (Trinidad); REGAN, 1907, p. 66, fig. (a) (Trinidad, in discussion); EIGENMANN, 1910, p. 463 (Trinidad); EIGENMANN, 1912, p. 463, footnote (Trinidad); FOWLER, 1915b, p. 532 (Trinidad; reference to Regan); BEEBE & TEE-VAN, 1928, pp. 91, 277, fig. (presumed synonymy of *percoides* Günther); GUPPY, 1934, p. 117, with footnote (Trinidad); FOWLER, 1946, p. 5 (Trinidad; Maracas River); PRICE, 1955, p. 18 (Trinidad; only in streams draining Northern Range).

Agonostomus spec., Price, 1955, pp. 7, 9 (Trinidad).

Material: one specimen, La Horquette River, 21 July 1954, 10.3 (12.9) cm (cat. no. 21527).

Though not specifically determined, mullets had already been recorded from fresh water on Trinidad by MARTIN (1834, p. 233), while VERTEUIL and LÉOTAUD (1858, pp. 101, 398, 392) report the occurrence of three species, "lebranche, large and common mullet", from the sea-shore, the mouths of rivers, estuaries and small creeks; the latter authors, however, omitted to indicate the exact habitat of each separate species. GUPPY (1934, p. 118) records the occurrence of "*Mugilidae*" in small tidal pools cut off from the sea.

The few definite locality data pertaining only to the present species, indicate a habitat (generally?) restricted to rivers and streams, and apparently only those draining the Northern Range. The total distribution seems to cover the major part of tropical Atlantic America, including several West Indian islands.

Vernacular names: mountain mullet (PRICE); see also VERTEUIL and LÉOTAUD (as quoted above).

42. **Agonostomus percoides** Günther

Agonostoma percoides GÜNTHER, 1861, p. 464 (fresh water, San Domingo, Jamaica?; partly, cf. REGAN, 1907, p. 69).
Agonostomus percoides, REGAN, 1907, p. 69 (Trinidad); EIGENMANN, 1910, p. 463 (Trinidad); FOWLER, 1915b, p. 532 (Trinidad; reference to Regan); GUPPY, 1934, p. 117, with footnote (Trinidad?, not yet confirmed).

No material of this species was received from Trinidad. It appears to be rare on the island, and only REGAN seems to have examined and recorded actual material (two specimens) from that locality. It was apparently not found during the recent survey, and is not mentioned in PRICE's report (1955).

The present species has hitherto rarely been reported, and from only a few West Indian islands. Some authors (BEEBE & TEE-VAN, 1928, pp. 91, 277; GUPPY, l.c., referring to BEEBE & TEE-VAN) presumed that *percoides* might very well prove to be the same as *monticola* Bancroft, but this opinion still needs confirmation. According to REGAN (l.c.), the two species distinctly differ in the length of the maxillaries, which in *monticola* never extend beyond one-third of eye, and in *percoides* to below middle of eye, but these differences appear to be valid in adults only.

Vernacular name: none given in literature.

43. **Agonostomus microps** Günther

Agonostoma microps GÜNTHER, 1861, p. 462 (probably West Indies).
Agonostomus microps, GUPPY, 1934, p. 117 (Trinidad?, not yet confirmed).

No material of this species was received from Trinidad. It has hitherto been reported from various West Indian islands, e.g., Dominica, St. Vincent, Haiti, and from Venezuela (cf., REGAN, 1907, p. 69), and, like all the other members of the genus, inhabits fresh water.

There seems to be no definite record from Trinidad. GUPPY (l.c.) indicates that this remark "said to occur in Trinidad or neighbouring islands" is quoted from REGAN, but this information could not be found in the only publication by REGAN to which he refers (REGAN, 1906a), nor in any other publication by REGAN consulted in connection with the present paper.

However, in view of the known distribution of the species, there appear to be no reasons for doubting an occurrence on Trinidad.

Vernacular name: none given in literature.

44. **Mugil cephalus** Linnaeus

Mugil cephalus LINNAEUS, 1758, Syst. Nat., ed. 10, p. 316 (European ocean); REGAN, 1906a, p. 381 (Trinidad?; expected to occur there).

Of this species, no specimens were received from Trinidad. It is known to occur along the shores of nearly all warm seas, and to invade fresh water occasionally, though essentially marine. Along the Atlantic coast of America, it ranges from Cape Cod to Brazil, making an occurrence on Trinidad, as suggested by REGAN (l.c.), quite possible, if not probable.

Attention may be drawn here to a statement by SCHULTZ (1949, p. 110), in which he reports the existence of possible differences between European and American specimens of *Mugil cephalus*, found during his revisional study of the family. In a concluding remark he consequently professes to "have serious doubt that *M. cephalus* occurs along the east coast of South America or in the West Indies". Unfortunately, this author gave no further information on the nature of the differing characters, or on the alternate name to be used for West Indian specimens, and does not seem to have confirmed his statement in a subsequent paper.

A key including *Mugilidae* likely to occur on Trinidad has been given by REGAN (l.c.).

Vernacular name: none given in literature.

45. **Mugil liza** Valenciennes

Mugil liza VALENCIENNES, 1836, Hist. Nat. Poiss. *11*, p. 61 (83) (Brazil, Porto Rico, Maracaibo, Martinique, Surinam (?), Cayenne, Buenos Aires, Cuba); TREWAVAS, 1950, p. 149 (nomenclature; rejection of the name *brasiliensis* Spix).

Mugil brasiliensis, REGAN, 1906a, pp. 381, 391 (Trinidad); FOWLER, 1915b, p. 532 (Trinidad; reference to Regan); FOWLER, 1931, p. 396 (Trinidad; mouth of Vessigny River, Quaima River at Caroni).

No specimens of this species were received from Trinidad. It is

known to occur in the West Indies, and southward to Brazil, and, like several other members of the genus, to invade fresh water. It probably represents one of the three species referred to by VERTEUIL and LÉOTAUD (1858; see 41. *Agonostomus monticola*).

Vernacular name: lebranche (?, VERTEUIL, LÉOTAUD).

46. **Mugil incilis** Hancock

Mugil incilis HANCOCK, 1830, Quart. Journ. Sci., p. 127 (Guiana); REGAN, 1906a, p. 381 (Trinidad?; expected to occur there).

Of this species, no specimens were received from Trinidad. It occurs in the West Indies and along the American Atlantic coast from Panama to Brazil, frequently entering fresh water. In accordance with REGAN (l.c.), it can be expected to occur on Trinidad, though as yet no definite record from the island is available.

Vernacular name: none given in literature.

47. **Mugil curema** Valenciennes

Mugil curema VALENCIENNES, 1836, Hist. Nat. Poiss. *11*, p. 64 (87) (Brazil, Martinique, Cuba); REGAN, 1906a, p. 381 (Trinidad?; expected to occur there); FOWLER, 1931, p. 397 (Trinidad; tidal basin at La Brea, mouth of Vessigny River at Brighton, mouth of Godineau River about 9 miles from Brighton, mouth of Guapo River, tidal pool at La Brea, La Brea Beach, mouth of stream at Cedros, Erin Beach).

No specimens of this species were received from Trinidad. Judging by FOWLER's data, quoted above, it must occur rather frequently in the brackish river outlets and estuaries of the island. It probably represents one of the species recorded by VERTEUIL and LÉOTAUD (1858; see 41. *Agonostomus monticola*). It is known to occur from Cape Cod to Brazil in Atlantic tropical America.

Vernacular name: large mullet (?, LÉOTAUD).

48. **Mugil trichodon** Poey

Mugil trichodon POEY, 1875, Ann. Lyc. Nat. Hist., New York, *11*, p. 66, pl. 8 figs. 4–8 (Cuba); REGAN, 1906a, pp. 381, 391 (Trinidad); FOWLER, 1915b, p. 532 (Trinidad; reference to Regan).

No material of the present species was received from Trinidad. The only factual record from the island was given by REGAN, who probably got the information from GUPPY, since no mention is made of any material. However, as the species is known to occur from the southern United States to Brazil, frequently invading fresh water, it can certainly be expected also to occur on Trinidad.

Vernacular name: none given in literature.

Family **Centropomidae**

49. **Centropomus undecimalis** (Bloch)

Sciaena undecimalis BLOCH, 1792, Naturgesch. ausl. Fische *6*, p. 60, pl. 303 (Jamaica).

Centropomus undecimalis, LÉOTAUD, in VERTEUIL, 1858, p. 388 (Trinidad); REGAN, 1906a, pp. 381, 391 (Trinidad; Caroni River); FOWLER, 1915b, p. 533 (Trinidad; reference to Regan); FOWLER, 1931, p. 398 (Trinidad; Vessigny Beach, tidal basin La Brea); PRICE, 1955, p. 19 (Trinidad; several coastal streams around periphery of island, Caroni River).

Centropomus spec., VERTEUIL, 1858, p. 392 (Trinidad; also in open sea); PRICE, 1955, pp. 7, 9 (Trinidad; partly?).

Material: one specimen, Cocorite swamp, Diego Martin, 28 May 1954, 9.0 (11.8) cm (cat. no. 21532).

This is a rather common species, occurring throughout Atlantic tropical America in sea, brackish water, and frequently in fresh water, ascending rivers. Being a rather frequent visitor to fresh water, like the other members of the genus, it has to be included in the present enumeration.

The first report from Trinidad, by LÉOTAUD and VERTEUIL (1858, pp. 388, 392), does not record an occurrence in fresh water. GUPPY (1934, p. 118) reports *Centropomidae* from tidal pools.

Vernacular names: pike (LÉOTAUD, VERTEUIL), brochet (LÉOTAUD, PRICE), broche, robalo (REGAN), snook (REGAN, PRICE).

50. **Centropomus ensiferus** Poey

Centropomus ensiferus POEY, 1860, Mem. hist. nat. Cuba *2*, p. 122, pl. 12 fig. 1 (Havana, Cuba); REGAN, 1906a, pp. 381, 391 (Trinidad; Caroni River); REGAN, 1907, p. 52 (Trinidad); FOWLER, 1915b, p. 533 (Trinidad); FOWLER, 1931, p. 398

(Trinidad; Vessigny Beach at Brighton); FOWLER, 1946, p. 5 (Trinidad; Nariva River); PRICE, 1955, p. 19 (Trinidad; several coastal streams around periphery of island, less frequently encountered in fresh water than previous species; see also pp. 7, 9).

Material: one specimen, Madame Espagnole River, 31 May 1954, 14.5 (18.3) cm (cat. no. 21561).

Like the previous species, *ensiferus* occurs all along the Atlantic coasts of tropical America, frequently entering rivers. It appears to be less common than *undecimalis*, especially in fresh water, as reported by PRICE (l.c.).

Vernacular names: broche, robalo (REGAN), snook (REGAN, PRICE), brochet (PRICE).

51. **Centropomus parallelus** Poey

Centropomus parallelus POEY, 1860, Mem. hist. nat. Cuba, *2*, p. 120 (Havana and Cienfuegos, Cuba); REGAN, 1906a, p. 381 (Trinidad?; expected to occur there); FOWLER, 1931, p. 398 (Trinidad; Vessigny Beach at Brighton, tidal pool at La Brea, mouth of river at Oropouche, mouth of Godineau River about 9 miles east of Brighton, mouth of stream at Cedros, Quaima River at Caroni, tidal basin at La Brea).

No material of this species was received from Trinidad.

Though recorded from Trinidad by only a single author, REGAN's reference being only presumptive, the large number of localities clearly indicates a rather frequent occurrence of the species in the brackish areas round the island. The species is known from the Atlantic coasts of tropical America, and has frequently been observed entering rivers. It was not collected during PRICE's survey, nor recorded in his paper (1955).

Vernacular name: none given in literature.

52. **Centropomus pectinatus** Poey

Centropomus pectinatus POEY, 1860, Mem. hist. nat. Cuba *2*, p. 121 (Havana and Cienfuegos, Cuba); REGAN, 1906a, p. 381 (Trinidad?; expected to occur there).

Material: one specimen, Madame Espagnole River, 31 May 1954, 16.0 (21.0) cm (cat. not. 21521).

Like the previous species, the present ranges widely throughout

Atlantic tropical America, occasionally venturing into fresh water. The present appears to be the first definite record from fresh water on Trinidad, which may indicate that it is less common on the island than the other forms.

Vernacular name: none given in literature.

Family **Lutjanidae**

53. **Lutjanus griseus** (Linnaeus)

Labrus griseus LINNAEUS, 1758, Syst. Nat., ed. 10, p. 283 (America, afterwards restricted to Bahamas).

Lutjanus griseus, FOWLER, 1946, p. 6 (Trinidad; Nariva River); PRICE, 1955, p. 19 (Trinidad; Rest House River near Balandra Bay).

Of this species, no material was received from Trinidad. It is known to occur in American Atlantic waters from Massachusetts to Bahía, Brazil, and, though primarily marine, to stray into brackish, occasionally even into fresh water. It is frequently found between mangrove roots, where it feeds on small arboreal crabs. Related forms may equally occur.

Vernacular names: mangrove prague, grey snapper (PRICE).

Family **Gerridae**

54. **Eucinostomus argenteus** Baird & Girard

Eucinostomus argenteus BAIRD & GIRARD, 1854, Smithson. Inst. 9th Rept., p. 345 (Beesley's Point, New Jersey); LONGLEY & HILDEBRAND, 1941, p. 139 (synonymy).

Eucinostomus pseudogula, PRICE, 1955, p. 19 (Trinidad; brackish and adjoining fresh waters along east coast, from Balandra to Guayaguayare).

No material of this species was received from Trinidad. As related forms, often difficult to distinguish from *argenteus*, may also occur on the island, the single record needs confirmation. The species is known to occur along the Atlantic coast of tropical America, occasionally straying northward to North Carolina, and has frequently been reported from fresh water.

Vernacular name: mojarra (PRICE).

Family **Polycentridae**

55. **Polycentrus schomburgkii** Müller & Troschel

Polycentrus schomburgkii MÜLLER & TROSCHEL, 1848, in Schomburgk, Reisen in British-Guiana *3*, p. 622 (Essequibo, British Guiana); REGAN, 1906a, p. 391, pl. 25 fig. 2 (Trinidad; uncommon); EIGENMANN, 1910, p. 466 (Trinidad); FOWLER, 1915b, p. 540 (Trinidad; references); FOWLER, 1931, p. 400 (Trinidad; Pitch Lake at Brighton, Belle Vue Dam at Brighton); GUPPY, 1934, pp. 121, 122, pl. 8 (Trinidad; Streatham Lodge Estate, Pitch Lake runnels at Brighton (La Brea), quite widely distributed); FOWLER, 1943, p. 65, fig. 5 (Trinidad); SCHULTZ, 1949, p. 164 (Trinidad, in references); PRICE, 1955, p. 20 (Trinidad; south of Northern Range, Cedros region).

Polycentrus tricolor GILL, 1858, p. 373 (Trinidad; Tranquil River, Arouca River); EIGENMANN & EIGENMANN, 1891, p. 66 (Trinidad; name only); EIGENMANN, 1910, p. 466 (Trinidad).

Polycentrus schomburgki, EIGENMANN, 1912, p. 522 (Trinidad, in references).

Material: two specimens, 3 miles along South Trunk Road, 5 June 1954, 5.3–5.8 (7.0–7.6) cm (cat. no. 21535).

This is quite a common species in northern South America, and probably also on Trinidad, having been reported frequently from the island. It seems remarkable that Guppy (l.c.), in the same paper, refers to the present species as both "uncommon" (p. 121) and "plentiful" (p. 122), the latter indication being probably right.

This may represent the species referred to as "coscorob" by VERTEUIL (1858, p. 391), but the same vernacular name is also used for some Cichlids (see nos. 57, 58), as correctly indicated by GILL (l.c., p. 369).

Vernacular names: king cascarob, black cascarob (REGAN, FOWLER), king coscorob, black coscorob (GUPPY), king coscarob (PRICE).

Family **Cichlidae**

56. **Crenicichla alta** Eigenmann

Crenicichla alta EIGENMANN, 1912, p. 516, pl. 68 fig. 3 (British Guiana; Gluck Island, Aruataima, Savannah Landing, Tukeit, Amatuk, Erukin, Holmia, Potaro Landing, Rockstone, Twoca Pan, Rupununi, Nickaparu Creek, Konawaruk).

Crenicichla frenata GILL, 1858, p. 386 (Trinidad); EIGENMANN & EIGENMANN, 1891, p. 70 (Trinidad; name only).

Crenicichla saxatilis, REGAN, 1905b, p. 159 (partly; Trinidad); REGAN, 1906a, pp. 378, 391 (Trinidad; most streams and pools); EIGENMANN, 1910, p. 477 (partly; Trinidad); EIGENMANN, 1912, p. 513 (Trinidad; references only); FOWLER, 1915b, p. 540 (Trinidad; references partly); GUPPY, 1934, p. 122 (Trinidad; most streams and pools); FOWLER, 1946, p. 9 (Trinidad; Tumpuna River, La Cruz River, Port-of-Spain market); SCHULTZ, 1949, p. 169 (Trinidad, reference only); PRICE, 1955, p. 19 (Trinidad; Caroni River, Caparo River, northern Oropouche, northern part of Nariva drainage, usually in clear streams). Not EIGENMANN & ALLEN, 1942, p. 404 (erroneous reference to Trinidad).

Crenicichla spec., PRICE, 1955, pp. 5, 9 (Trinidad; Northern Range southward to northern Nariva swamp).

Material: two specimens, Mausica River, 22 June 1954, 6.1–11.0 (7.7–13.7) cm (cat. no. 21656).

The principal characters of the two specimens are as follows: D XIX.14; A III.9. Scales in longitudinal series above lateral line 67, 69; below lateral line 63, 65; in lateral line 24.10 or 11, 1 or 2 on caudal fin. Between last dorsal spine and lateral line $3\frac{1}{2}$ or 4 scales, between both parts of lateral line 2 scales (3 on one side of the small specimen). Head to upper gill cleft 3.35, 3.4; to tip of opercular flap 2.85, 2.9 in standard length, both with lower jaw included.

The colour markings are still distinct: in the larger example a well defined humeral spot with its centre on lateral line and with a downward extension connected with the longitudinal lateral band; in the smaller specimen the spot situated slightly lower, though still reaching beyond lateral line. A second ocellus at upper caudal base. A dark band from snout through eye to caudal base, especially distinct along opercles. Each side of tip of chin darker, with a pale interspace which is especially distinct in the smaller specimen. Vague remains of transverse bands on dorsal half of body and caudal peduncle, confluent with lateral band; in the larger specimen the parts between upper lateral line and longitudinal band darker, forming a series of transverse blotches. Posterior parts of dorsal and anal fins faintly barred, caudal fin barred transversely.

The species of *Crenicichla* occurring on Trinidad has hitherto always been identified with *saxatilis*, but the present specimens obviously differ from that species in the numbers of scales in longitudinal series and in the situation of the humeral ocellus, not to mention several smaller differences. Though it remains possible that saxatilis also occurs on Trinidad, it seems reasonable provisionally

to consider previous references as concerning only the present species, until additional material or information proves otherwises In connection with this, it is interesting to note that Gill (l.c.) records the existence of a black spot on the lateral line, while in *saxatilis* this spot is situated entirely below the lateral line.

In addition to the various localities mentioned by EIGENMANN (l.c.), the present species has been reported from near Caripito, Venezuela (cf. SCHULTZ, 1949, p. 168), thus from the South American mainland just opposite Trinidad, while there are two further examples in the collection of the Leiden Museum which come from Surinam, viz. from the upper reaches of the Gran Rio and (probably) from the Saramacca River.

The first record from Trinidad referring to the present species was apparently by VERTEUIL and LÉOTAUD (1858, pp. 100, 388, 390), who erroneously considered it to belong to the genus *Gerres*.

Vernacular names: pike (VERTEUIL), fresh-water pike (LÉOTAUD), brochet (LÉOTAUD, GILL), mulet (pronounce "mil-lay"; REGAN, GUPPY), matawal, mullet, pike cichlid (PRICE).

57. **Aequidens pulcher** (Gill)

Cychlasoma pulchrum GILL, 1858, p. 382 (Trinidad).

Acara pulchra, GÜNTHER, 1862, p. 280 (Trinidad; reference to Gill only, cf. Pellegrin, l.c.); PELLEGRIN, 1903, p. 176 (Trinidad; partly, cf. Regan, l.c.); REGAN, 1905, p. 335 (Trinidad); REGAN, 1906a, pp. 378, 392, pl. 25 fig. 1 (Trinidad; plentiful everywhere); GUPPY, 1934, pp. 117, 122 (Trinidad; plentiful, usually in dams).

Astronotus pulchra, EIGENMANN & EIGENMANN, 1891, p. 68 (partly; Trinidad).

Aequidens pulcher, EIGENMANN, 1910, p. 472 (Trinidad); FOWLER, 1915a, p. 261 (Trinidad; St. Joseph River near St. Joseph, Blue Basin); FOWLER, 1915b, p. 540 (Trinidad; references only); FOWLER, 1931, p. 401 (Trinidad; swamp at Point Fortin, water hole at Cedros); FOWLER, 1943, p. 65, fig. 6 (Trinidad); FOWLER, 1946, p. 8 (Trinidad; Tumpuna River, La Cruz River, Maracas River, Port-of-Spain market); SCHULTZ, 1949, p. 171 (Trinidad, in reference); PRICE, 1955, p. 20 (Trinidad; from Northern Range streams to Couva and Ortoire Rivers).

Acara (*Aequidens*) *pulchra*, GUPPY, 1934, p. 122 (Trinidad; Caura Valley River, Streatham Lodge, Tunapuna, in drains and water holes, plentiful and well distributed).

Aequidens spec., PRICE, 1955, p. 5 (Trinidad; Northern Range southward to San Fernando region and Nariva swamp to below Charuma).

Material: one specimen, St. Joseph River, 21 May 1954, 8.2 (11.2) cm (cat. no. 21530).

This may (partly?) be the "coscorob" reported from Trinidad by VERTEUIL (1858, p. 391), though that vernacular name has also been used for related species (see nos. 55, 58). On the South American mainland, the present species apparently inhabits a rather restricted area, comprising only Colombia and Venezuela.

Vernacular names: cascarub (GILL), small cascarob (REGAN, FOWLER), small coscorob (GUPPY), small coscarob, blue acara (PRICE).

58. **Cichlasoma bimaculatum** (Linnaeus)

Labrus bimaculatus LINNAEUS, 1758, Syst. Nat., ed. 10, p. 285 (erroneously "M. Mediterraneo").

Chromis taenia BENNETT, 1831, p. 112 ("apud Trinidad"); BENNETT, 1831a, p. 392 ("apud Trinidad"); LESSON, 1831, p. 192 ("près la Trinidad"; after Bennett); STORER, 1846, p. 520 (268) ("Caribbean Sea, Bennett").

Acara taenia, HECKEL, 1840, p. 361 ("Von Trinidad").

Cychlasoma taenia, GILL, 1858, pp. 379, 383 (Trinidad; with critical discussion on exact locality).

Acara bimaculata, GÜNTHER, 1862, p. 276 (Trinidad; type of *taenia* examined).

Astronotus bimaculata, EIGENMANN & EIGENMANN, 1891, p. 68 (Trinidad; synonymy).

Cichlasoma bimaculatum, PELLEGRIN, 1903, p. 204 (Trinidad; type of *taenia* examined); EIGENMANN, 1910, p. 473 (Trinidad); EIGENMANN, 1912, p. 495 (Trinidad, in references); FOWLER, 1915b, p. 540 (Trinidad; references); PRICE, 1955, p. 20 (Trinidad; muddy waters south of Northern Range).

Cichlosoma bimaculatum, REGAN, 1905a, p. 68 (Trinidad); REGAN, 1906a, pp. 378, 392 (Trinidad; plentiful in muddy rivers, ponds and swamps); GUPPY, 1934, pp. 117, 122 (Trinidad; Erin Dam, abundant, usually in dams).

Cichlaurus bimaculatus, EIGENMANN & ALLEN, 1942, p. 395 (Trinidad, in distribution).

Cichlasaurus bimaculatus taenia, FOWLER, 1946, p. 8 (Trinidad; Tumpuna River).

Material: one specimen, ravine, Waller Field, 31 May 1954, 8.0 (10.8) cm (cat. no. 21529).

This is a common species in northern South America, ranging southward to the Paraguay Basin. The short record of the "coscorob" from Trinidad, by VERTEUIL (1858, p. 391), may (partly?) relate to the present species.

As has already been pointed out by GILL (p. 384), the type locality of *taenia* Bennett was sometimes incorrectly quoted by early authors, some of whom evidently regarded it as a marine species. This was apparently caused by the rather ambiguous

original indication "apud Trinidad", apud meaning both at (or in) and near. Though GILL criticized only STORER, LESSON seems to have been the first to publish the wrong interpretation. Accurate quotations of these early localities are given in the above references.

Vernacular names: cascarub (GILL), large cascarob (REGAN), large coscorob (GUPPY), large coscarob, "portalegrensis" (PRICE).

59. **Tilapia mossambica** (Peters)

Chromis (Tilapia) mossambicus PETERS, 1852, Monatsber. Acad. Wiss. Berlin, p. 681 (Mozambique; Tete, Sena, Quelimane, Lumbo, Inhambane, Querimba).
Tilapia mossambica, PRICE, 1955, p. 20 (Trinidad; St. Joseph River).
Tilapia spec., PRICE, 1955, p. 7 (Trinidad).

No material of this species was received from Trinidad. According to PRICE (l.c.), it was imported into the island for fish culture purposes, and subsequently escaped or was introduced into open fresh waters, where it seems to thrive. HUMMELINCK visited the Fish Farm at Bamboo Grove where tilapia was hatched in great numbers and studied by J. S. KENNY.

Vernacular name: tilapia (PRICE).

Family **Eleotridae**

60. **Dormitator maculatus** (Bloch)

Sciaena maculata Bloch, 1792, Naturgesch. ausl. Fische *6*, p. 44, pl. 299 fig. 2 (West Indies).
Eleotris maculata, GÜNTHER, 1861, p. 112 (Trinidad).
Dormitator maculatus, EIGENMANN & FORDICE, 1885, p. 71 (Trinidad, in reference); REGAN, 1906a, p. 392 (Trinidad; muddy pools in Bejucal Swamp); REGAN, 1906 (–1908), p. 8 (Trinidad, locality after Günther); FOWLER, 1915b, p. 542 (Trinidad; references); MEEK & HILDEBRAND, 1916, p. 354 (Trinidad, in reference); PRICE, 1955, p. 21 (Trinidad; brackish water drain near San Juan River).

Material: one specimen, El Socorro Road, 30 May 1954, 6.6 (7.2) cm (cat. no. 21544).

This is a common species, known to occur along the Atlantic coasts of America from North Carolina to Rio de Janeiro, and in the

West Indies, inhabiting stagnant, brackish and fresh water.

Vernacular name: sleeper (PRICE).

61. **Gobiomorus dormitor** Lacépède

Gobiomorus dormitor LACÉPÈDE, 1800, Hist. Nat. Poiss. *2* (or *4*), p. 583 (or 413) (South America (Martinique?), after a drawing by Plumier).
Philypnus dormitator, REGAN, 1906a, p. 392 (Trinidad; Caroni River); REGAN, 1906(–1908), p. 5 (Trinidad).
Philypnus dormitor, FOWLER, 1915b, p. 542 (Trinidad; reference to Regan); PRICE, 1955, pp. 7, 21 (Trinidad; Grande Rivière, Matelot, Tompire, Shark Rivers).
Philypnus spec., PRICE, 1955, p. 9 (Trinidad).

Material: one specimen, Matelot River, 4 May 1954, coll. W. A. King-Webster, 28.5 (36.0) cm (cat. no. 21518).

This species is known to occur along the coast of tropical and temperate America from Texas and southern Florida to Brazil. It is quite common in brackish and fresh-water swamps, and ascends rivers.

Vernacular name: giant goby (PRICE).

62. **Eleotris pisonis** (Gmelin)

Gobius pisonis GMELIN, 1789, Linn. Syst. Nat., ed. 13, p. 1206 (South America).
Eleotris pisonis, REGAN, 1906a, p. 381 (Trinidad?; expected to occur there); GUPPY, 1934, p. 117 (Trinidad); PRICE, 1955, p. 21 (Trinidad; all coastal fresh and brackish water).

Material: one specimen, Mahaut River, 4 August 1954, 8.6 (10.7) cm (cat. no. 21536).

Like the *Eleotridae* previously mentioned, the present species is euryhaline, inhabiting fresh and brackish water and ascending streams. Along the Atlantic coast of America, it is known to occur from Bermuda and South Carolina to Rio de Janeiro.

Vernacular name: none given in literature.

63. **Eleotris amblyopsis** (Cope)

Culius amblyopsis COPE, 1871, Trans. Amer. Philos. Soc. *14*, p. 473 (Surinam).

Of this species, no material was received or previously recorded

from Trinidad. Like the *Eleotridae* mentioned above, it is euryhaline, invading fresh water and ascending rivers. Along the Atlantic coast of America it ranges from South Carolina to Surinam (Dutch Guiana), apparently being quite common in Venezuelan rivers (cf., SCHULTZ, 1949, p. 184). The present species should consequently be expected to occur on Trinidad too, where it may have been confounded with *E. pisonis* (Gmelin). It can easily be distinguished from the latter species by the number of scales in a longitudinal series, viz. 40–48 (in literature), against 54–68 (in literature) for *pisonis*.

Vernacular name: none given in literature.

64. **Guavina guavina** (Valenciennes)

Eleotris guavina VALENCIENNES, 1837, Hist. Nat. Poiss. *12*, p. 168 (223) (Martinique, Surinam?, Cuba?); REGAN, 1906a, p. 381 (Trinidad?; expected to occur there).
Guavina guavina, PRICE, 1955, p. 21 (Trinidad; fresh water at Cedros, brackish water at Cocorite).

Material: one specimen, Cocorite swamp, 28 May 1954, 13.5 (16.5) cm (cat. no. 21523).

The range of this species extends along the American Atlantic coast from somewhere in Mexico, through the West Indies, to Brazil. It is euryhaline, and is frequently taken in brackish ditches and creeks, and in rivers. PRICE (l.c.) gave the first definite record from Trinidad.

Vernacular name: none given in literature.

Family **Gobiidae**

65. **Bathygobius soporator** (Valenciennes)

Gobius soporator VALENCIENNES, 1837, Hist. Nat. Poiss. *12*, p. 42 (56) (Martinique, Havana?); GUPPY, 1934, p. 117 (Trinidad).
Bathygobius soporator, FOWLER, 1931, p. 401 (Trinidad; tide pools at Brighton Beach).

No material of this species was received from Trinidad. It occurs in the western Atlantic area from North Carolina to Santos, Brazil.

It has been subdivided into two subspecies – *catulus* Girard, ranging from North Carolina to Florida and the northern Gulf of Mexico; and *soporator*, ranging in the western Atlantic from the Bahamas and the Florida Keys southward to Santos, and west to Yucatán. The form likely to occur in Trinidad is the nominate subspecies, which appears to be less euryhaline.

Vernacular name: none given in literature.

66. **Lophogobius cyprinoides** (Pallas)

Gobius cyprinoides PALLAS, 1770, Spicil. Zool. *8*, p. 17, pl. 1 fig. 5 (Amboina, erroneous locality).

Lophogobius cyprinoides, WEBER, 1938, p. 205 (Trinidad; in irrigation ditch); PRICE, 1955, p. 22 (Trinidad; brackish water at Cocorite, fresh water at Cedros).

Material: one specimen, Icacos (Point?), 19 August 1954, 4.3 (5.7) cm (cat. no. 21548).

This species is known to range from Bermuda and southern Florida, through the West Indies, south to Trinidad, and west to Panama. It was not reported from Venezuela by SCHULTZ (1949). It is usually found in streams, but often descends to brackish water.

Vernacular name: crested goby (PRICE).

67. **Awaous taiasica** (Lichtenstein)

Gobius taiasica LICHTENSTEIN, 1822, Abhandl. Akad. Wiss. Berlin, p. 273 (Brazil).

Chonophorus banana, REGAN, 1906a, p. 393 (Trinidad); REGAN, 1906(–1908), p. 11 (Trinidad).

Awaous taiasica, FOWLER, 1915b, p. 542 (Trinidad; reference to Regan); PRICE, 1955, p. 22 (Trinidad; several streams scattered about the island).

Material: one specimen, Turure River, 3 June 1954, 15.5 (19.0) cm (cat. no. 21524).

This species occurs in the American Atlantic from Florida to Bahía, Brazil, westward to the southwestern part of the Gulf of Mexico and to Panama; being euryhaline, it seems to have succeeded in crossing the Central American watershed, and was recently reported from El Salvador.

Vernacular name: sandfish (PRICE).

68. **Ctenogobius fasciatus** Gill

Ctenogobius fasciatus GILL, 1858, p. 376 (Trinidad).
Gobius fasciatus, GÜNTHER, 1861, p. 34 (Trinidad, copied after Gill); JORDAN & EIGENMANN, 1886, p. 495 (Trinidad, after Gill); JORDAN & EVERMANN, 1898, p. 2222 (Trinidad, in reference); REGAN, 1906a, p. 392 (Trinidad); EIGENMANN, 1910, p. 481 (Trinidad); FOWLER, 1915b, p. 542 (Trinidad; references); BEEBE & TEE-VAN, 1928, p. 222, fig. (Trinidad).

No specimens of this species were received from Trinidad, where it appears to be rarely found. After the original report by GILL, only REGAN (l.c.) seems to have examined (four) specimens collected on the island. Some further specimens reported upon by JORDAN & EVERMANN, and BEEBE & TEE-VAN, were collected on Haiti. The species was not mentioned by PRICE (1955), and, presumably, was not collected during his survey of the fresh water fishes of Trinidad.

Vernacular name: none given in literature.

69. **Evorthodus lyricus** (Girard)

Gobius lyricus GIRARD, 1858, Proc. Acad. Nat. Sci. Philad. *10*, p. 169 (3) (Brazos Santiago, Texas).
Evorthodus breviceps GILL, 1859, p. 195 (Trinidad; mouth of river near Pitch Lake); GÜNTHER, 1861, p. 85 (Trinidad); JORDAN & EIGENMANN, 1886, p. 486 (Trinidad, after Gill); JORDAN & EVERMANN, 1898, p. 2208 (Trinidad, after Gill); REGAN, 1906a, p. 393 (Trinidad); EIGENMANN, 1910, p. 481 (Trinidad); EIGENMANN, 1912, p. 525 (Trinidad, in references); FOWLER, 1915b, p. 542 (Trinidad; references).
Evorthodus lyricus, GINSBURG, 1931, pp. 117–124 (Trinidad; type seen; synonymy).

Material: one specimen, Moruga Beach, 20 May 1954, 7.0 (9.6) cm (cat. no. 21538).

This species generally inhabits salt or brackish water, occasionally occurring in more or less fresh water. It is regularly found in outlets, but apparently hardly ever ascends rivers. It is known to range at least from Chesapeake Bay, through the West Indies, to Surinam, and westward throughout the Gulf of Mexico.

Vernacular name: none given in literature.

70. **Sicydium punctatum** Perugia

Sicydium punctatum PERUGIA, 1896, Ann. Mus. Civ. Stor. Nat. Genova (2) *16*, p. 18 (Martinique); PRICE, 1955, p. 22 (Trinidad; clear mountain streams).

Material: one specimen, Oropouche River, 10 June 1954, 6.8 (8.4) cm (cat. no. 21660).

Principal characters of the single specimen: D VI.I.10, A I.10. Scales in longitudinal series about 60, 2–3 on caudal base; transverse above vent approximately 22, around caudal peduncle about 24. No scales were observed on head, neck (to above gill slit), breast, and on median portion of belly (except some embedded scales immediately before vent). Head 5.2, height 5.4 in standard length; eye 4 in head, about 1.4 in interorbital width. Maxillary not quite reaching to below posterior border of eye. Upper teeth curved, bilobate or subtruncate; lower jaw with a series of numerous slender horizontal teeth, and an inner series of six widely spaced conical teeth. The third dorsal spine with a filament, measuring twice height of body in all. Distinct dark brown spots on centres of scales of body and caudal peduncle. Small brown spots especially distinct on cheeks and pectoral bases.

Up to the present, only two species of *Sicydium* seem to have been reported from Trinidad, viz., *plumieri* Bloch and *punctatum* Perugia. Further possibilities appear to be the following species, some of which are still of doubtful status, since the variability of the various species, inter alia in connection with age, is apparently still unknown: *vicente* Jordan & Evermann, known (only?) from St. Vincent; *montanus* Hubbs, from a mountain brook at Macuto, Caracas, Venezuela; *caguitae* Evermann & Marsh, from the Rio de Caguitas, Caguas, Porto Rico; *antillarum* Grant, from Barbados; *salvini* Grant, from the Magdalena Basin, Colombia, and from both slopes of Panama; *altum* Meek, apparently only from Costa Rica; and, finally, *gymnogaster* Grant, if the correction (Misantla) of the original locality (Mazatlan) by REGAN (1906–1908, p. 11, note) is correct.

Circumstances being what they are, and the only review of the genus being from 1884 (OGILVIE-GRANT) and completely outdated, it is almost impossible to identify the various species with certainty. In consequence, the identification of the present specimen, though

it shows a reasonably close degree of agreement with the available descriptions of *punctatum*, still has to be taken with some reserve. It was received with the identification "*plumieri*", but it evidently differs from that species in having considerably fewer scales in a longitudinal series, and in the coloration, which seems characteristic of *punctatum*.

An aberrant character seems to be the extent of the naked parts, especially the belly. If only this character and the number of scales in a longitudinal series are taken into consideration, an identification as *gymnogaster* seems justified. But the occurrence of that species on the Atlantic side of the Central American watershed still seems doubtful.

A second specimen received from Trinidad with the identification "*punctatum*" (1 ex., 12 mile along Toco Road, 20 July 1954, 2.45(3.0) cm (cat. no. 21661)) shows the following characters:

D VI.I.10, A I.10. Scales in longitudinal series about 56; naked on head, neck, breast, and belly. Head about 4.5, height about 5.8 in standard length; eye 3.7 in head, 0.6 or 0.7 interorbital width. Maxillary reaching only to below centre of eye; outer series of upper teeth curved, bilobate or subtruncate; lower jaw with an outer series of slender horizontal teeth, and an inner series of 4(?) widely set conical teeth. Dorsal spines without filaments. A brown lateral band runs from pectoral base to caudal base, ending in a slightly more intense spot; vague brownish markings on head, body, and caudal peduncle, lacking only on the ventral parts. The fins have small and widely scattered dots of pigment, with a rather distinct band across pectoral base.

Several of these characters are evidently juvenile only, making identification very difficult. By far the best agreement is found with the description of *Sicydium montanum* Hubbs (1920), which has since been considered to represent the juvenile form of *punctatum* (cf., SCHULTZ, 1949, p. 187). It is therefore likely that the present juvenile specimen should be identified as such.

Sicydium punctatum Perugia was originally reported from Martinique, and was afterwards recorded from Venezuela by SCHULTZ (l.c.). The extent of its distribution still remains unknown.

Vernacular name: none given in literature.

71. **Sicydium plumieri** (Bloch)

Gobius plümieri BLOCH, 1786, Naturgesch. ausl. Fische *2*, p. 154, pl. 178 fig. 3 (Antilles, Martinique(?), after a drawing by Plumier).
Sicydium plumieri, PRICE, 1955, p. 22 (Trinidad; in mountain streams).

Only a single specimen, presumed to belong to this species, was received from Trinidad. However, after close examination, it had to be referred to the previous species, *punctatum* Perugia (see discussion under 70). In consequence, the only record of *plumieri* from Trinidad may be based on a wrong identification.

This species has hitherto been reported from various Caribbean islands (including Cuba, Haiti, Dominica, Porto Rico, Martinique, St. Vincent) as well as from the South American mainland (Venezuela, cf., SCHULTZ, 1949, p. 188). It can therefore be expected almost certainly to occur on Trinidad, even if PRICE's record should prove erroneous.

For an enumeration of further species of *Sicydium* which may possibly be found on Trinidad I refer to the discussion of *S. punctatum* Perugia (no. 70).

Vernacular name: none given in literature.

Family **Achiridae**

72. **Trinectes maculatus fasciatus** (Lacépède)

Achirus fasciatus LACÉPÈDE, 1802, Hist. Nat. Poiss. *4* (or *8*), pp. 659, 662 (or 361, 366) (North America, restricted to Charleston, S.C.).
Achirus fasciatus, FOWLER, 1931, p. 404 (Trinidad; Oropouche River).

Of this species, no specimens were received from Trinidad. It occurs along the shores of North America, ranging southward to the Gulf coast and Panama. It is known to inhabit salt, brackish, and fresh water, the latter habitat being especially frequented by young specimens.

As the present species has apparently never been reported from the South American mainland (cf. SCHULTZ, 1949; EIGENMANN, 1912), the single report from Trinidad may be due to a misidentification. There is a possibility that the closely related species *T.*

paulistanus M. Ribeiro will eventually be found on the island, since it is already known to occur in fresh water in Surinam and British Guiana.

Vernacular name: none given in literature.

73. **Achirus lineatus** (Linnaeus)

Pleuronectes lineatus LINNAEUS, 1758, Syst. Nat., ed. 10, p. 268 (America, Jamaica).
Achirus lineatus, FOWLER, 1915b, p. 542 (Trinidad; marine?); FOWLER, 1931, p. 404 (Trinidad; mouth of Godineau River about 9 miles east of Brighton, mouth of stream at Cedros, Macqueripe Bay (marine)).

No specimens of this species were received from Trinidad. Though some of the localities recorded by FOWLER are brackish, the species is essentially marine, and probably never ventures into purely fresh water. It is known to range from Florida to Uruguay, and is widespread in the Gulf of Mexico, principally inhabiting the coastal waters.

The closely related species *A. achirus* (Linnaeus) is known to occur along the American Atlantic coast from Florida and the Gulf of Mexico to Brazil, and will possibly also be found in Trinidad, in the same habitats, i.e. river outlets or other brackish waters. It can readily be distinguished by having 60 or more rays in the dorsal fin, as against only 49–58 in *lineatus*.

Vernacular name: none given in literature.

Family **Tetraodontidae**

74. **Colomesus psittacus** (Bloch; Schneider)

Tetrodon psittacus Bloch; SCHNEIDER, 1801, Syst. Ichth., pp. 57, 505 (Malabar sea, erroneous locality).
Colomesus psittacus, FOWLER, 1931, p. 405 (Trinidad; Vessigny Beach at Brighton, mouth of Guapo River, off Oropouche, mouth of Godineau River about 9 miles from Brighton, mouth of Vessigny River, tidal streams near San Fernando); PRICE, 1955, p. 22 (Trinidad; l'Ebranche River near Manzanilla, in tributaries).

Material: one specimen, L'Ebranche River, 29 July 1954, 6.0 (7.8) cm (cat. no. 21534).

This small puffer is known from the coastal waters of northern

South America and the West Indies, it ventures far upstream in the various river systems and even reaches the Peruvian Amazon. Though frequently reported from river mouths, it is seldom or never found in salt water.

A few other estuarine species (*Sphaeroides testudineus* (Linnaeus); *Lagocephalus laevigatus* (Linnaeus)) may occasionally occur in fresh water but, being much less euryhaline, are not listed here.

Vernacular name: puffer (PRICE).

FINAL GENERAL REMARKS

As can be concluded from the list of species given in the present paper, a considerable part of the fish fauna under discussion consists of species which are, in a varying degree, euryhaline. Furthermore, at several places around the island, it appears impossible at present to even vaguely define the fresh-water, brackish, and salt-water zones. It even seems necessary to take into account seasonal changes, e.g., the alternation of dry and rainy seasons in the Orinoco basin (PRICE, 1955, p. 5). It appears plausible to assume that at least the superficial layers of the water off the Orinoco estuary remain fresh for a considerable part of the year and, to a variable but also considerable extent, obviously reach the shores of Trinidad.

If these circumstances are taken into account, the decision whether to include or to exclude various species occasionally collected in brackish and fresh water must generally remain more or less arbitrary. On the whole, only species already recorded from fresh water on Trinidad, and those generally reported from more or less brackish water (estuaries) but known to occasionally invade entirely fresh water, have been enumerated. However, a few euryhaline species known to occur in a similar habitat in the same region, though not yet reported from Trinidad, have been included, as they may be expected to occur on the island too.

After exclusion of all more or less euryhaline species (36) and those definitely or possibly introduced by human intervention (2), there remain only 36 genuine fresh-water species. Of these, only 5 appear

to be restricted to the island, the other 31 all inhabit areas including various parts of the South American mainland. This obviously proves that the restricted fresh-water fish fauna came wholly from the neighbouring continent, while the few species restricted to Trinidad are relatively recent modifications of closely related continental forms.

Finally, it is hoped that the present paper, by also including several doubtful cases the presumed occurrence of which on Trinidad still needs confirmation, will stimulate further collecting and research in this interesting area.

List of Localities

The added numbers in brackets refer to the species as enumerated in the previous part of this paper, and reported from each of the listed localities.

Aripero Dam (32, 37).
Aripo River (7, 8, 28).
Aripo Savannah (7).
Arouca River (55).
Balandra (Bay) (53, 54).
Bamboo Grove (17, 32, 35).
Barataria (35).
Bejucal (Swamp, River) (13, 16, 25, 60).
Belle Vue Dam (at Brighton) (32, 55).
Belmont (37).
Blue Basin (Falls) (37, 57).
Brickfield (12, 29).
Brighton (Beach, Pier, environs) (8, 11, 13, 18, 32, 34, 35, 37, 47, 50, 51, 55, 65, 73, 74).
Caparo (River, drainage) (2, 5, 56).
Carapal River (6).
Caroni (River, drainage) (2, 5, 9, 13, 17, 22, 23, 30, 32, 45, 49, 50, 51, 56, 61).
Caroni Road (16).
Caroni Savannah (26).
Cascaradura (ravine) (26).
Caura Valley River (57).
Cedros (Beach) (1, 6, 13, 15, 34, 37, 47, 51, 55, 57, 64, 66, 73).
Charuma (57).
Churchill-Roosevelt Road (east of Port-of-Spain) (2, 25).
Claxton's Bay (north of San Fernando) (35).
Cocal (13).
Cocorite (Swamp) (49, 64, 66).
Control Pond (Bamboo Grove) (35).
Couva River (57).
Cumuto (5, 7, 13, 16).
Cunupia River (Bejucal R.) (11).
Débé (5, 11, 35, 37).
Diego Martin River (Stream) (8, 37).
Dry River (37).
El Quemado (5).
El Socorro (Road) (26, 36, 37, 60).
Erin (Beach, Dam) (6, 37, 47, 58).
Fish Farm (Bamboo Grove) (32).
Frederick Estate (22).
Freeport Todd's Road (3).
Glenside Estate Stream (10).
Grande Rivière (61).
Grand Savannah (26).
Godineau River (near Brighton) (18, 47, 51, 73, 74).
Guacharo Cave (21).
Guapo River (4, 8, 11, 37, 47, 74).
Guayaguayare (36, 54).
Horoga (11).
Icacos (Point) (66).

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