

TROPICAL FISH

HOBBYIST

JUNE, 1964

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GARDEN POOLS, by Paul Stetson. \$1.00 from your dealer or direct from TFH.

In his excellent book *Garden Pools*, author Paul Stetson leads the reader through the intricacies of setting up both formal and informal garden pools, describes the most popular and beautiful of the many colorful water lilies that can be grown in garden pools, and lists some of the other animals and plants that can be given homes in water gardens. Apart from the information given on general good water gardening practice, author Stetson gives many helpful suggestions and answers some of the most practical questions that would be of interest to anyone contemplating livening up the landscape of his home with a garden pond. For example, the book has a complete section devoted to ordering fishes and plants.

Besides being a valuable guide to water gardening as it is concerned with water lilies and other plants commonly associated with garden pools, this book is also valuable for its treatment of Goldfish and the new hybrid Carp developed by Japanese breeders, Koi. There are sections on feeding and breeding Goldfish.

Other topics covered in the book include: the construction and care of garden pools, planting and care of water lilies, and summer care and maintenance of the pool.

TROPICAL FISH HOBBYIST

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COVER	
From the Queen Triggerfish to the Banded Kool Shrimp, marine creatures present a breathtaking panorama of color and form, of which the striking anemone on our cover this month is just one example. For an interesting account of Erwin Temke's experiences with the awesome <i>Actinia equina</i> , see the article beginning on page 5.	

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EDITORIALLY . . .

Have you ever read something which affected you to such an extent that you said to yourself as you put down the book, "There's a person I would like very much to meet some day, and with whom I'd give a great deal to spend an hour!" Sometimes the happy opportunity to do so is given to a person, but mostly their idol might as well be on another planet. Often the hope persists that some day this pleasurable meeting will come to pass, and one morning there is a short paragraph in the newspapers that the Grim Reaper has performed his duties, all too soon.

There are many people I would have liked to meet, people who have evoked my admiration in some way or another. Want to know who some of them are, or rather were?

Ludwig Bemelmans was one. He could describe a person equally well, using either words or a few strokes of his inspired pen and drawing a sketch. He had a remarkable insight into what makes people tick and a lighthearted style of writing which was a sheer unadulterated joy to read. Once I sat in a movie audience and heard the great Paderewski play. The picture was merely a "short," and most of the audience was prepared to just let the old man play until the big picture came on, hoping he wouldn't take too long. But what a hush when they heard him! Before it was over, most of the people were dabbing at their eyes with their handkerchiefs. Another in this select group, who died recently, was Rachel Carson. Her great love for living things was always reflected in her writings, and when her subject was a bird, the world was seen through a bird's eyes and she had her reader doing the same thing for a short time. Yes, it would have been a great pleasure to have met her!

William Vorderwiesler

Tropical Fish Hobbyist

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June, 1964

About some of the Mediterranean sea anemones.



The author calls this a closed purple anemone. Perhaps it looks more purple when it is open. Photo by Erwin Temke.

Actinia equina

BY ERWIN TEMKE
Karlsruhe, W. Germany

The most commonly kept sea anemone in European salt-water aquaria is *Actinia equina*, small specimens of which occur mostly in red or green. In my tanks I have some of the larger ones, which are colored brown and green as well as the colors between.

The range of *Actinia equina* is very great. It occurs in all seas. However, the appearance becomes different with the degrees of latitude. In the aquarium they are very durable. In a collection of North Sea specimens which I kept they were the only ones to survive a hot summer. They adapt very easily to varying temperatures and salinity. When ordering anemones, it is strongly advised to get those that can survive the higher summer temperatures and not to let the temperature of the water get any higher than 65°.

In the aquarium the strawberry anemone multiplies and affords its owner much pleasure. It makes a very pretty sight to see small anemones developing around the parent. When small, their colors are even more intense than those

of the parent. Naturally it is quite a task to raise the little ones, but the results are well worth the work. I can boast of having a pair of Siamese twins, with two mouth openings in the middle. When I feed, I put a piece on either the left or the right opening. Because the tentacles always close over the food I cannot tell if both mouth openings get it or not. It is a pity that only the smaller type of *Actinia equina* breeds. I have not yet heard of the larger type or the color varieties multiplying. Only once during transportation were there supposed to have been any young ones.

I have already stated that *Actinia equina* is not sensitive. I have made the observation that the blazing sun could not snuff out their lives. In Grado on

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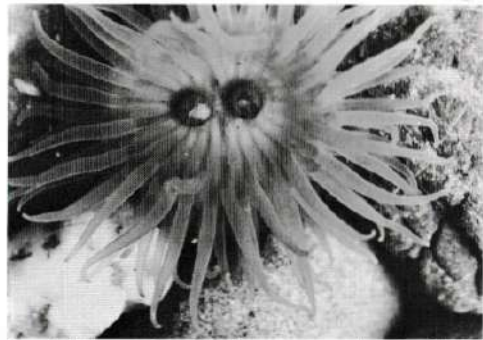
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Open strawberry anemones, showing how the colors can vary. Photo by Erwin Temke.

A specimen of *Actinia equina*. Photo by Erwin Temke.



The author's Siamese twin anemone, showing the two mouth openings. Photo by Erwin Temke.

the Mediterranean the rocks were left completely dry at low tide, and it was a great surprise to find the purple type here. This is a very good thing for a marine aquarist to know, because he can take his anemones home with him without water. It is highly improbable that sea anemones are edible for humans. However, a friend saw them for sale in a fish market in southern France.

Anemones are not always open. It can take days and sometimes weeks for them to put out their tentacles. Then again they might open only at night or when there is food. Recently an acquaintance told me that his was open only four times in six weeks. Fortunately they also look attractive when closed.

Anemones have no eyes. To make up for this, their sense of smell is very keen. As soon as feeding begins, it is not long before all the anemones begin to open. At such a time the open anemones are beautiful. If one has several species a picture results which would compare favorably with a garden of flowers. Many marine aquarists make use of this; shortly before a tank is being viewed by visitors a small amount of food is dropped into the water, and in no time at all the visitors are treated to a beautiful sight. When setting up a marine tank in which sea anemones are going to be kept it is best to be careful and avoid giving them places where they can hide. Otherwise they could creep into one of these hiding places and die unnoticed, fouling the water.



This is a closed strawberry anemone. The dots on its skin are supposed to resemble the skin of a strawberry. Photo by Erwin Temke.

As I have always gotten my sea anemones by buying them, I had a desire to go out some day and catch my own. My equipment consisted of swimming fins and snorkel, and my destination was Sardinia. Some cliffs that reached to the water's edge and smaller groups of rocks in the water promised me happy hunting, and it turned out that the promise was to be fulfilled. The underwater scenery itself was beautiful. Almost every day I made new discoveries, among them *Actinia equina*. It was not to be found in its red color but in brown or green, also the intermediate colors. Some of them were fist-sized. Even here, in their native waters, I must admit that the anemones were all closed. Besides, all remained hidden under the rocks. One had to search in order to find them. Here I was also unable to see how they propagated. There were no young specimens to be found.

Anemones in their native water probably take food at night, and they doubtless time their feeding to the hours when the currents and tides sweep food past them. Removing the anemones, with the exception of a yellow species that seemed to be cemented to the rocks, was very easy. As soon as I could pry the foot partly loose it was not long before the anemone was mine. Putting them into the aquarium gave no difficulties; they attached themselves at once wherever they were placed.

Feeding is very simple. Mine get fresh clam, roe, *Tubifex* worms, earthworms, Guppies, cooked shrimp, beef heart, pieces of raw fish, and liver. When feeding is discontinued for some reason or other and a week goes by, no harm is done. I can recommend that every marine aquarist get a few *Actinia equina*.

A breeding account of an unusual fish.

The Banded Ctenopoma

BY BERNHARD TEICHFISCHER,
Dresden, Germany.

In the fall of 1959 I was the guest of a fish exchange held by a local society, and at the meeting there was a long table with rows of jars and other containers in which the fish for sale were shown.

As I looked over the individual species my attention was attracted to a jar containing a species with which I was unfamiliar. The fish in the jar were small, and their shape reminded me of the familiar *Betta* *betta*. Because of the light bottom they were very pale in color. One could make out rows of bars on the sides and a relatively large dark spot on the caudal base. The owner of the fish told me they were a species of labyrinth fish, *Ctenopoma fasciolatum*.

To make matters short, I walked away with four of the little fellows in a collecting jar along with Veiled Angels, *Macropodus concolor*, and *Mollisnia velifera*. At home the temperature in the tank into which I put them ranged between 72° and 86°. Living foods such as *Daphnia*, *Cyclops*, white worms, and *Tubifex* were given to them. Growth was very good, but one stayed a little bit behind.

After about three and a half months I could distinguish sexes with certainty; the males had pointed anal and dorsal fins which reached to the end of the tail. The same fins in the females on the other hand are not as pointed and sometimes are rounded and reach only to the caudal base. Besides this, the female's colors are less intense.

The dirty yellow color is largely covered with a dark gray or grayish blue. On the sides of the body are found 10 to 12 irregular gray vertical bars. Ventral, dorsal, and caudal fins have a streaked design which in the males is deep blue.

My four fish proved to be two pairs. Both males were frequently seen in their darkest colors, even up to deep black. They were often engaged in jealous battles, swimming around each other with spread gill-covers and fins stretched to their utmost until one of the two attacked with lightning speed. I could, however, detect no damaged fins. Battles always ended when the weaker of the two fled the scene. Behavior of my *Ctenopoma fasciolatum* toward their other tankmates was always peaceful. I could never observe that they pecked at other fishes, as Bettas or Paradise Fishes are likely to do.

As my fish had by this time attained the stately length of 3 inches, I figured it was about time to try finding out if they could be persuaded to spawn. For this purpose I set up a frame aquarium 24" x 16" x 18". Washed sand covered the bottom, and *Vallisneria* and *Hygrophila* supplied the plant life. The surface was quite densely covered with plants; the water was 4 inches deep.

After I had left the aquarium alone for a few days, I put in the larger pair of fish. For about a week I waited vainly for the things which were supposed to happen. During this time I fed generously with white worms, with the result that the girth of the female increased.

Finally one Sunday morning I saw a change in the tank. The water's surface was covered unevenly with bubbles. The male, darker in color than usual, was occupied with building his nest. It was not as fastidious a job as I had become accustomed to see with Bettas. The *Ctenopoma* came up to the surface for air and then released the bubbles from a point near the bottom, letting the bubbles rise. The nest had a very loose structure and came apart again very easily. It must be noted here that the consistency of the bubblestest is an individual characteristic, as my other male built stronger nests.

Previously the female had remained hidden in the far corner of the aquarium, but now she appeared more often. At first the male drove her away, but later she managed to cuddle up to him in the manner common to many labyrinth fishes. At last the first mating began.

The mating act also was different from what I had become accustomed to with Bettas. At a quick glance the embraces might seem exactly like those of Bettas, but I found that, unlike the Beta spawning act, the female was never turned on her back at these times. She retained her normal swimming position while the male wrapped his body about hers. After every mating the female fled hurriedly into a corner. The male followed her part of the way, then returned to the nest and busied himself with repairs. The matings came more frequently, but I was still unable to see any eggs falling to the bottom. I could not figure out why there were so many false matings until I took a closer look at the surface and saw the tiny glass-clear eggs floating there. An oil bubble in each egg permitted the eggs to rise to the surface.

After two hours the spawning was finished. I could observe that the female, now driven away by the male, constantly tried to steal some of the eggs. I decided to remove both parents and turn on the airstone. The temperature

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June, 1964



A pair (male above) of the Banded Ctenopoma, *Ctenopoma fasciolatum*. Photo by Kraemer.

remained a steady 75°, and the eggs developed without any difficulty. After about two days the tiny embryos had hatched and were hanging at the surface. Some of the eggs had fupgused. The young ones tumbled about in irregular fashion through the water, and not until three days later was their swimming normal. At this point I began feeding with the finest dry food. Infusoria are also very good.

After about three weeks the small but fast-growing fish became completely dark and after eating showed a triangular body. Raising the 200 to 300 youngsters in a brood gave no difficulties as long as there was a sufficiency of food.

Ctenopoma fasciolatum is a very hardy fish which I have had in my aquaria at all times since 1959. Unfortunately this fish has not as yet gained the popularity it deserves. Inexplicably, only a few hobbyists have bred them with success.

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My Fish Are Wallflowers

BY JIM HITCH

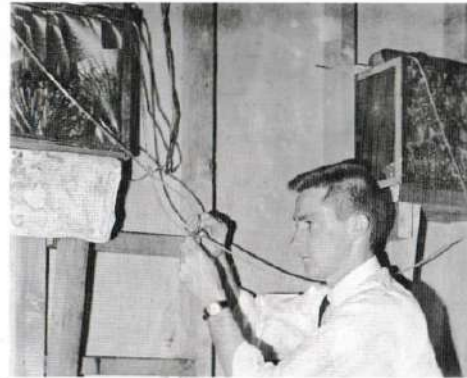
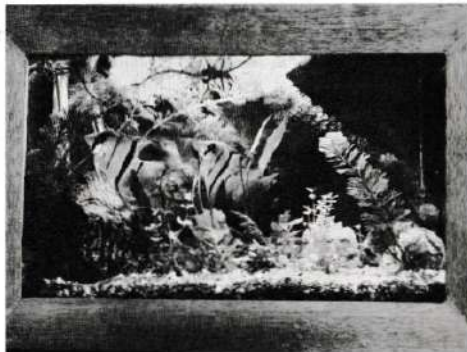
When I finally decided I wanted more out of my tropical fish hobby than a single community tank in my living room, the logical place for my enthusiasm to spill over into was the basement.

After obtaining more tanks I built a double-deck rack in our partially finished recreation room. When I finally got into operation I had eight tanks supporting a mated pair of Angels, a pair of Jack Dempseys, a pair of Mozambique Mouthbreeders, and a wide assortment of livebearers.

I never liked to look at air lines, extension cords, and pumps much, so when my kids insisted on smudging up my tanks I decided to do something about it.

I built an aquarium into the wall of our recreation room, and we liked it so well I added two more. According to present plans, I will eventually have five such tanks lining the wall.

These Angels are at home in the picture-frame aquarium that the author built into his basement wall. Encased tanks naturally are more difficult to work on or net fish from, but the results are often well worth the extra effort expended. Photo by Jim Hitch.



The author adjusts an air valve on the rear side of one of his wall tanks. A diagonal two-by-four leg can be seen on the tank at left; two-by-four platform is visible under tank at right.

Tanks fitted smartly into a wall have several advantages. In the first place all accessories, including cords and air lines, are hidden from view. Secondly, the tanks themselves are hidden, and this can be especially desirable if they are not in the best of shape.

Another advantage is that a wall aquarium places the accent entirely upon the fish and the planting and decorations. There is no visual distraction because of supporting equipment. And lastly, on top of the fact that the tanks are just plain pretty to look at, they're out of reach of youngsters' grubby hands.

There is one disadvantage. I use crystal paint on the back of my tanks, and this forces me to work blind when planting or netting fish. You have to look inside from the side or top, and this is not nearly as easy as working from the front of a tank, but it comes with practice.

Although the special tanks, which feature long, narrow silhouettes, are ideal for wall mounting, I used 10-gallon aquariums. My wall tanks all face into the recreation room, the backs protruding into my workshop, which has unfinished walls. If I ever decide to finish the walls in the workshop, I will



The author here sands the mahogany frame of a wall tank. The walls have been sparsely finished but are not finished.

simply build a false wall to conceal the backs of the tanks and provide a service passageway.

Mounting the aquarium in the wall is relatively simple. Because wall studs are erected on 16-inch centers, one stud must be relocated to make way for the 10-gallon tanks, which measure 20 inches in length. Once this is done a platform is built out of two-by-fours. The surface of the platform should be about the same size as the bottom of the aquarium.

A hole the shape and size of the front of the tank is cut into the wall between the two studs. The platform is placed between the two studs at the bottom edge of the "window" and nailed into place from both sides. Then two-by-four legs are nailed to the bottom and rear side of the platform. The legs can either be extended straight down to the floor or can be slanted diagonally back toward the wall to rest on the two-by-four plate which supports the wall. I prefer the slanted legs because they offer more support and are out of the way.

Finally a piece of trim is used to finish the front of the installation. I used two-inch mahogany door frame molding to create the picture frame effect.

If you're a really good carpenter you can install wall tanks in the main part of your home upstairs. However, since walls are generally too thin to conceal even the special tanks, special planning is needed. You can arrange to have the back of your tank stick into some hidden space, such as a closet.

People ask me what I'll do with the holes in my walls if I ever get tired of tropical fish.

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What Makes a Neon Tetra so Colorful?

BY DR. HERBERT R. AXELROD

Have you ever stared in amazement at a tank of Neons or Cardinal Tetras and wondered why they were so beautiful with their shining blue-green stripes and intense red bottoms? I have . . . and I tried all kinds of tricks to capture this color on film. My usual technique was to set up the camera during the daytime and wait until darkness to photograph the fish when they least suspected it. Every photo was a failure . . . until I read an article written by Roland Mayer. Mayer was conducting research on the skin diseases of some colorful tropical fish. Part of his investigation seemed to have been concerned with whether the Neon got its coloration from parasites on its body, from food or food substances, or from other sources. His tests ran the gamut of the usual chromatological, colorimetric, and microscopic procedures, and after actually skinning 980 Neons he came up with some very interesting results.

THE RED COLORATION

First, Mayer was concerned with the red coloration, and he was able to determine that the color pigment was astacin. Interestingly enough, lobsters also have this same pigment. Mayer further tested his Neons to determine how much astacin each Neon contained. He was unable to find that there was considerable difference between the amount of astacin in the Neons killed in the morning and those killed at night, and he concluded that the absolute quantity of astacin in a fish depends upon the intensity of light to which the fish has been exposed. Under intense lighting, he measured 8 units of astacin as a maximum; under almost complete darkness he could only get 3 units of astacin as a maximum. Thus, the more light a Neon has, the more colorful it will be.

It is interesting that Mayer discovered that the fish's diet had little to do with its coloration. Foods which did not contain carotinoids (these are pigments which are used, for example, in chicken feeds to make the chickens' eggs and flesh more colorful . . . thus more appetizing) were offered to Neons and their coloration did not decrease. As a matter of fact, Mayer put Neons in freshly distilled water, repeatedly changing them for fear that some algae might grow, but the Neons still showed the same amount of astacin. In other words, the only variable in the amount of the red pigment, astacin, found in Neons is the amount and intensity of light to which the Neon is exposed.

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Minute changes in amount of astacin are only visible as color changes in the Neon under special lighting conditions.

The Mayer paper pointed out that "this discovery has nothing to do with the camouflage effect observed often in nature or the aquarium. In this case the fish change colors by expanding or contracting their color cells . . ."

Since the Neon Tetra's pigmentation is not contained within special color cells, but diffused throughout its tissues, a change in red pigmentation means, therefore, a real change in the quantity of pigment.

THE FLUORESCENT STRIPE

A thorough analysis showed that the "fluorescent" stripe on the Neon Tetra is caused by reflection of light. The Neon does not possess an organ which can make this stripe glow in the dark, nor does it contain any parasites which glow. In complete darkness a Neon Tetra is invisible to the human eye.

The blue stripe on the Neon contains such a minute amount of pigment that it would take 9,000 Neons to give the same amount of blue pigment as 980 Neons gave of the red pigment! An analysis of the stripe shows that the blue-green coloration comes from a carotinoid-protein compound which most likely belongs to the astaxanthin group of pigments. This statement is only an educated guess, for only 200 Neons were sacrificed to make this determination.

ARTIFICIAL COLORING

Armed with this information and a contact I had made with one of the large food and drug supplement manufacturers, I had some fish food made which contained various synthetic pigments similar to the substance discovered in Neons. Using such additives as canthaxanthin and several qualities of carotenal to make fish redder and yellower, I fed several livebearers on these foods for a prolonged period of time. My results were all negative, though I did feel that baby fish fed on these supplements were more colorful.

Color additives are not new to animal feeds. Canaries are made red; eggs and chicken flesh are made yellow by feeding the living birds on various pigments. I'm sure that in the not too distant future color foods will be made available to color fishes right through to their bones by one of these synthetic pigments.

READ IT NEXT MONTH IN TROPICAL FISH HOBBYIST

"Mining for Black Rubies"

BY RODNEY JONKLAAS

23

Q. Where Can I Learn The Secrets of COMMERCIAL BREEDING?

A. If you mean the real lowdown from the men who have made millions in this booming field, the answer is ALL-PETS, the business magazine for professional breeders. Every month, the pages of this unique magazine are chock full of money-making tips from outstanding authorities like: Axelrod, Schultz, and Vorderwinkler on fish; Bates, Busenbark and Levi on birds; Whitney, Horswell and Judy on dogs; Ramsdale, Wolfgang and Bean on cats; and a host of other experts on all the other livestock you can breed for profit!

Q. How Do I Subscribe to ALL-PETS?

A. ALL-PETS is strictly business. If you have just a casual interest in breeding, it really is not for you, but if you are the kind of person who sees the real potential in this growing field, then fill out the following and mail to ALL-PETS along with your check or money order. P.S. If you are going to subscribe, you can get a copy of the 1964 All-Pets Livestock Directory, an invaluable reference, free, just by checking the appropriate box below. This directory will be published in the fall.

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24

The Strange Story of *Hemigrammus coeruleus*

BY HARALD SCHULTZ
São Paulo, Brazil

It was a piece of unusual good luck. My speedy Caravelle belonging to the Panair do Brasil rolled into the airport of Manaus, on the Amazon, and there stood the Varig Constellation which had brought my friend Dr. Herbert R. Axelrod a few minutes earlier. We greeted each other and proceeded to the comfortable but expensive hotel, and then our good luck ended. For months we had planned our trip to the Igarapé da Mãe Joana and had made the necessary arrangements, but the motorboats which were to take us to the interior were not there.

"Probably they ran aground!" the owner told us placidly. "There hasn't been a dry season like this in over a hundred years."

Most of the city was without lights, because the pipelines which carried the water to cool the turbines did not reach down as far as the surface of the Rio Negro. A huge steam shovel was finally used to dig a canal and the lights were put in operation once more, but soon there was no more water in the taps. Trucks were pressed into service to dole out water in cans; all of this time it was hot, scorchingly, miserably hot.

The air was laden with smoke through which the sun shone as a red ball in a gray sky. This smoke came from the great flatlands fires in Central Brazil; it mixed with the vapors of the drying forests to form a gray dust which seemed to settle on the spirits of the people, who became sluggish and would not hurry for anything. That is why the motorboats did not come even when they should have been there long ago. Meantime Dr. Fritz Terofal, ichthyologist from the Munich Museum, arrived. This was his first voyage abroad in the tropics. He could not understand how a European could follow my calling in such a country. To do this, I told him, half seriously, one must combine a constitution of flexible steel with an indomitable will and a knowledge of people.

A large crate packed with nets, plastic bags, formalin, and fish poison stood in the customs shed. The amiable and helpful Amazonas inspectors soon released it without charging a penny. The officials showed great understanding for the work of scientists, and they combined friendliness with their official business.

So here we were in a city of busy people with nothing to do but wait!

In 1955 the well-known ichthyologist Dr. George S. Myers of Stanford University in California told me about a small blood-red *Hemigrammus*

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species which was supposed to occur in the Igarapé da Mãe Joana near Manaus. "Igarapé da Mãe Joana" simply means: "Tributary of Mother Joan." Since that time I naturally tried to find this fish whenever my expeditions took me through Manaus. Nobody had ever heard of this stream. Then came Dr. Axelrod with the same information, which he had gotten from Dr. Jacques Gery in France. But, he explained, the Igarapé da Mãe Joana is not located near Manaus, but about 80 miles up the Solimões, near the little city of Manacapuru. But even here nobody knew the stream, because in 1962 we made a journey through the lake region of Manacapuru to find this fish. Then we found out from a former state official at Manacapuru that a stream of the same name was near the Lago Grande, so we determined to find it.

Then at the same time came the solution to our transportation problem. I was talking to a young linguist who was connected with a school of linguistics whose members made studies of the native languages the world over. They managed to keep contact with the civilized world by the use of their own amphibious airplanes, which take them into the thickest jungles the year 'round.

We were on the way next morning, accompanied by Adolf, a young Brazilian who knew the lake region of Manacapuru very well. After a half hour we flew over the network of lakes, canals, ponds, and tributaries which were

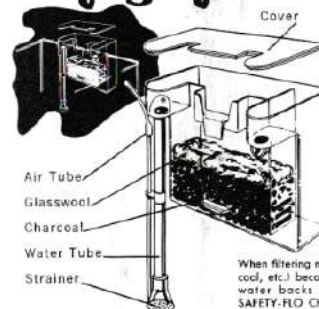
The Norseman airplane that brought the exploring party to Lago Grande, where the search began. Photo by Harald Schultz.



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Tropical Fish Hobbyist

visible even from a great height. The Lago Grande was there, a lake which is so broad that its far shores can be seen only as a gray mist. Among its feeder streams was supposed to be the Igarapé da Mãe Joana. Here was where we were to land.

The water was very muddy. Many fishermen were in this arm of the lake in their tiny dugouts. Our plane buzzed close to the water, a sign that we wanted that stretch cleared. After another dip we put down the pontoons and our flight soon came to a stop. We made our way slowly to a motorboat which was anchored at a wide mudbank. This was the mother ship for the many fishermen who went out singly and harpooned the huge Pirarucú (*Arapaima gigas*). These fishermen, who work individually, are provided with the necessities of life from the motorboat. The owner buys the fish from them and then skins them, cuts them up, and salts and dries them.

"Boa tarde!" Dr. Axelrod shouted to them in Portuguese.
 "Boa tarde!" came the friendly answer, "are you from Manaus?"
 "Do you know where the Igarapé da Mãe Joana is?"
 Silence . . . and then one says, "I've lived here for more than 40 years and know all the lakes and rivers hereabouts, but not one of that name!"
 The entire family of Senhor Afonso, owner of the boat that supplies the Indian fishermen, lives on this small boat, which is barely 30 feet long—his



The mother ship, which supplies the native fishermen, is home to three generations of Senhor Afonso's family. Photo by Harold Schultz.

Arrow points to the Igarapé da Mãe Joana. At center foreground is pool enclosed by sandbar formed as the river's waters receded. Photo by Dr. Herbert R. Axelrod.



wife, three grown sons, a daughter, her husband, and a flock of children. Everyone helps with the work. There is only one closed room made of boards, where the women sleep. In this room is also a small gas stove for cooking. All the others stretch their hammocks and mosquito-netting wherever they can in the evening, crisscrossing them in all directions. Everywhere there are provisions piled up for the fishermen.

Soon we smelled coffee, which was to be served to us in small cups: black, hot, and with lots of sugar. "For me, coffee without sugar, please," Dr. Axelrod told them in Portuguese. He was of the opinion that coffee could be enjoyed properly only when its aroma is unspoiled by the addition of sugar. Not for me!

In the water there were many river porpoises. They surfaced and exhaled, hissing like little whales, and then dived again. They were happy creatures. This year food was particularly plentiful. The water in the lakes and large Amazon tributaries had shriveled to a point where the banks had receded, separated from the water's edge by a wide strip of mud, which was difficult to cross. The fish no longer have their hiding-places because the floating grass which would normally cover huge stretches is now all gone. Even the manatees are forced into the open water of the lakes this year.

Tropical Fish Hobbyist



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TFH 64-6

June, 1964



This boat crew is unloading newly captured Discus on the Manaus side of the Rio Negro. Photo by Harold Schultz.

"Doesn't anyone harpoon the porpoises?" Dr. Axelrod asked Senhor Afonso. An embarrassed and astonished laugh was his answer. "Nobody wants them. Maybe later on, when we've caught up all the Pirarucú, manatees, and all the fish," Senhor Afonso said.

He took a long pull at his cigarette and added: "You don't seem to know what these 'botos,' the river porpoises, are. Anyone who has young daughters has to watch out for them. The 'boto' has a very bad reputation here." The man laughed, but there was a certain amount of nervousness in his laughter.

"You see, I'm not an Amazonian. I came from the State of Pernambuco many years ago, and don't believe in these things. The 'boto' transforms himself into a handsome young man and goes to the dances. There he selects the most beautiful young lady, preferably the daughter of the house. He dances all evening with her and gives her all his attention. At the height of the dance he leaves with her to look at the beautiful night outside . . . and then he disappears as he came. Nobody knew him and nobody knows where he went . . . and then the girl becomes a mother. She remembers with sadness and longing her handsome companion at the dance. And the parents remember that he was wearing a hat which he never took off. With this hat he covered the breathing-holes on top of his head and disguised the fact that the elegant and amiable young man, the father of the child, was a 'boto,' a river porpoise."

Senhor Afonso took another swallow of the strong black coffee and continued: "The child is a porpoise-child, a spawn of the devil! In some sections—not this one; we're near the big city of Manaus—the girl is advised by one

Tropical Fish Hobbyist

of the older women to kill the child. But quite a few young mothers love such a child and raise it."

Outside the porpoises leaped in the shallow water of the half-dry lake. And then came the surprise . . .

"There is an old woman here named Mãe Joana. She has been living in this place for many years."

"Is there a little stream there?" I asked quickly.

"Yes, an hour's journey below her house there is a stream which is almost dried out, and there is a small brook where she gets her water."

A great joy came over me. "Yes, that's the one," I shouted. "There, where Mãe Joana lives; that must be it."

"But the stream is called Humaitá, not Igarapé da Mãe Joana," said Senhor Afonso.

"No, no, it's the little brook I mean!" Surely the man who had found the fish had forgotten the exact name and called the little stream "Mãe Joana's Stream." Very exact. Here along the Amazon there are a great many places which are named according to the imagination of the natives.

"We must go to the brook where the old Mother Joan lives," I said.




"I'll gladly take you there in the motorboat. It would be too dangerous for you to fly there. There are too many rocks in the muddy water." Another example of Brazilian generosity and helpfulness, especially among the unspoiled natives of the interior.

On one of the high banks there was a grass hut. I climbed up, and was going to ask if Mãe Joana lived there when I remembered that this might be a nickname for the old lady who was supposed to live there, one which she might not like. The hut was closed. A few chickens clucked in the shade. Somewhere a dog barked. Wherever there are domestic animals, I figured, there must also be people. I clapped my hands, as is the Brazilian custom. A man appeared. "Does Dona Joana live here?" I asked. The man assured me that this was her house, whereupon I explained that I did not want to be any bother, but only wanted to catch a few fish in her little brook.

After an hour's sail we came to a big bend. Soon there was a high bank before us, or rather two towering tongues of land with a deep indentation between where a narrow brook flowed, with swampy, grassy shores. I could not help but wonder what the place must look like in the winter season, with the water 30 feet or more deep and everything covered between the two tongues of land. The brook would no longer be a brook but a continuation of the lake, which would be a brook again far upstream.

"There are only little Lambaris (the name for a small, silvery fish) and a couple of Trairas. You're welcome to any you can find."

Continued on Page 50

 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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MAIL CALL

If you have an aquarium question and cannot find the answer in any of the standard reference texts, send it to MAIL CALL. Each month this column will publish the most interesting questions received and their answers. Letters containing questions cannot be acknowledged or answered personally. Address all questions to: MAIL CALL, T.F.H. Publications, Inc., 245-247 Cornelison Ave., Jersey City 2, N. J.

Fish thrive, plants do not.
Q. Help! I have a 15-gallon aquarium in which the fish are thriving and the plants either do not grow or die. The leaves on an Amazon Suncorplant die as fast as they grow. The water is quite soft, the pH around 7.7 and there is fine white sand on the bottom. I am using fluorescent lighting for eight hours a day. If I must change to gravel please let me how to do so without taking the fish out.

Puffer.
Q. I want to buy a Puffer and would like to know the following about it: could I keep it in a 10-gallon tank with Zebra, Swordsails, and Mollies, or

out the plants and set them in shallow pans with gravel and then bury the whole thing in your sand.

Leonard H. Smiley, Newark, Del.

A. In the first place, a pH of 7.7 is a bit high on the alkaline side. However, your greatest trouble is that you are using fine sand. This is not loose enough for your plant roots and prevents them from growing properly. Sorry, but I cannot suggest any way to take out the sand and put in gravel without taking down the whole tank. The only thing that comes to mind would be to take

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Puffer (Tetraodon species)

would it disturb the other fish? What is best to feed it and how often?

Clifford Gruenberg,
Calexico, Cal.

A. Unless you are prepared to give it a tank of its own, forget about getting the Puffer. They have a set of very sharp teeth and do not hesitate to use them on other fishes. A good food for them is raw shrimp cut into small chunks. Snails are a delicacy to them. Feed daily, all they can clean up in ten minutes.

Betta spawning, Glass Catfish and Pencilfish.

Q. 1. I have tried to spawn a pair of Bettas. I followed the instructions given in *Beautiful Bettas and Siamese Fighting Fish*. The water was the correct temperature, as was the pH, and both fish were healthy and well conditioned. The male built a bubbly nest and spread his fins. When I removed the divider the nest was broken while the male was chasing the female, which was all he did. The female was in pretty bad condition then, so I separated the pair. What did I do wrong?
2. Will Glass Catfish eat frozen brine

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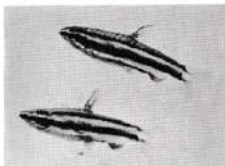
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shrimp? I read that they accept only live foods.

3. I have three Pencilfish. Two sometimes pair off. Twice I have noticed that those two fish come together side by side and start hitting each other with their tails. Could they be mating or are they fighting?

Nancy Fisher,
Washington, D. C.

A. 1. This happens frequently. The female's eggs have not quite developed



Pencilfish

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and the male in his impatience damages her. When the female is practically bursting with eggs once more, try again.
2. You would have to feed them, as a friend of mine feeds her Seahorses; fill a tumbler with water and allow the brine shrimp to melt in this. Then pick up a few shrimp in a baster and squirt them in the water toward the fish. This



Glass Catfish

makes them look alive, and the fish will accept them until they fall to the bottom. Repeat until the fish refuse them, then pick up those that have fallen. It's a lot of trouble, but if there is no live food available, it will tide you over!
3. If they do this out in the open, they are probably just sparring. When they are in real earnest they choose a spot among the plants first. Then there is little tail-slapping but a great deal of the side-by-side position and quivering.

Golden Swordtail babies.

Q. I have had most kinds of livebearers in my 10-gallon tank but never found any little ones excepting Guppies. Recently I acquired a nice pair of Gold Swordtails and shortly thereafter noted that Mrs. Swordtail was expecting. I went out and bought a 5-gallon tank for her, planted it heavily, and as gently as possible transferred her into it. A couple of weeks passed when one day I noted my first baby. A closer check revealed four babies. I expected within a day or two to have several more babies, as the

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mother is still real dark and plump. All this time I watched and watched and cannot find even one new addition. The original four are getting big and plump and venture out of the plantings with their mother. I am getting a little bit desperate. Is she "egg bound"? Does it usually take this long? Will patience reward me with more young? Please let me know what, if anything, may be wrong. Also I cannot find in my books at what age my babies, if any of them are males, will begin to develop their swords.

Mrs. June Callaghan, Seneca Falls, N. Y.

A. Either of two things happened; either your Swordtail had only four babies or, what is more likely, she had more and found them before you did. No, I don't think she's eggbound; about a month from the time you found the first

babies she'll have more and if this time you find them earlier, there will be many more. Swordtails generally deliver all of their young within a few hours once they get started. The reason your books are indefinite about when the youngsters begin to show swords is that some show them early and others do not get them until they are quite large. Generally the ones that get the swords while still small do not grow to be very large specimens, while the ones that get them later are the ones to look for, because they become large males.

Green Hi-Fin Swordtails.

Q. The young male hi-fin Swordtail in the enclosed photograph is green. I had never seen, read, or heard of this color of Hi-Fin Swordtail before, but I discovered mine in a tropical fish store aquarium containing normal green Swordtails. They were quite young and

I noticed they had a little bit bigger dorsal fin than the rest, so I bought them for the regular price of green Swordtails. Their dorsal fins grew bigger and when the pair was still quite



Cameron Suttles' male green Hi-Fin Swordtail

young (when photos were taken) they had five babies which also had high fins. For some unknown reason the parents and all five babies died.

All I want to know is whether or not green Hi-Fin Swordtails have ever been discovered or bred before.

Cameron Suttles, Reno, Nevada

A. Yes, green Hi-Fins were among the first that were produced by Mrs. Simpson in California. Also, a lot of the throwbacks from the red Hi-Fins are green.

Angel Fish bullying.

Q. I have two Angelfish, and the larger one keeps nipping at the smaller one's tail whenever he is in the open. My mother tells me that a pair should be bought together, but I got the smaller one just recently. I would like to get an expert's advice on what I should do.

William Jeffries, Los Angeles, Calif.

A. This is a very common source of trouble whenever two Cichlids of disparate size are put together. The little fellow is always the one that is picked on, and if he does not get enough

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places to hide, it will not be long until you find his mutilated remains. Try separating the smaller one and giving him the rest he so badly needs. He may catch it again when you put him back, but he may surprise you and fight back.

Want a pen-pal in England?
Q. I have just purchased two *Xenomystus nigri* which are more active during the day than at night. Is this usual, are they peaceful and what are their favorite foods?



Xenomystus nigri

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2. I am just starting a tank 18" x 10" x 10" for Toothcarps and would like to know which types and how many I could put in.

3. I have just bred Lyretails (*Aphyoseion australe*) and would like to know if the female should be separated after any length of time and what size tank to put the fry in.

I am also very keen to get some pen friends from U.S.A., Canada, or Germany, and wondered if you could print my name and address in your column.

C. Bennett
36, Weybourne Gardens
Southend-on-Sea
Essex, England

A. 1. *Xenomystus nigri* do not seem to share the nocturnal habits of most of their kin. I know of no way of sexing them. They can be trusted with smaller

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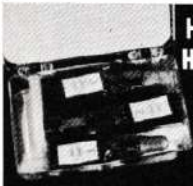
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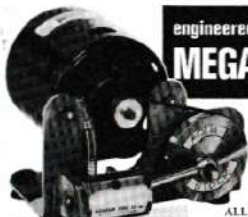


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fishes of other species, and are very likely to be scrappy with their own kind. Large amounts of live foods are consumed.

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3. Give the female a rest after her size tells you that her egg supply is depleted. Raise the fry in as big a tank as you have available. Your address appears with your questions. The rest is up to our readers.

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By Paul Hahnel

The International Guppy Show will be held in Honolulu, Hawaii, from July 28 to August 2, 1964. I realize that only a few hobbyists can be present, but you can easily mail your Guppies to the Honolulu Aquarium Society and help make this show the great success it has always been; your fish can compete against those of many breeders from all over the world. For information, write to Mr. James Izumi, 1405 Maimala St., Honolulu, Hawaii, 96817.

Throwbacks?

- Q. 1.** I have been raising fancy Guppies for a year. The tails have been getting better and better, and I used the culling method you recommend. However, one day I found a lot of common Guppies. Could this be a throwback?
- 2.** About how many Watersprite

plants should I keep in my 20-gallon aquarium?

Dave Martin, Corona, N.Y.

A. 1. Possibly you overlooked one "nut to eat" Guppy which is smaller and quicker, so he had the run of the house. Another reason might be that you have improper conditions in your tank which will make the fish lose their highbred qualities and revert to the original breed of Guppy.

2. Twenty plants of Watersprite in a 20-gallon tank will be about right.

Three letters, one question.

Q. When my Guppies have babies, they are always females. This has happened several times now. Is there an explanation for this?

Jeff Gilnes, Racine, Wisconsin.

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Q. I raise fancy veiltail Guppies. Every time one of them has babies 95% of them are females. Out of about 300 babies I have had 5 males. Is this normal or is something the matter?

John Musgrove, Beardstown, Ill.

Q. I have a Guppy that had young four times. The funny thing is, she gave me all females. Is this unusual?

Joan Atkinson, Lynn, Mass.

A. Even though they live miles apart, the problem and the experiences of these three hobbyists are the same. Having none or only a few male babies could be caused by environmental conditions, temperature, food, chemical content of the water, etc. Latest research also shows us that chromosome disturbance or chromosome abnormalities are among the reasons for this occurrence. An article by James Kelly, of Manchester, England, in the magazine published monthly by the Fancy Guppy Association points a finger at one reason for this trouble. I quote him: "Though the results of feeding foods containing hormones are quite astonishing, one must bear in mind that sex hormones (called androgens and estrogens) can drastically alter the normal sex ratio and can cause the elimination of normal males. Sex determination is caused by the interaction between hormones secreted by the ductless glands. The red-shaped chromosomes determine the hereditary traits, the

nuclei of the cells differing in both male and female Leebistes reticulatus.

Professor Wings proved that the sex chromosomes of the Guppy male are dissimilar (XY) and the female albe (XX); in sex reversal a male carries the sex chromosomes of the female but the sexual characteristics of a male. These XX males can be produced by the breeder by feeding with foods containing androgenic male hormones. When such a sex-reversed Guppy is mated to a normal female the offspring will be all females, the reason being that the parents didn't carry the Y chromosome and therefore couldn't pass it on congenitally."

It could be that some of the dry food that these three hobbyists are feeding contains androgenic male hormone.

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Salts From The Seven Seas



By Alfred A. Schultz

Q. I am planning to start a marine aquarium and would like to ask a few questions.

1. The water here is very hard and extremely alkaline. Would it be better to use distilled water when mixing sea water or would tap water be all right?
2. Will Dwarf Sea Horses eat micro-worms?
3. What type of sand and filter do you recommend?

Alan Hermel,
Sun Prairie, Wis.

A. 1. It is not necessary to use distilled water. Tap water can be softened by passing through a softening pad and then adjusting the pH to neutral. Then add

your salt. As the water evaporates replace it with tap water. Your fish will acclimate to this water very well in time.

2. Yes, but as with all foods which will not live in salt water for any time at all you must feed very sparingly to prevent overfeeding.

3. Silicate sand and any good type of filter will do the trick.

Q. 1. Do I need any coating to put over the cement in my 10-gallon aquarium to convert it to a marine tank?

2. Should charcoal be used in the outside filter?

3. Does this combination sound OK? One Beau Gregory, one Cardinal Fish, and one Flame Black Damsel. Would it be all right to add another fish? If so, what would be suitable?

4. Would I be able to feed these fish frozen brine shrimp?

Don Deacon,
Westfield, N.J.

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A. 1. Yes.

2. No.

3. Leave out the Beau Gregory and add any other fish of comparable size.

4. Yes.



Hawaiian Butterfly Fish.

Q. I have just purchased two Hawaiian Butterfly Fish. One is the Raucous Butterfly and the other the Spotted Butterfly. I have placed them in a 20-gallon tank with fluorescent lighting and aeration. These fish are full grown. Could you answer the following questions for me?

1. What temperature should they have?
2. I feed them adult brine shrimp. Is this good for them?

3. I have kept my hydrometer reading at 1.024. Is this good?

4. How many other fishes of this size could I put in my 20-gallon aquarium?

Alan Bender,
Los Angeles, Calif.

A. 1. 68 to 70°.

2. Yes.

3. Yes.

4. If the fishes are full grown, you have reached your limit.

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SOCIETY NEWS

All inquiries about The International Federation of Aquarium Societies should be addressed to: TIFAS, 118 Court St., Monticello, Indiana.

Brooklyn, N. Y. . . . The Brooklyn Aquarium Society will hold its first International Tropical Fish Show on May 16 and 17 (1 p.m. to 7 p.m. both days) at St. Augustine High School, 64 Park Place, Brooklyn, N. Y. There will be a total of 33 classes (including 16 Guppy classes), and entries are anticipated from all over the world.

Fort Worth, Texas . . . The Fort Worth Aquarium Society will hold its fifteenth annual Exotic Fish Exhibit June 14 through June 28 at the Town Hall of the Seminary South Shopping Center in Fort Worth.


The Fort Worth Aquarium Society meets the fourth Monday of each month at the Fort Worth Botanic Garden Center.

Springfield, Va. . . . The Northern Virginia Junior Aquarium Society is looking for new members between the ages of ten and sixteen. Interested parties should contact Chris Kirwan, 5605 Catlett St., Springfield, Va. 22151. Telephone 256-7260.

Continued on Page 66

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The Strange Story of *Hemigrammus coeruleus*

Continued from Page 32

The specific name *coeruleus*, which means "sky-blue" has been the source of much puzzlement to me. How come this is a "blood-red" Characin (according to Myers, Gery, and Eigenmann) when its name proclaims that it is blue?

We worked up the brook in two groups. It was easier to wade in the brook than to walk in the soft mud and clay of the shore, which was still soaking wet in spite of the prolonged dry season. The brook took many turns toward a small patch of woods. Dr. Axelrod, Dr. Terofal, and our pilot George Inasley fished in the lower reaches. I preferred to make my way swiftly upstream with two natives to a place where it began to flow more swiftly and the banks were overgrown with bushes and trees. Tree-trunks lay across the water, limbs decayed in the water, and at times the brook was blocked entirely and we were forced to climb over rocks and trunks. The water was crystal clear and even our wading did not make it very muddy. Everywhere there were small fishes that swam away hastily to disappear along the banks and under branches and twigs. We caught many; all were silvery, some with a small spot at the tail base. None had a dark stripe such as was described for *H. coeruleus* or a gleaming, metallic blue in the lower part of the body, and none was gleaming blood-red.

"Here is a school of darker fish." They swam closely together in a pool beneath an eddy. We put the square-framed net under them. They hardly tried to escape. Up! And they looked like a gleaming metallic blue.

"These must be the ones! *Coeruleus* means blue, not red," I said. "Quick, one of you run downstream and tell the Americans we have found the fish!"

But it still wasn't *Hemigrammus coeruleus*. When we took the fish we had already caught out of the water to examine them again the metallic blue color had almost vanished. They were merely an unattractive grayish blue, and the scales gave a slightly metallic reflection. Nothing again!

Soon after this the brook was so choked with branches, logs, rocks, and other debris that we were forced to turn around. Besides, the water began to run more swiftly and the fish were scarcer. We had gone upstream for about a mile.

"Nothing to do but poison some of the water," Dr. Axelrod said. "Let's go to a small part of the lower section so that we don't do too much damage." The fish poison was milky white and smelled like death. It flowed slowly with the current. Soon the water swarmed with small fishes. There were many species we had not caught in the net: *Arynanax*, *Hemigrammus*, all silvery, pale reddish *Pristella*, *Roeboides*, *Characidium*, *Crenicichla*, *Cichlasoma*,



A drawing made by Dr. Gery from preserved specimens of *H. coeruleus* and written descriptions of the fish.

Note: I spoke with Dr. George Myers about this fish and the odd phenomenon of its changing color when dead. Myers recalled (and he is famed for an infallible memory) that the fish were preserved in a sweet alcohol. He even tasted it! He further advised me that the fish must show this red coloration at some time during their life cycle or they wouldn't have the red chromatophores. Dr. Gery, who identified these fish for us, advises that by the time the fish got to France, they had lost their red coloration; these specimens had been preserved in 10% formalin. HRA.

A photograph of a living specimen of *H. coeruleus*, by Dr. Herbert R. Axelrod.



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WARDEN YOUNG, Little Falls, N.J., '61 AGA Eastern Show, First Place Guppy King. Only dry food I ever use is Rut-King.

EMBLE FARD, Andover, Mass., '61 AGA Eastern Show, 2nd Place, Goldfish King. Winner in major U.S. shows. "You'll always find Rut-King in my fish room. It's the only dry food I feed."

ARNOLD SWERNEY, No. Bergen, N.J., '61 AGA Eastern Show, 2nd Place, Goldfish King. Winner in major U.S. shows. "You'll always find Rut-King in my fish room. It's the only dry food I feed."

REPORTS LIKE THESE PROVE RUT-KING FOODS ARE BEST FOR YOUR FISH . . .

"Most of the credit for my prize winners goes to Rut-King food according to recommendations in 'Rutkowski-Konig's FEEDING' manual." Ed Hader, Coconino Falls, O. International Guppy Champion.

"Wherever I need a 'micro' food, I find Rut-King Guppy Food best of all." Heinrich Kibbe, Kibbeville, N.J., Show exhibitor.

"For size, long life and natural color production, Rut-King is Louis Redford No. Bergen, N.J., World renowned breeder."

"I use—and always recommend Rut-King foods to my customers." Bob Kessler, owner FISHBOWL, Irvington, N.J., nationally known breeder of some of the world's finest and most exotic tropicals.

Rosario La Corte, Elizabeth, N.J., Author, breeder of Cichlids, Cichlids, Characins. Recommends and uses Rut-King foods for fry and adults of these species.



and many *Acaronia*, a pale *Geophagus*, and different Catfishes. We caught a lot of young Trairas and once in a while a *Gymnotus*.

We collected and collected, but still no fish with light and dark horizontal stripes, no gleaming metallic blue, no blood red. We collected and collected—nothing!

An hour passed. We waded in the poisoned water of the little brook carefully, in order not to miss a single fish. "There's a red fish," said George Inley. Yes, there lay a lightly red, elongated fish. I say "lightly red," because the color was much nearer pink than red. But it was a "red" fish, and elongated like *H. coeruleus*. We looked at each other questioningly.

"Our expedition is successful, Herbert; this is our fish." Dr. Terofal lifted the plastic bag with the collected fishes to put our discoveries away.

"Here is a blood-red fish in the formalin. And there is another," said Dr. Axelrod as he pointed to a fish which was without doubt the same species which we had just found. Yes, it was really blood-red. How could we have missed it, having caught only silvery fishes? The answer came to us: after a time in formalin the originally found fish gets redder and redder, until they get exactly as red as the ones which have been in formalin for a long time. These must be *H. coeruleus*.

The scientific description states: "A bright iridescent blue streak from the pectoral to the scale above the last 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 gray."

Nothing about a red body. Not until a footnote do we see: "Numerous specimens collected by Dr. Ternetz in Igarapé da Mãe Joana near Manaus were entirely of a most gorgeous shade of deep vermilion when unpacked. This coloration extended to all parts of the body and fins, slightly paler, of course, toward the fin tips and vent."

Just like our fishes in formalin, but not until death by poisoning and preservation in formalin. Is it *H. coeruleus* that is supposed to be so beautiful? Much more so than the Cardinal Tetra? Is it possible that its full colors are attained only when undisturbed in its native waters? Does it pale immediately when caught? Are these its breeding colors? Or is the real Igarapé da Mãe Joana somewhere else? Scientific identification of the fishes we caught will provide some of these answers.

I think we have found our fish. It was a disappointment. It becomes red only after death. There are so many fishes preserved in the ichthyological museums which change their wonderful colors in life to the pale white of death. Why can't this process be reversed some time? One thing I can promise to the fish hobbyists of the whole world: I will keep an eye open at all times for a fish with a red body and a gleaming metallic blue stripe!

SOCIETY NEWS

Continued from Page 58

Foreign Hobbyists to Become "Pen Pals" of Americans . . .

American tropical fish hobbyists will be able to correspond about their fishes with foreign aquarists as part of the largest international pen pal project ever conducted.

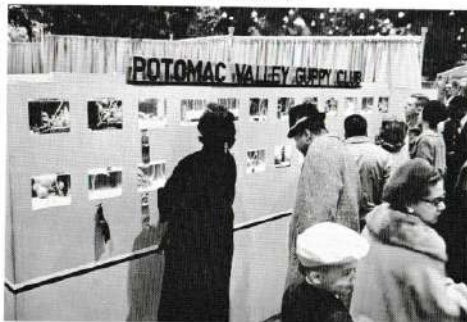
Called the "International Penfriend Program," the project's goal is to promote a better understanding among peoples of the world through person to person correspondence. A mil-

lion or more persons of all nations are expected to be matched by electronic computer in the next two years.

The project will be conducted by The Parker Pen Company at its pavilion at the New York World's Fair, which opened April 22. The theme of the pavilion is "Peace through Understanding through Writing."

Names to be fed into the computer for matching at the Fair currently are being gathered throughout the world. Hobbyists can select the language in which they wish to correspond and the area of the world to which they desire to write.

A view of just a few of the many exhibits and spectators at the recently held annual "fish fair" of the Potomac Valley Guppy Society, which was held in conjunction with the National Flower Show.



NOTES FROM ALL OVER

FISHES OF NORTH AND MIDDLE AMERICA
 by Jordan and Evermann,
 Now Available.

A reprint publication program has recently been inaugurated pursuant to an agreement between the Smithsonian Institution and T.F.H. Publications, Inc.

The proceeds derived from the sale of this and other future reprints will be used to establish the T.F.H. Fund "for research, collection or purchase of fish specimens, explorations, and publication of scientific reports related to aquarium fishes." T.F.H. Publications, Inc. donates the reprinted books to the Smithsonian Institution to be sold by the Institution at not less than cost.

The Secretary of the Smithsonian Institution has appointed a committee to advise, initiate, and recommend actions to carry out the intent of the agreement as follows:

Leonard P. Schultz (Chairman) and Victor G. Springer, Division of Fishes, U. S. National Museum; Paul H. Oehser, Chief, Editorial and Publications Division, Smithsonian Institution; Herbert R. Axelrod, President, T.F.H. Publications, Inc., *ex-officio*.

The first recommendation of the Committee was to reprint U. S. National Museum Bull. 47, *The Fishes of North and Middle America*, by Jordan and Evermann. This historical work is now available at the Publications Office, Smithsonian Institution, Washington, D. C. 20560. Price \$25.00 for the four parts.

The Smithsonian Institution is receptive to suggestions for consideration of reprinting additional out-of-print publications in ichthyology and related subjects. — Leonard P. Schultz

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