

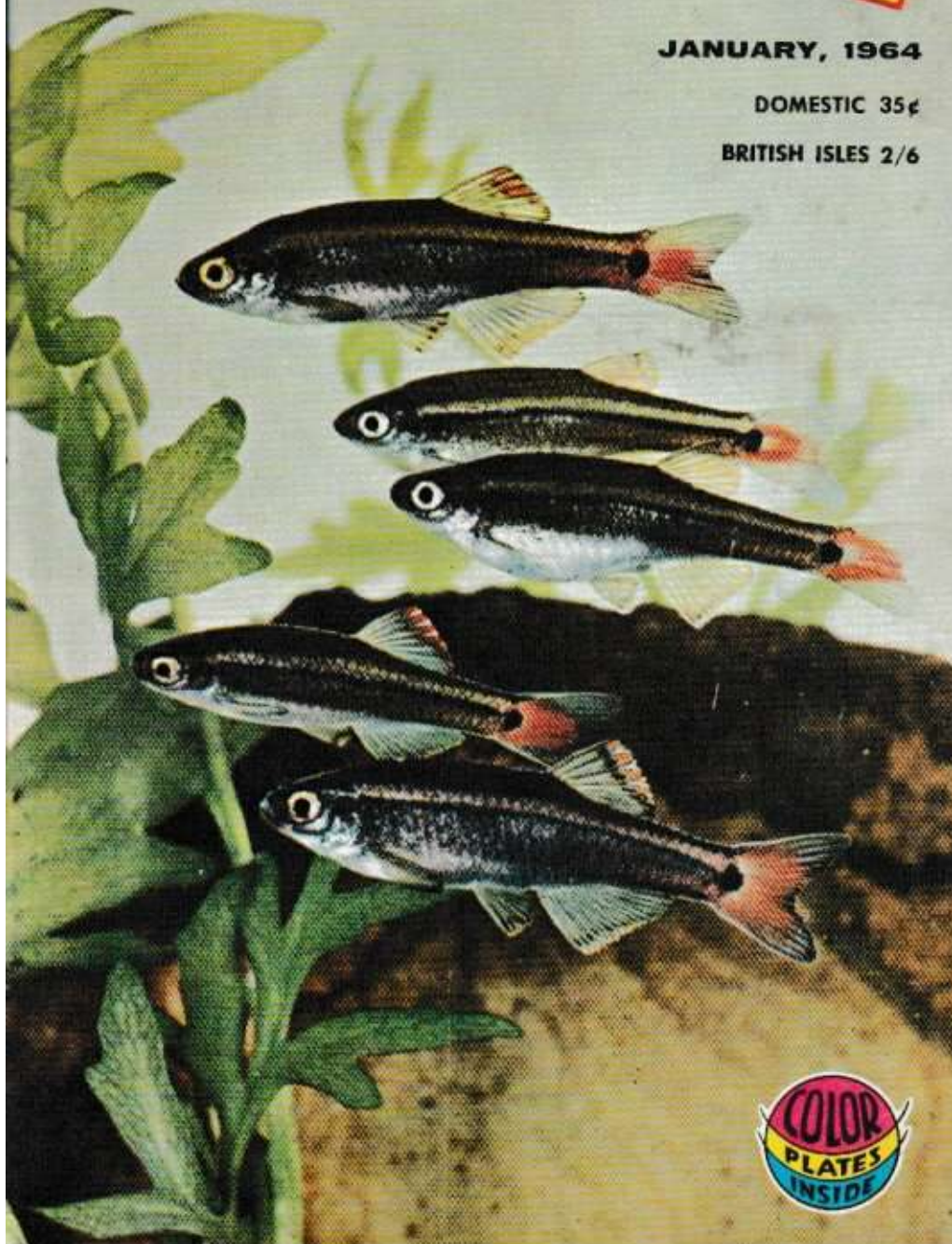
TROPICAL FISH

HOBBYIST

JANUARY, 1964

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The Colorful Sword-tail, by Wilfred L. Whitem, F.Z.S. 50c from your dealer or direct from TFH.

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One of the main reasons for the popularity of Swordtails is their colorful variety, and the book explains the differences between the major color varieties. But for a real appreciation of these Sword-tails, color photos are necessary, and THE COLORFUL SWORDTAILS has plenty, from albinos right up through the new Simpson Hi-fins.

TROPICAL FISH HOBBYIST

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COVER
Dr. Herbert R. Axelrod's photo captures the beauty, often overlooked by hobbyists who forget that common and inexpensive aquarium fishes can be among the most pleasing, as in this picture of White Clouds, Torch-tails or Gobies. Read the article beginning on page 18.

The White Clouds on the cover are also on the cover of the new revised edition of ALL ABOUT AQUARIUMS, long a standard aquarium text.

EXOTIC TROPICAL FISHES SUPPLEMENTS
Pages 33 and 34, 29 and 43. These pages are perforated for easy removal and number to fit into the looseleaf edition of EXOTIC TROPICAL FISHES.

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EDITORIALLY . . .

I am frequently asked by readers to identify fish species which have been puzzling them and the people who sold them. The reader will give what he feels is a very close description, but frequently leaves out a bit of information which would make my task a little less hopeless. A dealer friend once showed me a fish which was obviously a smooth-skinned Catfish of some kind or other, daring me to identify it. It didn't look tropical to me, so I asked where the darned thing came from. Evidently my friend was expecting me to give it a quick look and name some African species or other, giving him a good chance for a laugh at my expense, but he was forced to admit that the thing was native to the Middle Western States. Catfishes are the very devil to identify. In the first place, many people call any fish with whiskers a Catfish whether it is a Loach or what-have-you. Catfishes have a range which includes all the warm and temperate continents but Australia. Then again the reader could have a young, immature fish which he describes as 2 inches in length which would grow to an 8-inch monster later on. Colors and body shapes frequently change as a fish grows older, and there have been cases where even ichthyologists have been fooled into identifying juvenile forms of some fishes as entirely different from the adult form of the same fish. Knowing where a fish comes from makes identification much easier, because it reduces the number of possibilities involved. And actually seeing the fish is usually half the battle. When a description is sent in, I must form a mental picture of the fish in question and work from that. If I goof, remember that I'm doing the best I can with what I get!

William Vorderwinkler

Tropical Fish Hobbyist

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A male of the new Albino Lyretail Molly strain developed by Gulf Fish Hatchery. Photo by Dr. Herbert R. Axelrod.

Behind the Albino Lyretail[®] Molly

by ROSS B. SOCOLOF
Gulf Fish Hatchery
Palmetto, Florida

Two and a half years ago one of the fine Chinese commercial breeders in Singapore discovered a very interesting mutant in his Sailfin Black Mollies. This fish possessed a unique caudal fin. The fin, instead of being normally oval, was shaped like a lyre. Using this one sport he developed the black lyretail strain. As the normal blacks throw back to greens, there was also a percentage of green lyretails.

Gulfish was offered the exclusive distribution of this fish at a very high price, but not an unreasonable one. I agreed to take the large initial offering to the trade exclusively but insisted that we receive only the pure strain and not a mixture of lyretail males with common females. This may seem a strange request on our part, as one would normally assume that we would automatically receive what we contracted to purchase. We did not accept the exclusive, as the guarantee was not forthcoming. Shortly thereafter one of the larger German tropical fish houses offered black lyretail

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Mollies. We purchased several hundred and received lyretail males and normal females. This was something to work with, although obviously not the correct fish, and within the year we had the strain cleaned sufficiently to give us about a 40% yield of black lyretails.

Beverly Hahn, who works for Gulfish full time as a breeder of fancy live-bearers, was given the task of developing an albino lyretail from the black or green strains. The first step was to obtain virgin young from the best lyretail stock available. This was done. The young were immediately isolated in quart jars. The males and the normal-tailed young were culled

Continued on Page 49

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Raindrops and Snowflakes

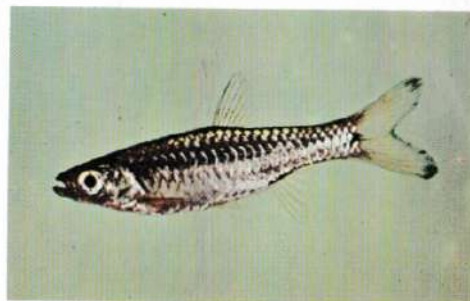
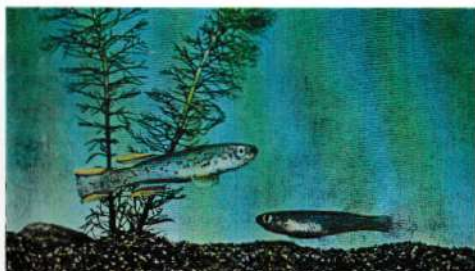
BY BRUCE J. TURNER

There has been a trend away from the use of very soft water in the hobby recently, and this is all for the good, because most species do not really need soft water, although some seem to do better in it. This is especially true of some of the *Aphyosemion* species, which need soft water only to come to their perky best. I personally find New York City tap water, which seldom rises much above 50 ppm, soft enough for most uses, but for the spawning of Cardinal Tetras, Neons, and Emperor Tetras I occasionally need water that is even softer than the tap water. Hobbyists not lucky

enough to have a soft tap water to work with often have to buy distilled water to soften their tap water with. Whenever I feel the need for very soft water, I turn to the water of melted snows, and to rain water.

Many hobbyists with whom I have spoken were surprised when I told them that I use snow water and rain water. The references available to hobbyists all too often frighten them away from these natural sources of soft water. Industrial pollution of the atmosphere is often painted as a big dragon waiting to bite the unsuspecting hobbyist. I have found that even those

These *Aphyosemion callurum* ahil, as well as many other Cyprinodont species, are not restricted to life in soft water, although they reach their peak of color and spawning readiness in it. Photo by E. Roloff.



Many of the Asian Cyprinids, such as the Rasbora species shown here, do best in soft, acid water. Photo by Dr. Herbert K. Axelrod.

hobbyists who live in relatively suburban areas are afraid of atmospheric sources of water.

To me this attitude is over-cautious. A good rain, no matter what the season, will swiftly precipitate a large percentage of aeropollution. After it has rained for about fifteen minutes rain water is usually almost entirely free of pollution. The few impurities remaining, be they gaseous, solid, or ionic, can be dealt with simply and effectively. The same may be said of the impurities in snow water. In this era of advanced technology, nothing should prevent the enterprising aquarist from using such an abundant resource as atmospheric precipitation, for the methods used to purify these waters are anything but complex or technical.

One often hears that water obtained from a roof, through a drain pipe or other conduit, is unsafe for

use. This applies only to roofs and drains which have not yet had their poisonous substances leached from them. After about ten years of use the roofing materials have lost their poisons to the rains, and water from them can be considered safe. Thus, in a majority of cases, the common drain pipe is the ideal source for collecting rain water. Unfortunately, some rain pipes lead directly from the roof into the ground sewage system; these pipes are useless, unless you're willing to chop holes in them. But the collection of water from drain pipes that spill their contents above the ground is simple; just hold a large container underneath them during a heavy rain. The rain water thus collected should be placed in flat containers until it is ready to be purified thoroughly.

Snow water, although harder to collect, is still a good source, but be careful of the type you collect.

Avoid all snow containing black spots or footprints, and don't use the bottom layers, those closest to the soil or sidewalk. It is best to collect as much snow as possible, remembering that snow takes up much more space than the water from which it was formed. The net result of fifteen gallons of tightly packed snow will be less than five gallons of water. Large tanks can be used for collecting snow, but the cold is somewhat hard on them, and I've found from sad experience that too much packing of the snow tends to break the sides of the tank. It is better to use large plastic containers, which are easy to get nowadays at bargain basement prices. I have found an old portable plastic swimming pool of about fifty gallons capacity to be ideal. Refrigerator

liners are very good also. Once collected, the snow should be set in a warm location to melt and to allow the resulting water to warm up a little to facilitate handling. How long this takes depends on the size of the container, how tightly the snow is packed, and how warm the location is.

The purification process for rain-water and snow water is identical. The water should be left in the containers for two or three days to allow as much solid matter to settle out as possible. Meanwhile, the following apparatus should be procured: a very large plastic or glass funnel, a package of large diameter filter paper, several large bottles, a roll of cellophane tape, about five feet of very narrow diameter plastic tubing, and a good quantity of a pure

Although soft water is almost a necessity for maintaining some tropicals in good condition, others, like this Glass Fish, do best in hard, alkaline water. Photo by Dr. Herbert R. Axelrod.



Periodic checks should be maintained so that the jars are changed when they become full. The decolorizing carbon should be discarded after one using.

The resultant water should be crystal clear. It will have a DH close to zero, and a pH of about 7, depending on prevalent atmospheric conditions.

It is always advisable to test some of the water for hidden bad effects on fish life. This is quite simple. Merely place a few Guppies in about a gallon of water. If they live for a week the water is safe. If they die after this time it is not likely that their death will be due to chemical impurities left in the water by the purification process.

Sometimes rain water will turn cloudy after a few days. This is due to a bacterial bloom, and should pass in a few days. If it does not, the water is unsafe for use and should be discarded.

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Telmatherina ladigesii, the Celebes Rainbow Fish, is another tropical that should be kept in hard water. Photo by Dr. Herbert R. Axelrod.

grade of decolorizing carbon. The last named can be obtained from a pharmaceutical or chemical supply house.

The solid particles that have settled in the water while it has been stored can be separated by pouring off the upper portions of the water into another container. After the water has been so treated, add a large amount of the decolorizing carbon to the cleaner portion, stirring vigorously while adding.

For best results the carbon should be added liberally, enough to turn the water a midnight black in color. This decolorizing carbon has an amazing capacity for adsorbing ions and gases in solution, and it serves to eliminate most gases which may be present. It has a very good affinity for carbon dioxide and sulphur dioxide, substances which are likely to cause the most trouble. It will also remove substances stemming from aeropollution, such as

methane and ammonia. The water should be left standing with the carbon in it for at least one day.

It is not advisable to wait for the carbon to settle, for it does this extremely slowly. It can, however, be easily removed by the use of a siphon and filter paper. The large funnel should be inserted in the neck of one of the big jars. One piece of filter paper should be inserted in the funnel, folded so that it fits easily. The water with the carbon in it should then be siphoned into the funnel, using the narrow plastic tubing. Because of the large capacity of the funnel and the small diameter of the siphon, the funnel will never overflow, despite the slowness of the flow through the filter paper. Thus the setup can be left, if the cellophane tape is used to affix the siphon tube to the funnel and to the container with the water, and the hobbyist can take care of things which may be more pressing.

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Observations on White Clouds

BY HORST SCHNORRBUSCH

The White Cloud (*Tanichthys albonubes* Lin Shu-Yen), thanks to the ease with which it may be kept and spawned, is very often to be found in our aquaria. A much smaller distribution has been given to another fish which resembles it greatly, *Aphyocypris pooni* Lin Shu-Yen. I myself have made their acquaintance in a roundabout way.

Many years of breeding White Clouds brought out single specimens which resembled *Tanichthys albonubes*, but were not this fish. There were three males in which the beautiful red in the fins was missing. In its place was a pale yellow, and instead of the fresh lemon-yellow there was a pale pink. The color arrangement was exactly the opposite to that of a normally colored White Cloud. Because of the lack of deep red coloration these fish did not seem to me to be as pretty, and for this reason I did not use them for any further breeding.

I realized that this might have been a mistake when I read the following remarks by Sterba: "Both of these fishes which have so far been considered as separate species are possibly only local varieties of one species. The extraordinary ease with which they may be crossed has led to the fact that today in Germany there are only hybrids of both forms. Both of these forms can be distinguished only with the greatest of difficulty . . ."

When exchanging experiences with foreign hobbyists I found from them that also elsewhere were there single specimens to be found which more closely resembled *Aphyocypris pooni*. These fish also showed the reversed color pattern in the fins which I had previously observed. These statements confirmed my own observations and at the same time the opinion of Sterba, that all the available stocks of this fish were probably hybrids. For the benefit of those readers who have made similar observations, I would like to point out the differences briefly.

Both species have a back which is olive-green in color. This shade becomes increasingly light on the sides and finally becomes a gray-white in the belly region. Dominating this there is also a brown horizontal stripe, topped by a shining golden to reddish and greenish parallel shade. The main differences lie in the colors of the dorsal and anal fins. With *Tanichthys* they are lemon-yellow, with a bright red toward the edge. This red color has been the reason why the German hobbyists refer to the White Cloud as "Kardinalfisch" (Cardinal Fish). In *Aphyocypris* the dorsal fin is red at the base and yellow at the edge, even with a blue border in some specimens. The anal fin is bluish green with yellowish edges.

With *Tanichthys* the brown horizontal stripe with its overlying shining stripes becomes very luminous in young specimens. This is the case from

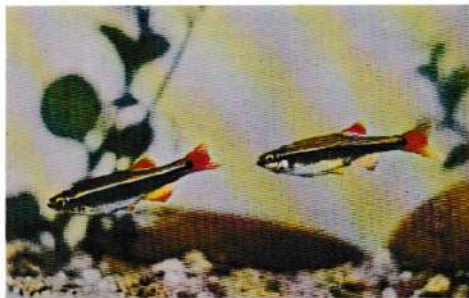
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about the fourth week on; later the gleam, which reminds one vividly of the gleam of a Neon Tetra, becomes mostly lost once more.

The females are distinguished from the males by a greater fullness in the belly region and a somewhat weaker coloration. The red tint in the fins is less pronounced and the lemon-yellow tint is replaced by a greenish yellow. Besides, all the fins are smaller in size. In the descriptions which follow I must limit myself to the specimens I had on hand, which outwardly resembled *Tanichthys albonubes*. For this reason I could probably correctly describe them as such, in spite of the fact that my experiences have shown me that my own strain might not be pure. Certainly both species have much in common, and one could draw conclusions about one species from the findings about the other.

White Clouds are generally kept too warm. The reason for this is that they are very well adapted to life in a community tank and are commonly kept together with other fishes which have higher temperature requirements. Because they are school fish it is best to keep a number of them together, either with their own kind exclusively or in company with other peaceful fishes which also have low temperature requirements. According to my experience, 72 to 74° is the warmest range that White Clouds will stand. At higher temperatures they clearly show their discomfort, while at lower temperatures (such as that of a normally heated room in the winter), they take everything in their stride.

White Clouds are easy to keep, but they should be kept at temperatures lower than those maintained for most popular species. Photo by G. J. M. Timmerman.



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Prior to the actual spawning episode, White Clouds engage in side-by-side quivering motions. Photo by Dr. Herbert R. Axelrod.

A bright location and a number of plants which afford possibilities for shelter and still leave swimming space are all factors for their comfort. White Clouds are not tied down to any particular water hardness, but it seems to me that some attention should be paid to the pH value. The range of the scale between 6.5 and 7.5 is the most favorable; changes to a point above or below result in visible discomfort. Live and prepared foods are eagerly consumed in any form, as long as they can be handled by the small mouth.

When these few requirements are followed, it becomes evident that White Clouds are among the most ideal aquarium fishes. One can never see enough of their grace and beauty of colors. Spawning in an aquarium in which several pairs have been placed is also no rarity and is accomplished without any tedious special preparations, and always affords a particularly interesting performance.

In spite of the fact that the breeding of White Clouds is regarded as simple, one occasionally hears complaints about the small number of resulting fry. This was also my experience years ago, when spawnings of 22 to 54 were all I could get. With growing experience the numbers of fry became always greater and finally rose to 264 per spawning.

I prepare a number of all-glass tanks (11" x 8 1/2" x 9 1/2") by making them as sterile as possible. For the bottom I use coarse gravel, and planting is done with fine-leaved plants: *Fantinalis*, *Elodea* or *Myriophyllum*. The location is

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a bright one, on the sill of a window with eastern exposure. A strip of paper fastened around the lower half of the all-glass tank cuts down the excess brightness. The front of the tank remains free. While the breeding pairs are separated by sexes, the all-glass tanks are allowed to remain at room temperatures between 68 and 74°. After a week of separation, the pairs are united again, and a pair is placed in each tank.

Even though mating may have been observed a hundred times, it is still always a fascinating sight. Behavior is not always exactly the same. In one tank the male seeks the favor of the female with widely-spread fins. In only half an hour she is already searching among the plants for a proper spot to spawn. In another case the female is not at all willing to spawn. The male must be more aggressive, at times even rough, butting his mate with his mouth to accomplish his purpose.

Once a female has chosen a spot to spawn she remains there and the male soon finds her. Their bodies are pressed closely together, the male embraces the female lightly with his caudal base, and then there follows the release of eggs and sperm. Matings follow each other at short intervals, and usually take place near the bottom. Because only one egg is expelled each time, the entire spawning may take as long as two hours. White Clouds are free-spawners. The eggs sink to the bottom, or remain hanging in the plant thickets. They are very small, about 1 mm in diameter, and as clear as water. I could never determine that a number of eggs were released in any one mating. Observation was made difficult because the male wrapped himself around the female during the mating act. There is no "fidelity" between mates. With my fish any pair which had been previously separated spawned willingly when reunited, and it was never necessary to reshuffle the pairs.

After spawning is over the parents are removed, because they eat the eggs. The females are always more active offenders in this.

My greatest successes in breeding I attribute to the fact that the water in the breeding tanks has time in the 8 to 10 days it rests in the light to enrich itself with oxygen. The fry hatch after about 24 hours and after 36 to 48 hours they hang as tiny streaks on the plants and glass sides. After another 3 days the youngsters are free-swimming. At this time they must get the tiniest foods. The fry remain in a school immediately below the surface, and a weak aeration is very advantageous because it keeps the food moving and spread throughout the tank. It is an indescribably beautiful picture to see the dark-colored but still gleaming little fish pushing against the current so that the fry can gobble up every bite of food which fits their mouths.

It has been my experience that when raising them the little mouths must get only the proper-sized foods and for this reason the smallest foods must be given for a long time. The youngsters are sensitive to water changes. It is best to use a breeding tank of sufficient size right away, in this way permitting the young to be left undisturbed for several weeks. When changing them



A pair of "Meteor Minnows", a cultivated long-finned strain of White Clouds no longer available. Photo by Dr. Herbert R. Axelrod.

later on a sizeable amount of the original water should be included. When the population of fry decreases, starvation is usually the cause; feeding may be adequate but the size of the food may be too large. Death may also be brought on by water changes.

The influence of domestication, as with other fishes, also leads to an increase of fin size among *Tamichthys albomabes*. An Australian breeder was able to produce a form with veil-shaped fins. The British and American publications refer to this fish as the "Meteor Minnow."

These notes should alert all breeding hobbyists to the fact that even the old standbys among aquarium fishes can produce variations. One can think about it what one likes, but such fishes should not be weeded out. An attempt should be made to raise them and then to discuss the whys and wherefores with other hobbyists. To do this properly it is necessary to keep an exact diary which tells of all the influencing factors. This should include the feeding of the parents and young, the water characteristics, means of lighting, etc. Such experiments could lead at some time to the underlying reasons which lead to the development of varieties.



Fig. 1.—*Gymnocorymbus socofoi* sp. nov. (holotype, 52 mm).

Preliminary Description of Seven New Species and Two New Genera of Characoid Fishes from the Upper Rio Meta in Colombia.

By Dr. J. Gery

Photos by Dr. H. R. Axelrod

The following interesting new forms were collected by Mr. Ross Socolof and collaborators in May, 1963, about 200 miles east of Bogota, Colombia, in the upper Rio Meta drainage. A full account of all small characoid fishes (about 40 species) from the locality will appear later. It is, nevertheless, of interest to point out the great similarity of this fauna with that of the Guianas. A number of typical Guianan forms, new for Colombia, were recognized, among them: *Aityanax abramis*, *Moenkhausia colletii* and *M. lepidura*, *Hemigrammus unilineatus*, *Hyphessobrycon strictus* and *H. minor*, *Aphyochorax erythrurus*, *Gnathochorax steindachneri*, *Serrasalmas cf. aureus* and *Curimatina spilurus*, besides two new species, described below, closely related to the Guianan species. ***Gymnocorymbus socofoi*¹ sp. nov.** (figs. 1 & 2)

Holotype: 52 mm in standard length. Lateral line almost straight, complete; caudal lobes scaly up to their distal third; two rows of scales along base of anal; predorsal rather keeled, without a median series of scales; no predorsal or preanal spine; great suborbital narrow, leaving a naked area on the cheek; premaxillary with an external row of 4 tricuspid teeth, and an internal row of 5 quincupid ones; maxillary very short, with one small tooth at angle.

Depth 2.21 and head 3.66 in standard length; eye 2.58, interorbital 2.64, maxillary 4.30 and snout (in oblique) 4.58, all in length of head (without membrane); dorsal and ventral profiles about symmetrical; dorsal fin in advance

Contribution Nr. 34 to the Study of Characoid Fishes.

¹ For Mr. Ross Socolof from Palmetto, Florida.

Types deposited in the United States National Museum.

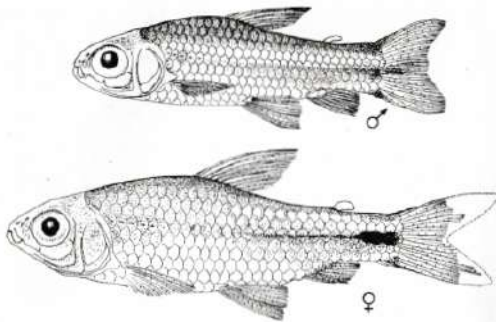
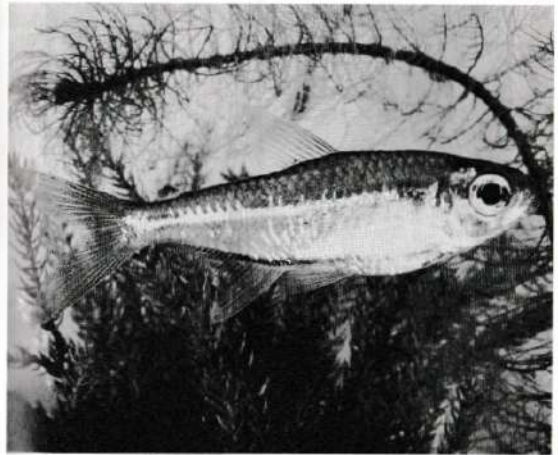


Fig. 14.—*Curimatopsis evelynae* sp. nov. (holotype above, allotype below, to show the peculiar sexual dimorphism).

Curimatus spiferus.



Moenkhausia collettii. (sep?)

of the middle of the body; tips of pectoral and ventral overlapping respectively base of next fin. Scales 8/35/7, about 15 predorsal in a series bordering the naked median line, 3 along the supra-occipital process, 14 around peduncle. Dorsal ii, 9; anal iv, 32, i; gill-rakers 7/12.

Paratypes: 6, max. 27.5 mm in standard length; personal number M. 342.

Lateral line rather irregular or not quite complete, some scales lacking a pore; depth about 2.2; anal iv, 31 (i) to 37 (i); a faint humeral bar, followed by an even fainter, shorter, second one; no caudal spot; all the fins, except pectorals, red with a narrow black border, whereas the adult (holotype) has the fins uncolored.

Best distinguished from the nearest species, *Gymnocorymbus thayeri* and *Moenkhausia bondi*, by its much less deep body; it differs from *Moenkhausia justae*, which has just about the same depth, by the length of its anal and the absence of a caudal spot, and from *M. docoana* chiefly by its color pattern and the non-scaled predorsal line. *Tetragonopterus argenteus* (much higher) has 7-9/3½-5 transversal scales. *Ctenopoma* and *Psilogrammus* have the caudal naked and many more anal rays and longitudinal scales, beside their somewhat crenulate ventral scales (often not clearly visible).

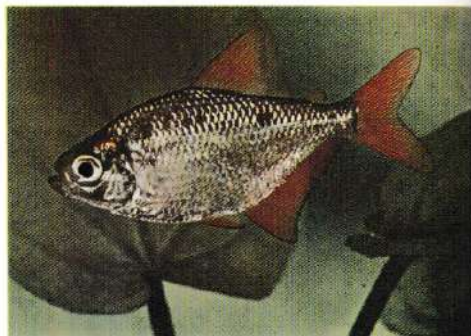


Fig. 2.—*Gymnocorymbus socoffi* sp. nov. (juvenile paratype, about 27 mm).

Moenkhausia species U₁ (fig. 3)

1 ex., 39.2 mm in standard length; personal number M. 345.

This single example resembles the preceding in many points: same naked predorsal line, long anal fin (iv, 33, i), same length and position of the fins, form of the great suborbital, number of teeth and similar color pattern, consisting of two faint vertical bars, without a caudal spot. It has nevertheless a depth of 2.82 in std. length and scales 7/36/5 or 6: it may be a new species, closer to *Moenkhausia pittieri* than to a *Gymnocorymbus*, despite its predorsal scalation. It seems also to have less affinities with *Gymnotichthys hildeae* from Venezuela, a species said to have the predorsal line naked in front.

Moenkhausia species U₂ (fig. 4)

1 ex., 36 mm in standard length; personal number M. 359.

Lateral line straight, complete; caudal fin damaged (one or two scales, still adherent, are nevertheless visible well behind the end of the peduncle); predorsal with a median series of scales; great suborbital very narrow; 5 teeth on each row on the premaxillary, two small teeth at the angle of the maxillary.

Depth 2.25 and head 3.14 in standard length; eye 3.11, interorbital 2.87, maxillary and snout 3.6 in length of head; dorsal fin slightly in advance of the middle of the body; tips of pectoral and of ventral just reaching next fin. Scales 5/31-33/4, predorsal 9. Dorsal ii, 9, anal iv, 26. An ocellate humeral spot, about equidistant from middle of eye and origin of dorsal fin; a black longitudinal line, probably silvery in life; no caudal spot; coloration unknown.

This simple example differs from the nearby *Moenkhausia conania* in having 2 or 3 more anal rays, 1 or 1½ less transverse scales and a longer head with a deeper (heavier) inferior part; the humeral spot is also closer to the opercle.

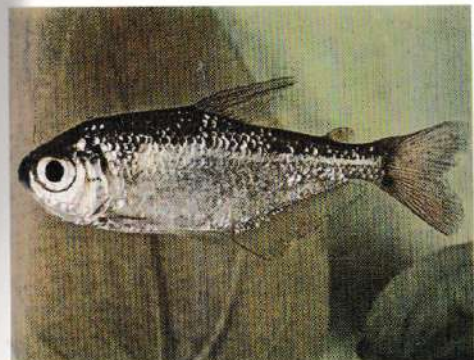
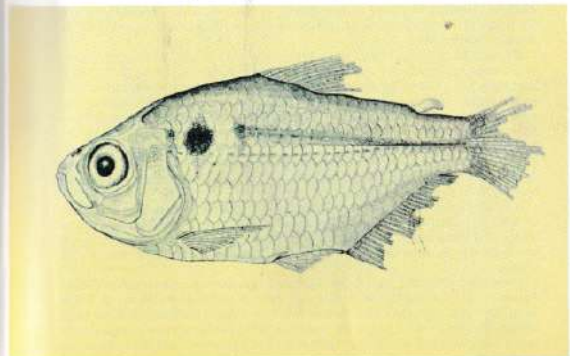


Fig. 3.—*Moenkhausia* spec. (U₁) (about 40 mm).

Fig. 4.—*Moenkhausia* spec. (U₂) (36 mm).



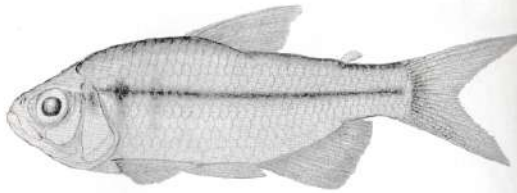


Fig. 5.—*Moenkhausia eigenmanni* sp. nov. (holotype, 50 mm).

***Moenkhausia eigenmanni* sp. nov. (fig. 5)**

Holotype: male, 50.0 mm in standard length.

Paratypes: 4 males, 43.4–52.5 mm in standard length, and 3 females, 44.5–48.7 mm; personal number M. 358.

Lateral line complete, lower caudal lobe scaled up to its middle, the upper one to its proximal third; no "gland" on base of caudal; anal fin rather short, with a convex base and no anterior lobe, its border being very slightly convex in males, and with a short lobe in females; only one sheath of 3 scales on base of the first ray; predorsal somewhat keeled and scaled, but often without a regular, median series; preopercular flattened, with a normal scalation; great suborbital leaving only a narrow naked area below and behind; premaxillary with 4 (rarely 3) external teeth and 5 quincuspid, internal ones; maxillary rather elongate, reaching the level of the middle of the eye, with 2 (rarely 3) small teeth at angle; dentary with 4 or 5 strong teeth in front, followed on side by 7 to 9 much smaller ones.

Depth 2.91 [2.80–3.10] and head 3.60 [3.56–3.78] in standard length (paratypes between brackets); eye 2.90 [2.68–2.96], interorbital 3.0 [2.73–3.05], maxillary 3.24 [3.14–3.31] and snout 3.86 [3.33–4.54] in length of head; ventral profile rather flat, less convex than the dorsal one; dorsal fin distinctly in advance of the middle of the body, its first ray about equidistant from snout and adipose; tips of pectoral and of ventral overlapping next fin, at least in males; anal inserted well behind the level of the last dorsal ray; ventrals with hooks on all rays, and anal with hooks on the last unbranched to the 4th to 6th branched ray, in males; scales 7/35/5 [6–7/35/4–5], 10 or 11 in predorsal; dorsal II, 9, anal IV, 18 (I) [IV, 17 (I)–IV, 19 (I)]; gill-rakers 6/11 [6–7/10–11].

A black lateral band from opercle to peduncle; two very faint humeral spots or bars, no caudal spot; all the fins gray. When freshly unpacked, the specimens were of an olive-brown general tint, with all the markings deep brown; dorsal and caudal with some yellow, as well as the humeral region; first rays of anal orange.

I am unable to refer the above described specimens to the species *Moenkhausia metas* Eigenmann (*Mon. Carnegie Mus.* 9 (1): 234, pl. 34 fig. 3, 1922) from Barrigon (typical locality as here restricted) and Villavicencio. They have approximately the same meristics, but they differ, having a more elongate body and a more forward dorsal fin, together with a distinctive anal. Nevertheless a doubt exists, as some of those characters may be phenotypic and, as already

pointed out by Fowler (*Proc. Acad. Nat. Sci. Phila.* XCV, 233, 1943), Eigenmann's figure is "of little use." It is singular that Mr. Socolof's extensive collecting in the area of *M. metas* did not produce any specimen referable to the typical form. The same seems true concerning Fowler's (loc. cit.) material, which, judging at least from a single specimen (from Villavicencio) kindly procured by Dr. J. Böhlke, does not quite match with the description by Eigenmann, nor with the present material.

***Schultzites* gen. nov.**

Type-species *Schultzites axelrodi* sp. nov. (fig. 7).

This genus is *Moenkhausia* with a toothed maxillary; lateral line complete, predorsal scaled, with a regular series; caudal scaled up to the proximal third of the lower lobe, or more; inner row of the premaxillary composed of 5 teeth; at least 7–10 small, conical teeth, rather irregularly occupying two thirds of the free border of the maxillary (fig. 6), which is rather long and partially slipping under the antorbital bone.

¹ For Dr. Leonard P. Schultz, in recognition of his tremendous ichthyological works.

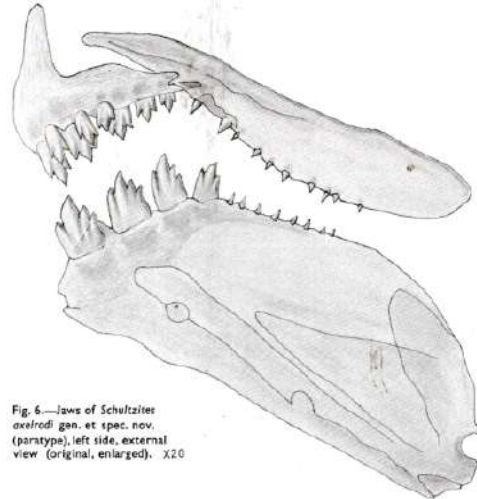


Fig. 6.—Jaws of *Schultzites axelrodi* gen. et spec. nov. (paratype), left side, external view (original, enlarged). X20

The numerous *Moenkhausia* species generally have not more than 1–3 relatively large teeth placed closely together after the premaxillary-maxillary angle; only one species, *M. docoana*, has as many as 5 similar teeth.

The other tetragonopteran genera with toothed maxillary differ in the following way: *Pristella* has only one (irregular) row of teeth on premaxillary, besides an incomplete lateral line; *Astyanacinus* has a more complete armature of the cheek (though still with a naked border), and a different form of the upper jaw reminding one of that of *Hemibrycon*, and the caudal fin not scaled in the usual sense; *Pseudochalcinus* and *Hollandichthys*, which are close to the preceding, have different premaxillary and mandibular teeth structures, together with a naked caudal; *Phenacogaster* has different habit and anal fin; finally *Hemibrycon* and *Acrobrycon* have complete suborbital bones, with only 4 internal, premaxillary teeth.

Technically resembling *Astyanacinus* and others, *Schultzites* gen. nov. is evidently not derived from that genus, being an adaptation of a *Moenkhausia* of the "elongate group", like *M. dichroua*.

***Schultzites axelrodi* sp. nov. (figs. 6 & 7)**

Holotype: 34.5 mm in standard length.

Paratypes: 3, 31.8–34.1 mm in standard length; personal number M. 348.

Externally closely resembling *Moenkhausia dichroua*; caudal lobes scaled to a little more than the proximal third, chiefly the lower one; one row of scales along the base of the first rays of anal; predorsal rather keeled, preopercular rather flat; great suborbital leaving a rather narrow naked zone; anterior fontanel narrow, reaching to the level of the middle of the eye; premaxillary with 3 external and 5 internal teeth, all tricuspid, the internal ones somewhat broader

¹ For Dr. Herbert R. Axelrod.

Continued on Page 41

Fig. 7.—*Schultzites axelrodi* gen. et spec. nov. (one of the types, about 34 mm).



Can you identify this fish? Do you know where it comes from? What are its spawning habits? How about this one? Could you breed it for money? If you can answer these questions definitively, or if you can get an authoritative answer in a jiffy, don't read further. But if you don't know all the answers and can't get them in a hurry — in short, if you are a hobbyist who really is bent on learning all there is to know about tropical fishes, aquarium management and, yes, commercial breeding, — buy this book. Its 892 pages alive with almost 600 illuminating color photographs by the world's foremost authorities makes it the best investment you, as a hobbyist, can make. Exotic Tropical Fishes is available at your pet shop in two editions: hardbound and looseleaf to accommodate supplements by the authors.

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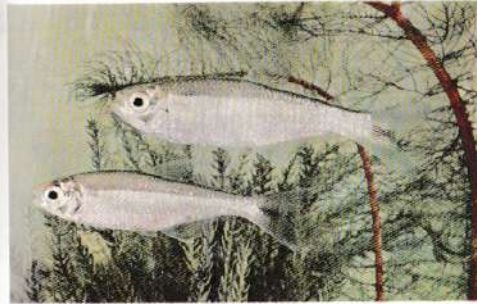


Fig. 12.—Bryconamericus laetoe sp. nov. (paratype, a female about 56 mm); below: Bryconamericus close to caucanus.

Continued from Page 32
and, incidentally, with an additional cusp; premaxillary-maxillary border forming a continuous curve, maxillary reaching to the level of the front of the pupil or a little less, with 9 [7-10] conical teeth (paratypes between brackets); dentary with 4 tri- or quadricuspid teeth in front, and about 8 smaller ones on sides (see fig. 6).

Depth 3.32 [3.19-3.46] and head 3.63 [3.52-3.57] in standard length; eye 2.79 [2.76-2.87], interorbital 3.06 [3.14-3.20], maxillary 2.88 [2.84-3.30] and about 4.13 [4.55-4.68] in length of head; dorsal fin in dorsal to caudal; peduncle slightly elongate, its depth 1.18 [1.20-1.45] in its length. Scales 6/38/41 or 5, 10 or 11 in predorsal, 14 circumpeduncular dorsal B, 8, 1 [II, 8, I-II, 9]; anal IV, 23, 1 [IV, 23, I-IV, 24, 1]; pectoral I, 12; gill-rakers 9/15.

In life, caudal yellow; tips of the caudal lobes black; other unpaired fins yellowish; a silvery longitudinal band, preceded by an inconspicuous humeral spot. After preservation in formalin, the silvery band is replaced by a black line, beginning under first dorsal ray, and spreading somewhat over the end of the peduncle; a dark vertical humeral band, followed by a light zone, then a darker area before the black line; nape very dark; fins unmarked, except the tips of the caudal lobes.

Distinguished readily from M. dichrourea, M. intermedius and M. orteguensis by the peculiar toothed maxillary.

Parapristella gen. nov.
Type-species Pristella aubyni Eigenmann, 1909.

Lateral line short; some scales on the lower caudal lobe, "out" of its base; no prominent interbranchials; elongate body combined with a short anal; great suborbital narrow; anterior fontanel reaching at least to the level of the middle of the eye; maxillary long, slender, very oblique, forming a continuous curve

Tropical Fish Hobbyist

with the premaxillary, toothed at least on its proximal third or more (12 teeth or more in the type-species); premaxillary teeth in two rows of 3 to 5 external, almost conical ones, and 5 quincuspid inner ones (becoming tricuspid or even conical on sides); dentary with 4 large, quincuspid teeth in front and many smaller ones on sides (see fig. 8).

This genus differs from Pristella in having a tetragonopterine-like premaxillary, i.e. with two well separated rows of teeth, the premaxillary-maxillary border continuous, a different body-form and the base of the lower caudal lobe only moderately scaled. In this respect, it is in fact intermediary between the situation found in Hemigrammus and that of Hyphessobrycon, whereas Pristella clearly has the caudal scaled.

Eigenmann (Ann. Carnegie Mus. VI (1): 24, 1909) was already conscious that P. riddii and P. aubyni were not "monophyletic." A short while ago (Bull. Aqu. Biol. 2 (12): 3, 1960), I pointed out that Pristella riddii had a dentition similar to that of Megalaphodus and had to be classified near it, whereas Pristella aubyni seemed to be an offshoot of Hemigrammus or Hyphessobrycon, hence belonging to a close, but different group.

The difference between Parapristella gen. nov. and the other tetragonopterine characids with a toothed maxillary may be inferred from the above discussion concerning Schulzistes gen. nov. It differs from the latter in the incompleteness of the lateral line as well as in the caudal scalation, both "adaptations" being

generally regarded as having little phylogenetic significance, but still as rather good generic characters. Some difference may also be found in the number of maxillary teeth, in correlation with the length of this bone, and in the number of tooth cusps in the upper premaxillary row.

The type-species of Hemigrammus (antillensis) and of Hyphessobrycon (compressus), as well as some other species like barrigoni in the former genus, and in the "bentoii group" in the latter, may have more than 5 maxillary teeth. They are well apart by their habit, their rather long anal fin and the angle formed by their premaxillary-maxillary border. Some other species have a relatively short anal fin with sometimes as many as 6 or 7 maxillary teeth, namely Hemigrammus cylindricus, Hyphessobrycon eos and H. catobleptus (also perhaps H. coelestinus). H. eos, at least, has the most typically Hemigrammus-Hyphessobrycon like. The other ones had to be re-examined to determine to which group they belong.

Finally the affinities of Parapristella gen. nov. with Pedalibrycon, from Uruguay, are still uncertain. The latter, much deeper, is said to have prominent interbranchials, a highly unusual character in the Tetragonopterinae sens. str.

Fig. 8.—Jaws of Parapristella aubyni (Eigenmann) (paratype), left side, external view (original, enlarged). X20

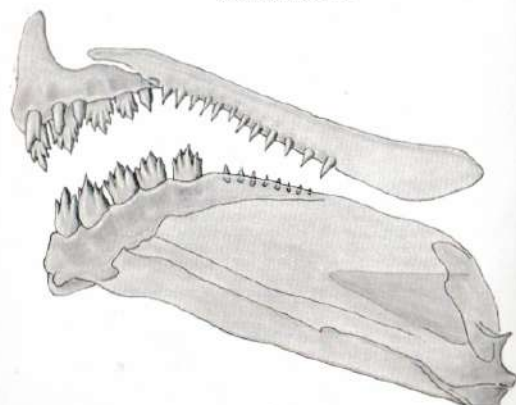
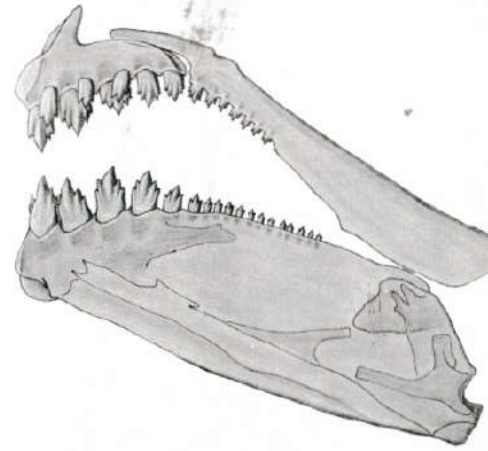
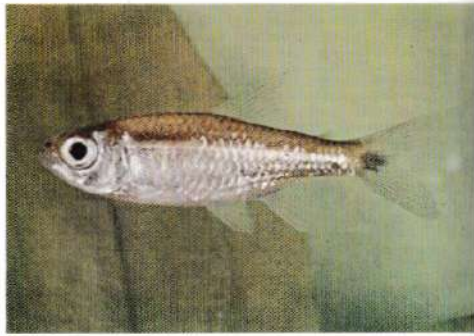


Fig. 10.—Jaws of Parapristella georgiae sp. nov. (paratype), left side, external view (original, enlarged). X20



Fig. 9.—*Parapristella georgiae* sp. nov. (holotype, 30 mm).***Parapristella georgiae* sp. nov.** (fig. 9 & 10)

Holotype: 30.00 mm in standard length.

Paratypes: 2, 30.9–33.0 mm in standard length; personal number M. 343. Rather elongate, dorsal and ventral profiles equally arched, predorsal not keeled, preventral rather flat; a large scale and some small ones on middle of base of each caudal lobe, not farther than its proximal third; only one row of scales on base of the first three anal rays; anal very short; suborbital narrow, premaxillary with 3–4 tricuspid to conical external teeth, 5 quincuspids internal ones; maxillary long, slender, very oblique, reaching to the level of the middle of the eye, with 8 tricuspid teeth on the proximal third of its free border (6 and 7 on paratypes); dentary with 5 quincuspids teeth in front and about 13 tricuspid ones on sides (fig. 10).

Depth 3.45 [3.47–3.84] and head 3.4 [3.4] in standard length (paratypes between brackets); eye 2.75 [2.63–2.76]; interorbital 3.25 [3.25–3.35]; maxillary 2.67 [2.70–2.84] and snout 4.40 [4.04–4.14] in length of head; dorsal fin slightly behind the middle of the body; tips of pectorals not reaching ventral, the latter just reaching beginning of anal; anal originating well behind the level of the last dorsal ray, its own last ray just before the adipose level; peduncle about 1.1 times longer than deep. Scales 3/(6–7)30–31/3, about 9 in predorsal; dorsal ii, 8, i; anal iv, 12, i [iv, 13, i] (no hooks).

In life, an orange spot on base of the upper caudal lobe, as in *P. asynei*; buck olive-yellow, dorsal and caudal yellowish; after preservation the black markings, including the typical bar on the middle caudal rays and the humeral spot, are much less conspicuous than in *P. asynei*.

* For my wife.

The taxonomical differences between the latter species (two paratypes of comparable length) and *P. georgiae* sp. nov. are compared in the following table:

	Types of <i>P. georgiae</i> sp. nov.	2 Paratypes of <i>P. asynei</i>
Head/standard length	3.4	3.5–3.75
Maxillary/head ...	2.67–2.84	3.0–3.35
Position of dorsal fin...	slightly behind the middle	in the middle or slightly in advance of the middle
Anal	iv, 12, i–iv, 13, i	iii, 15 or 15, i
Longitudinal scales ...	(6–7) 30–31	(8) 32–33
Transverse scales ...	5/3	6/3
Predorsal scales ...	9	10–11
No. of teeth on maxillary ...	6–8, tricuspid	about 12, conical
No. of teeth on dentary	4 or 5 + about 13 tricuspid	5 + about 8, conical

It may be seen from the table that the specific differences between *P. asynei* and *georgiae*, i.e. in the usual counts and proportions, are paradoxically not more pronounced than the generic ones, i.e. the teeth structures as illustrated in figs. 8 and 10. The two species are very closely related, as their common habit, pattern and form of the mouth strongly suggest it, whereas *P. georgiae* may constitute a transition from *Henigmannius* to *Parapristella*, or vice-versa. Hence some doubts about the proper placing of that new species, owing to the fact that too few specimens are available to study the mean and range of the number of maxillary teeth.

Anyhow, this does not interfere with the validity of *Parapristella*, as the generic level is notoriously a practical, conventional one, which is rarely in accordance with the phylogeny.

Fig. 11.—*Hypsessobrycon saizi* sp. nov. (two of the types).***Hypsessobrycon saizi* sp. nov.** (fig. 11)

Holotype: 23.0 mm in standard length.

Paratypes: 4, 19.7–22.2 mm in standard length; personal number M. 363. Lateral line on 7 or 8 scales; caudal lobes not scaled; no interhaemals; a very faint pseudopyramidal; great suborbital moderately reduced; anterior fontanel reaching to the level of the middle of the eye; teeth very narrow, 1 to 3 (generally 2) external conical ones in premaxillary and 5 tricuspid ones in an inner row, well separated from the outer series; 3–5 very small, tricuspid teeth on maxillary, which is narrow and reaches the level of the front of the pupil; dentary with 4 tricuspid teeth in front and 7 or 8 much smaller ones, on sides.

Depth 3.19 [3.30–3.52] and head 3.83 [3.69–3.90] in standard length (paratypes between brackets); eye 2.61 [2.52–2.76]; interorbital 3.53 [3.12–3.57]; maxillary 2.73 [2.65–3.12] and snout 4.28 [4.42–5.0] in length of head; dorsal fin in the middle of the body, or very slightly in advance; tips of pectorals and ventrals not quite reaching next fin; caudal peduncle elongate, 1½ to 2 times longer than deep. Scales 5/(7–8)32/3, 9 in predorsal, 12 circumpeduncular; dorsal ii, 8 (1) [ii, 7, i–ii, 8, i], anal iii, 19 [iii, 18–iii, 19, i], gill-rakers 7 or 8/11. Fins lemon-yellow, without marks; body strongly silvery; no humeral spot; a black longitudinal band, somewhat expanded on the lower half of the peduncle, scarcely noticeable in life, ending in a narrow band on the middle caudal rays.

This small species may be close to *H. stigmatia*, from the Madeira River. It apparently differs from that species in having a longer maxillary, with more teeth, and a longer anal. Its peculiar brilliance may be provoked by a parasite infestation of the subcutaneous layer, as in the case of *Henigmannius armstrongi* (see Gery and Delage, Vie & Milieu XIV (1): 169–182, 1963).

***Bryconamericus loisae* sp. nov.** (fig. 12, above)

Holotype: female, 74.0 mm in standard length.

Paratypes: 3 males and 4 females, 45.5–54.7 mm in standard length; personal number M. 356.

Elongate, typical *Bryconamericus*; caudal lobes not scaly, one sheath of scales on the proximal half of anal base; great suborbital covering entire cheek below, nevertheless leaving a very narrow naked band behind; anterior fontanel reaching to the level of the front of the pupil; 4 or 5 tricuspid, outer teeth on premaxillary, in a "wavy" line; 4 quincuspids ones behind; maxillary moderate, reaching to the level of the front of eye, with 3 or 4 (occasionally 5) tricuspid teeth at angles; dentary slightly longer than the upper jaw, with 4 large quincuspids teeth in front, followed on side by about 9 rather abruptly smaller ones.

Depth 3.57 [3.20–4.05] and head 4.90 [4.27–4.57] in standard length (paratypes between brackets); eye 3.51 [2.94–3.43]; interorbital 3.02 [2.94–3.22]; maxillary 3.08 [2.72–3.47] and snout 3.97 [3.60–4.44] in length of head; snout-to-dorsal 1.17 [1.05–1.16] in dorsal-to-caudal; depth of peduncle 1.44 [1.31–1.60] in length of peduncle. Longitudinal scales 41–42 [41–43], transverse scales 8/5½ [7½–8] or 9/5½–6½; predorsal about 13 (irregular); circumpeduncular 16. Dorsal ii, 7, i on all specimens, the males without hooks; anal iv, 28 (i) [iv, 27–30 (i)], the males with hooks on the last, longer, unbranched ray to the 6–8th branched one; pectoral i, 10, i [i, 10, i–i, 11, i]; ventral (i) i, 6, the males with hooks on the 3rd–5th branched rays; gill-rakers 7/12 7–8/12–13.

In life a faint, bluish humeral spot with a golden spot just before it; a light

¹ For Mr. Emilio Saiz, who collected the new species.
² For Mrs. Loise Socolof, wife of collector.

yellow band, which is continuous with the usual silvery body band, on the middle caudal rays, up to their end; dorsal and adipose fins reddish, caudal lobes yellowish, upper part of opercle somewhat yellow or golden. After preservation, a large gray band from the vertically elongate humeral spot to the end of the caudal.

These specimens are clearly different from the *Bryconamericus* described from the same region, namely *B. detersodoides*, *B. cinnamomeus*, *B. alpha* (a geographical race of *B. caucanus*) and *B. beta* (of the sub-genus *Knodus*). Using Eigenmann's Key (*Mem. Mus. Comp. Zool.* XLIII (4): 360–361, 1927), they would be placed near *B. yleropariu* from Costa Rica, which is much deeper.

Other forms of the *Bryconamericus* group which were collected together with *B. loisae* sp. nov. are: *B. detersodoides*, *B. cinnamomeus* and *B. caucanus* (fig. 12, lower fish), which is distinctly more elongate than either *alpha* or typical *caucanus*; numerous *B. (Knodus) beta* also are more elongate than the types; *B. (Knodus) meridae* and an unknown form are described below.

***Bryconamericus* or *Astyanax* sp.**

1 ex., male, 46 mm in standard length; personal number M. 347.

This specimen has about the same color pattern and habit of the preceding species *B. loisae*, with the dorsal fin in advance of the middle of the body, a humeral spot and a broad longitudinal band up to the end of the middle caudal rays. It differs nevertheless in some meristics: lateral line low, with only 4 scales below it, and 39 perforated ones, anal iv, 25 (i), with hooks up to the 8th ray, ventral (i) i, 7, i, and, chiefly, 5 inner premaxillary teeth, correlated with a great suborbital covering entire cheek. This interesting form, if not an abnormal *Bryconamericus*, could be a new species of the aberrant *Astyanax* group with expanded suborbital; it would then approach *A. multident* and *A. gracilior*, both from the Amazon River.

***Curimatopsis evelynae* sp. nov.** (figs 13 & 14)

Holotype: male, 24 mm in standard length.

Paratypes: 9 males, 21–24 mm in standard length, and 4 females, 26.5–31.1 mm; personal number M. 365 (one female deposited in U.S.N.M. as "allotype").

Typical characters of *Curimatopsis*, with incomplete lateral line (perforated scales 3–5, without indentation of the following scales), maxillary very small but entirely free, and considerable sexual dimorphism (fig. 14).

Habitus of the males reminding only distantly that of *Curimatopsis*, owing to its deep, compressed peduncle (as deep as long), and the form of its caudal with the median rays almost as long as those of the lobes; predorsal somewhat keeled just before dorsal fin, post-dorsal region rounded; preventral rounded, post-ventral keeled; dorsal fin slightly in advance of the middle of the body; pectoral and ventral short, not reaching next fin.

Depth 3.33 [3.39–3.60] and head 3.37 [3.43–3.48] in standard length (male paratypes between brackets); eye 2.57 [2.65–2.80], interorbital 2.40 [2.59–2.69], maxillary 7.2 [7.0–8.75] and snout 4.0 [3.16–3.89] in length of head; scales (4)28, plus 2 smaller ones on base of caudal ((4 or 5)27–29); 10 in a transversal

³ The possibility that *oxyechus* could be a synonym of *cinnamomeus* is actually under investigation. The sympatric species *detersodoides* and *cinnamomeus* are extremely alike.

⁴ For Mrs. Evelyn Axelrod.



Fig. 13.—*Curimatopsis evlyniae* sp. nov. (two of the male types, the bigger one about 24 mm).

series, about 8 or 8½ in predorsal; dorsal ii, 8, i anal (i) ii, 7 (i), pectoral i, 11, ventral 1, 7 (i) or [6, i] branched caudal rays 17 [16-17]; no gill-rakers.

The females are somewhat deeper (3.24-3.47) with longer peduncle (its depth 1.16-1.21 in its length), "normal" caudal fin and perhaps the dorsal fin more in advance of the middle of the body (snout-to-dorsal 1.11-1.18 in dorsal-to-caudal), instead of 1.06-1.14 in males).

In life, the coloration of the males (fig. 13) is very attractive: back chocolate, body with rosy, yellow and green longitudinal iridescences, base of caudal salmon red, and dorsal fin orange; females (when freshly unpacked) just silvery; after preservation, they are best distinguished by their elongate peduncular spot, which is only slightly indicated on males, besides the other above discussed in habits.

This charming little species does not differ much in meristics, nor in proportions from the type-species *Curimatopsis macrolepis*, from Guianas and Middle-Amazon basin. The latter is somewhat deeper (about 3-3.2 in mature males, less in big females) with a slightly longer head (about 3.2 without membrane); also it has one or two more perforated scales and grows somewhat bigger.

Curimatopsis evlyniae sp. nov. can be easily identified by the pattern of the males, which is strikingly different from that of *C. macrolepis*, either *in vivo* or in alcohol. Both forms are probably very closely related, but there is no doubt that the new one is specifically distinct.

Behind the Albino Lyretail Molly

Continued from Page 7



Another type of albino being produced at Gulf Fish Hatchery is a modified strain of Albino Swordtail, showing some influence of the Hi-Fin Swordtail. Photo by Dr. Herbert R. Axelrod.

and discarded as they developed. At this point we had eight virgin black females with perfect lyretails. These were crossed with a pure albino male which was already on hand. As anticipated, the young from this cross were 100% green and blotched with a fair percentage (approximately 25%) of lyretails. The green lyretail young were again isolated in quart jars and the females retained and the males culled.

The third cross was made between the albino male and the green lyretail. The young from this gave us our first albino babies and of these albinos we had about 50% lyretails. Our immediate objective was accomplished.

The fourth and final cross was albino lyretail to albino lyretail. The babies of this cross are almost pure, so the strain is established.

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Washing plastic plants.

Q. I have been using plastic plants in my tanks for the past few years with very satisfactory results. One problem that arises, however, is that it is extremely difficult to scrape off accumulated algae. Could you advise of any solution in which the plants could be washed?

Sydney J. Fagan, Toronto, Ont., Canada.

A. Soak them in a strong salt solution for an hour or so. This should be enough to kill the algae and make them easily removable. If this does not work too well, use *Clorox* or other household bleach solution. It goes without saying that the plants should be washed off thoroughly with clean water afterwards.

A wide variety of things.

1. Can fish distinguish colors?
2. Can a fish change its colors, and how?
3. Does a fish have a memory?
4. Can the shells of hatched brine shrimp harm fish?
5. Should fish be fed prior to shipping?

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Epiplatys chaperi

6. Are young Firemouth Cichlids good community tank fish?
7. What size of tank is needed for breeding Firemouth Panchax, *Epiplatys chaperi*?

Ed. Bronikowski, Lima, Ohio.

A. 1. Although many animal behaviorists tell us that fish see all colors as

varying shades of gray, have you ever seen a trout fisherman looking frantically through his tackle box for a fly that another man is taking fish with? I am firmly convinced, being a fisherman myself, that fish have a very definite color sense.

2. Yes, a fish has the power to expand or contract color cells in its body in

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Firemouth Cichlid

response to certain stimuli such as excitement, fear, or other conditions.

3. Yes, definitely. You no doubt have seen fish which were attacked by others back away from their attackers for some time afterward.

4. It is virtually impossible to feed newly-hatched brine shrimp without getting some shells into the tank. Unless the amount is great, there will be no harm if the fish swallow some.

5. No. As a matter of fact, shippers let their fish fast for a day or so before shipping. In this way, there is less chance of their fouling the water.

6. Yes, as long as they are small enough not to attack their tankmates.

7. Firemouth Panchax will spawn readily in a 1-gallon tank.

Water hardness.

Q. How can I tell the hardness of my water and how can I control it?

Jim Luczak, Pittsburgh, Pa.

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Egyptian Mouthbreeders.

Q. 1. I have two Egyptian Mouthbreeders (*Haplochromis strigatus*) in my 20-gallon community tank. I have been unable to find detailed information about the keeping and breeding of this fish. Also, what is the best method of distinguishing their sex?

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please tell me what I'm doing wrong and why I'm losing only Angelfish?

4. What is the maximum number of medium-size assorted tropicals that I could keep in a fully aerated and planted 50-gallon aquarium?

Russell C. Lawson, Jr.,
So. Bellingham, Wash., Mass.

A. 1. Probably your Mouthbreeders are *Haplochromis multicolor*, and not *H. strigosa*, which are seldom imported. Given a tank of their own, a male will dig a hole and then get the female to lay eggs into it. She then picks up the eggs and carries them in her mouth for 2 weeks, never eating in all that time. When the eggs hatch, the female guards the young and takes them in her mouth whenever she feels they are in danger. The male has much brighter colors and larger fins.

2. Offhand I would say that you have two males. The color is natural and not a disease sign.



Mouthbreeder

3. Your tank temperature is a bit high, but not enough to cause deaths. I am inclined to suspect your frozen daphnia. Probably the reason only your

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4. Usually the rule of thumb given is 1 1/4 inches of fish to each gallon of water. This can be exceeded a bit in a large tank like yours, but keep the temperature down to about 76°.

He says I'm wrong.

Q. In the August issue of TFH I read the article "I Get Many, Many Letters" and I think you are wrong about these sentences: "It is not unusual to hear that Mollies and Neon Tetras are being kept together in the same tank. Consider the fact that Mollies come from coastal waters which are sometimes highly brackish, while Neons are found in a region about two thousand miles up the Amazon where there is no salt content whatsoever in the water. How could you possibly provide these species with one type of water which would be perfectly right for both?"

I have had Neons and Mollies together for a long time, and nothing is wrong with either.

Steve Smith,
Whittier, Calif.

A. I like a reader who tells me when he thinks I'm wrong. Sometimes I am, and when this is the case I'll be happy to say so. Your fish, Steve, have become acclimated to your water and have made the necessary adjustments



Neon Tetra

to live in it. They'll keep on living, maybe for a long time, but they will never be at the peak of condition which would be attained if their water were exactly right.

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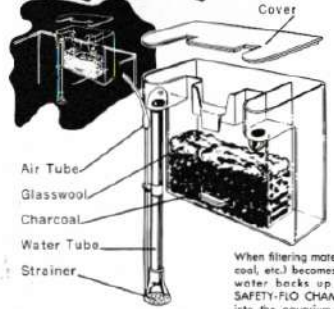
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HEMIGRAMMUS COERULEUS . . . WHERE ARE YOU?

By Dr. Herbert R. Axelrod

For three years, and on three successive trips to the Amazon, I have been looking for what might well be the most beautiful aquarium fish known to science! According to Dr. Eigenmann, this is a small Tetra with a magnificent red body and a glowing blue stripe. Dr. Myers, in his enthusiasm for this fish, added a note in his supplement to Eigenmann's work, further describing the fish as "gorgeous."

During the summer of 1963, while I was at the University of Paris' Laboratoire Arago in southern France, Dr. Jacques Gery and I decided to form an expedition for the sole purpose of finding *Hemigrammus coeruleus* alive! Included in our expedition will be Harald Schultz, Expedition leader for TFH, Dr. Fritz Terofal, the new chief ichthyologist of the Bavarian State Museum, and myself. We shall try to find the Igarape do Mai Joana near Manaus, Brazil and the place in Manacapuru which have been described as the range of this beautiful fish. Dr. Gery, to aid us, has drawn the fish in color according to its scientific description. He has not seen the preserved specimens, nor has he seen the living fish. His drawing is reproduced here so you will have some idea of the magnificence of the fish we are going to look for. As this is being written my bags are packed and I'm ready to go! I'll tell you how successful I am in a month or two, for now is the right time to look for fish in Brazil. According to reports, the Amazon is the lowest it has been in history! This should make fish collecting a simple matter.

The following are Eigenmann's and Myers' description of the fish:

HEMIGRAMMUS COERULEUS Durbin.
Hemigrammus coeruleus Durbin, Bull. M. C. Z., 1908, 82, p. 99 (Manacapuru); Eigenmann, Rep. Princeton Univ. Exped. Patagonia, 1910, 3, 4: 439; Allen, Ann. Carnegie Mus., 1911, 4, p. 102 (Manaos).

HABITAT.—AMAZON.

Specimens examined.

Catalogue number	Number of specimens	Size in mm.	Locality	Collector
28801 Type	1	46	Manacapuru	James
28801 Paratypes	102	42-52	Manacapuru	James
3852 C.	3	40-58	Manaos	Haseman

Head 3.5; depth 2.75; D, 11; A, 20-22; scales 5-31 to 32; eye 2.5 to 2.7 in the head; interorbital equal to the eye.

Compressed; depth of head at the base of the occipital process 1.5 in the greatest depth. Preventral region slightly rounded, median series of scales somewhat irregular, a broad scale occupying the whole space between the bases of the ventrals. Predorsal region broadly rounded with a complete median series of nine scales.



Hemigrammus coeruleus Durbin as drawn by Gerry from the Eigenmann description of the fish.

Occipital process one eighth of the distance from its base to the dorsal, bordered by one and one half or two scales. Interorbital very slightly convex. Frontal fontanel triangular just half as long as the parietal without the occipital groove. Second suborbital leaving a narrow naked area behind and a slightly wider one below. Maxillary very slightly longer than the eye. Mandible two in the head. Snout short, mouth large. Premaxillary with five, 5-pointed teeth in the inner row; and four or five less frequently two, conical or tricuspid teeth in the outer row. Maxillary with four or five sometimes two or three, tricuspid teeth. Dentary with four large teeth, a smaller one, and four or five minute conical ones on the sides.

Gill-rakers 8 + 10.

Caudal sealed halfway to the tips of the longest rays. Anal sheath consisting of about five scales and covering the base of the first ten rays. Lateral line with pores on the seven or eight scales.

Origin of the dorsal the length of the eye farther from the snout than from the base of the caudal. The penultimate ray slightly more than half the length of the longest, which is about four and a half in the length. Caudal equal to the length of the head. Origin of anal on the vertical from the last dorsal ray or a little behind it. Anal broad, emarginate, the longest rays reaching the base of the last ray. Base of ventrals on the vertical from the second scale in front of the dorsal. Ventrals barely reaching the anal. Pectorals just reaching the ventrals.

Distal two thirds to three fourths of dorsal black or blackish, the color more intense in males; a submarginal bar on the anal lobe, and the proximal half of the ventrals, black, the rest of the anal rays often tipped with black.

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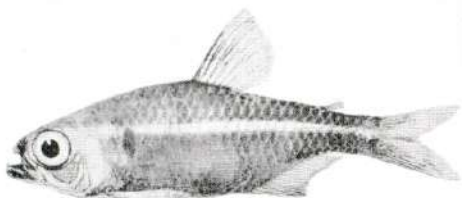
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Hemigrammus coeruleus as illustrated by Eigenmann in Volume 43, Part 2, Plate 17, Figure 2, AMERICAN CHACACIDAE, 1919.

No caudal spot. Humeral spot vertically elongate, a bright area in front and behind it. A wide light lateral stripe from the upper part of the eye to above the middle of the base of the caudal, paralleled below by a less distinct, brown stripe. A bright iridescent blue streak from the pectoral to the scale above the last anal ray. The scales of the sides below the lateral stripe, except those bearing the blue stripe, with a greenish iridescence. Scales of the back and sides above the lateral stripe deeply outlined with dusky.



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Guppy Corner



By Paul Hahnel

Split tails and salt.

Q. 1. Could you please tell me why some of my fancy Veiltail Guppies have split tails? Their tails are ragged, as if some other fish had chewed them. I know this is not possible, because they are kept by themselves. I feed them frozen brine shrimp, live newly hatched brine shrimp, tiny white worms, and a variety of dry foods, so I don't think it is caused by poor diet. Would antibiotics help? There seems to be no indication of fungus or poor health, and they seem perfectly healthy otherwise. None of the local dealers seem to know. 2. Some of the books I have read say that all live-bearers should have salt added to their water. If this is true of Guppies, how much salt should I use?

Martha Adams, Tallahassee, Fla.

A. 1. Your Guppies seem to be beginning to show signs of trouble. Not enough to be very evident, but a little. Your water is slightly fouled. I suggest you change it, about 25% at a time, about 3 or 4 times in the period of about 2 weeks. At the same time, clean away any impurities which may be on the bottom. Avoid overfeeding; give the fish only what they can clean up in 5 minutes.

2. This is one of the "old wives' tales" which holds good only when a fish comes from brackish or partly brackish water. A fish which is native to fresh water does not require salt in its water and may even find it harmful. This includes Guppies.

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*Salts From
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By Alfred A. Schultz

Q. 1. What invertebrates can be kept in pure synthetic sea water?
2. What do Surgeonfish eat? Are they compatible, and do they do well in tanks with synthetic sea water?

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3. How many gallons are needed for each anemone? For each crablike animal?

Larry Tschopp,
Keamore, N.Y.

- A. 1. All types.
2. Surgeonfish must enjoy eating smaller fishes or chunks of washed raw shrimp. Yes, they are compatible.
3. Figure about five gallons for each anemone, and about 1/2 gallon for each small hermit crab.

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