

# TROPICAL FISH

February, 1956

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HOBBYIST



*A pair of Pearl Gouramis, in a beautiful pose. Color photograph by Gerald J. M. Timmerman.*

## A STRING OF PEARLS

(Gourami fry, of course)

## PURPLE SPIKE-TAIL PLATY

by DR. MYRON GORDON

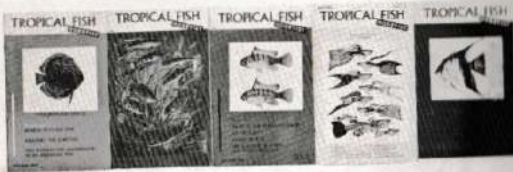
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**EDITORIALLY...**

In February of this year, the grand old man of the aquarium world, William T. Innes will celebrate his 83rd birthday. For many years now Innes and I have taken opposite views on so many aquatic subjects that people have the impression that we are bitter enemies. This couldn't be farther from the truth, for there are few men in this world who I respect more than W. T. I. Without him I seriously doubt that our hobby would be anywhere near as prosperous and advanced as it is now.

Nearly every old hobbyist has at one time or another read something that Innes has written, and because we refer to Innes as "Our Father Who Art in Philadelphia", As a salute to "Our Father", Mr. Timmerman and I dropped in to visit with him at his home and, to our great surprise, we met Dr. Schultz there. This was a wonderful opportunity for us to get some very interesting photographs . . . and a more interesting story.

Watch for the next issue of TFH for that issue will contain a photographic essay with the complete life story of Innes, written by your editor.

You will note that on various pages of this issue we are asking our readers who write to advertisers to please mention T.F.H. Advertisers like to know where the response is coming in from so they can more easily evaluate their advertising expenditures. Many of the advertisers offer nice, illustrated catalogs full of information. We heartily recommend them to our readers. It might well be worth your while to write to the various advertisers and get their catalogs, just for the information they contain. The advertisers go to a great expense to prepare the catalogs . . . take advantage of them.

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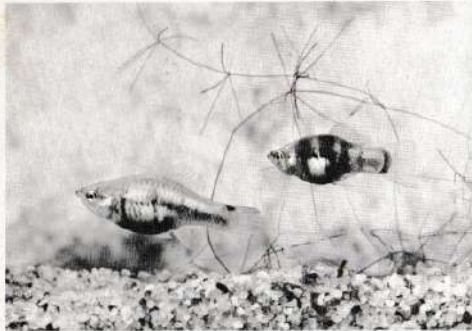
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**THE PURPLE SPIKE-TAIL PLATY FROM MEXICO'S RIO SOTO LA MARINA SYSTEM**

by DR. MYRON GORDON  
Geneticist, New York Aquarium

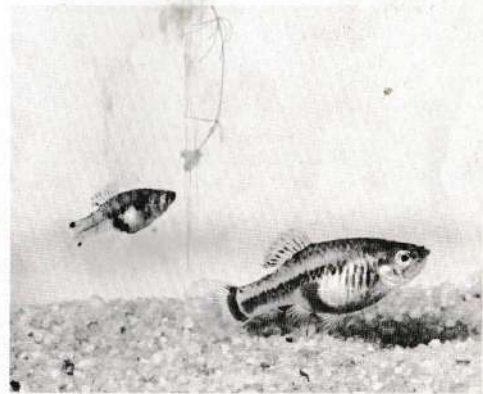


*The Purple Platy males become quite dark when they reach full size. Note the spike tail in the male to the right. What is the reason for these fish never becoming popular? They are peaceful, don't eat their young, are hardy, colorful and omnivorous . . . everything that a fine aquarium fish should be. Photo by Sam Dunton, New York Aquarium.*

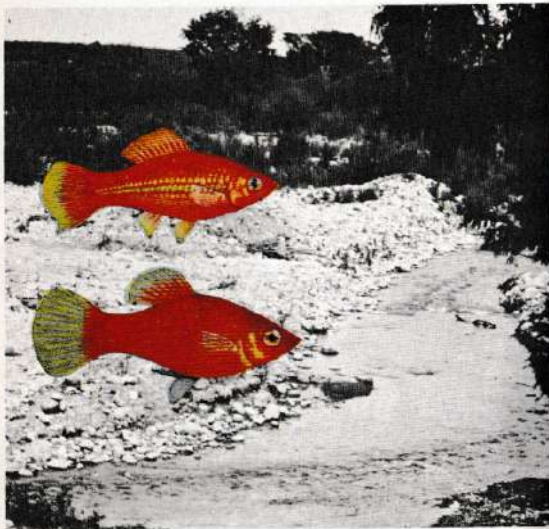
In Mexico along the Pan-American highway halfway between Linares and Villagran, the road, conforming to the rising tableland, reaches a peak of just over 1500 feet. These intervening highlands form a natural divide between the watershed of the Río San Fernando to the north and that of the Río Soto la Marina to the south. The northernmost tributaries of the Río Soto la Marina flow southeast from the eastern ridge of the Sierra Madre Mountains to the Gulf of Mexico emptying into the Gulf about 50 miles north of Tampico. We fished in the Río Pilon and Arroyo Meco but their waters were muddied by heavy rain back in the mountains. From the aquarists point of view no brilliant new forms appeared although from the purely scientific viewpoint every fish represented a new item. Not for fifty years has this area been explored for the species natural to the area.

South of Hidalgo we reached one of the largest of the Río Soto la Marina's tributaries, a river which has the symbolic name of Río Purificación. At the height of the dry season when we happened to visit it, parts of the Río of the holy name looked less than uninspiring. A narrow ribbon of water trickled in and out of a narrow, tortuous channel within the enormous river bed, over 600 feet wide. Many of its tiny branches were dead ends forming pools between huge boulders. The stones heated by the sun speeded the evaporation of the trapped water.

Around a sharp turn, the waters formed a slow swirling back eddy of green water. As we approached the murky green pond we disturbed a flock of unlovely vultures that were resting on the scraggly branches of leafless mesquite trees that overhung the banks of the river. Their tracks covered the muddy edges of the stagnant river pool and from their pattern it appeared that the long, naked-necked bird-scavengers had been feeding upon the dead fishes that bobbed up and floated on the surface or had drifted to the shore. The noon-day heat blanketed the area. The Río Purificación was as foul as a cesspool; no wonder

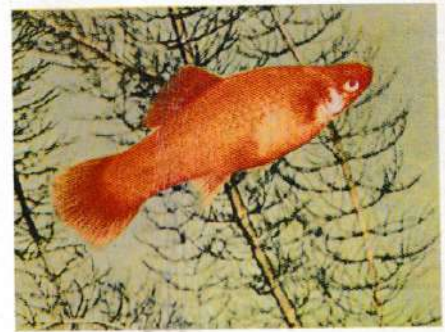


*The Purple Platy has several variations such as the crescent mark in the tail of the female; the male, the smaller fish, has a split crescent tail marking. Photo by Sam Dunton, New York Aquarium.*



*Río Purificación, near Cruz, State of Tamaulipas, Mexico, habitat of the Purple Platy-fish. The fish are found in springs that flow into the river.*

the fish were dying for the river was dying too. With our fishing gear we slipped down the slimy banks into the dirty water without enthusiasm. We pulled our seine after us hoping we might get those fish that had survived the intolerable conditions. No one would have blamed us if we had passed up this filthy job. But then if we had passed it up, how would we have known what was in it? Our map showing Río Purificación would have been a glaring blind spot constantly reminding us of our squeamishness.



*The Bloodred Altian Swordtail and the Golden Faint Platy, both females giving birth to live youngsters, are so colorful, that they take the breeder's eye away from the Purple Platy.*





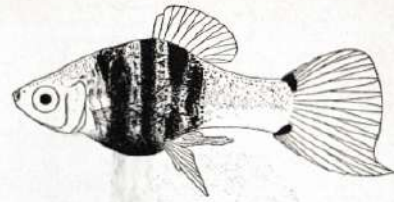
In this instance we were rewarded for we rediscovered a brilliant new platyfish, one that never before had been seen as a live aquarium fish. Only once before had it been taken; that was by Seth E. Meek of the Chicago Natural History Museum back in 1904. The remarkable platyfish from the Río Purificación appeared at first glance to be an intermediate form between the typical platy and the typical swordtail in one detail because the males had a small swordlike extension to their tail fins; otherwise its platyfish attributes were obvious.

It occurred to me that perhaps the new sword-tailed platy might be a natural hybrid; for many aquarium-bred male hybrids between the common platy and the common swordtail often have tiny swords. Yet, after fishing in the Río Purificación and in other tributaries of the Río Soto la Marina for many days, we failed to find any swordtails, nor had anyone else previously reported them this far north.

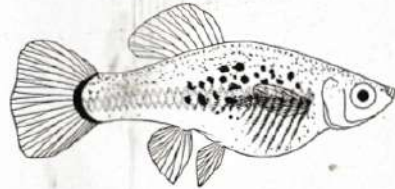
So distinctive was the abbreviated sword of this new platy, and so constant was it in all mature males, that Dr. Carl L. Hubbs and I decided to bestow upon this fish a new specific name: *xiphidium*, meaning "with a sword." Upon further study, later, it proved to be one of the intermediate links between the old genus *Platycoecilus* and *Xiphophorus*. As a consequence, discovery of the new platyfish was in part responsible for the elimination of *Platycoecilus* and for its union with *Xiphophorus*.

Because we found the new platy at a poor season in the life of the Río Purificación, we obtained only a few specimens and they were in bad condition. It seemed like a miracle that they had survived in that suffocating eddy of putrid water. Later, near the village of La Cruz, we found a clean run of the great river and it was a pleasure to explore it. We searched about and found a small, clear spring pool oozing out of the western bank. The pool containing a miniature jungle of water weeds was directly in the bed of the Río Purificación. In between the entangling plant filaments we found several hundred platies, sturdy and shiny like fresh coins from the mint. It is remarkable that the platies in these thickly populated spring pools survive and become reestablished in so exposed an area; for during every rainy season the entire river valley is swept over by torrential floods. As a consequence the violent waters erode and change the contours of the valley by scouring its bed and widening its banks. Yet the platyfish persist in their niches year after year.

In the early morning hours, after we had caught a fine group of new platyfish, we placed them in shipping cans, and had them traveling northward from La Cruz on the noon train. They arrived at our laboratory in excellent condition. When they were transferred to aquaria, they

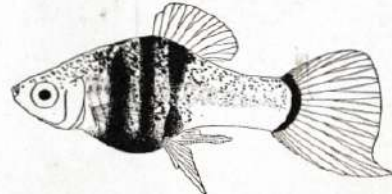


*Xiphophorus xiphidium* male with split crescent on tail.



*Xiphophorus xiphidium* female with the spotted and crescent pattern.

*Xiphophorus xiphidium* male with crescent pattern.

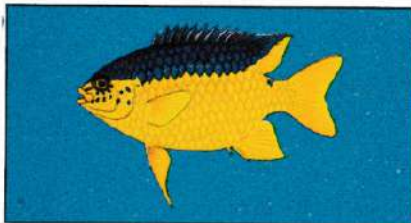


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## Saltwater Fishes



The French Angelfish, *Pomacanthus paru*, is another beautiful coral fish found throughout the West Indies and Florida keys. Both drawings courtesy of Marineland Studios, Marineland, Florida.



The Beau-Gregory, *Pomacentrus leucostictus*, are scrappy, but hardy, members of the family Pomacentridae. They are common in the West Indies and Florida keys.

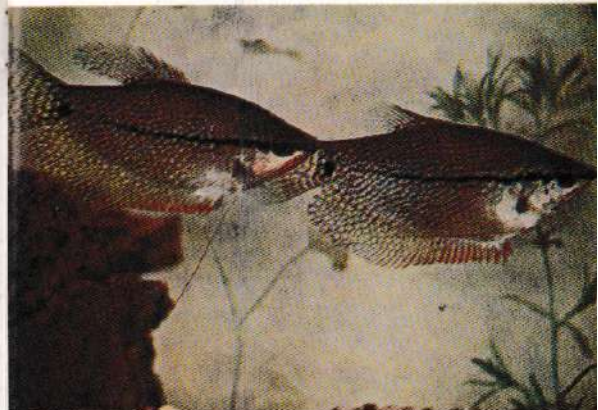
TROPICAL FISH HOBBYIST

## A STRING OF PEARLS

(Gourami fry, of course)

by

ROY H. HESSEN



A pair of Pearl Gouramis, in a beautiful pose. The male, on the left, is characterized by his longer dorsal fin. Color photograph by Gerald J. M. Timmerman.

I think the tyro aquarist gets his first thrill at the sight of the first live bearer fry born in his tanks. But after several generations of Guppies, Swordtails, and Platys have been born, he begins to look elsewhere for excitement. The egg layers, not nearly as cooperative as the prolific live bearers, provide a fresh challenge. A successful egg layer spawning will not be easy, but the resulting satisfaction will more than compensate you for the effort. I know. Let me tell you about my first "string of pearls".



I won't tell you about all the egg layers I tried or all the failures that followed, but I can assure you there were plenty. Success came with a pair of *Trichogaster leeri*, popularly known as Pearl Gourami, which I purchased from a petshop 1500 miles away. They arrived, by railway express, along with some other fish. I immediately placed the Pearls in a ten-gallon tank which was already inhabited by five, young Blue Gouramis. The bottom of this tank was covered by white sand and along one side (lengthwise) *Elodea* and *Bacopa* were flourishing.

Within a few hours the male was building a bubble-nest. He chose the rear of the tank which was shaded by the cardboard cover I had placed over the top to keep out dirt and dust. When I saw the bubble-nest I decided it was time to give the new pair a little privacy; I removed the Blue Gouramis. I did not have the opportunity to keep a constant watch over the tank, but even my infrequent observations told me that the couple were making progress. At times the male pursued the female and brought his mouth against her side. She would roll over and he would press his lips along the length of her body and then turn away. He was very gentle. However, because these chases never lasted for long and because the male did not pursue relentlessly I began to wonder if the female was ripe for this activity. I did not think she was ready, but I did not separate them because they lived together peacefully. This particular male was no bully, no ruffian.

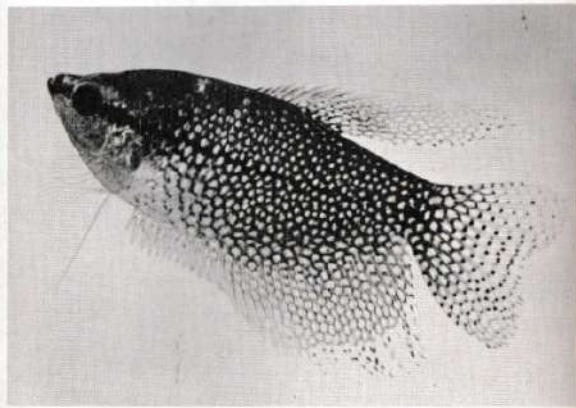
The eggs eluded me. Although I watched for them, I could not find them. But, by now, I had learned the value of patience. I refused to accept the idea that this might be an unfruitful pair. The two were getting along too well; the nest was extremely well kept. And then I saw another sign that encouraged me.

For several days the female lived at one end of the tank; the male at the other, at the end with the bubble-nest. It dawned upon me that the male was purposefully keeping the female as far away from the bubble-nest as was possible. And she made no great effort to cross him. Still, I saw no eggs.

The big surprise came not quite three weeks after the day I had first placed the Pearl Gouramis in the ten-gallon tank. A visiting friend wanted to see my specimens and I was, happily, showing him through my den. When we came to the Pearl Gourami tank I removed the cardboard cover to give my friend a better view of the bubble-nest. As we gazed downward my eyes were quickly pulled away from the bubble-nest to dozens of small specks a few inches from it. I looked closer. Sure enough, there they were. Dozens of newborn fry, a string of pearls. Upon careful examination I found many more everywhere in the tank.

I removed the female parent immediately. I knew that the male could be left with the fry for several days after the eggs were hatched, but as I had never seen the eggs and because I did not know the exact day of their birth I thought it best to remove the male also. I decided he had done his job well; now it would be up to me.

Comparing this first success with all the failures I had tasted in the past, I came to some self-astonishing conclusions. In the first place I had always taken great pains to get just the right temperature for the particular species I was trying to spawn. I referred to the best text books and followed instructions accordingly. Yet the Pearl Gouramis had spawned during a period in which the tank temperature varied as much as fourteen degrees Fahrenheit — low was seventy; high was eighty-four. I concluded that my trouble in the past had not been with temperature. Apparently, tank temperature for breeding is not a critical factor, that is, some variation from the optimum will not prevent a spawning — all other conditions being desirable.



An old male Pearl Gourami. Note the extended and fin rays, and elongated dorsal fin. Photo by Timmerman.

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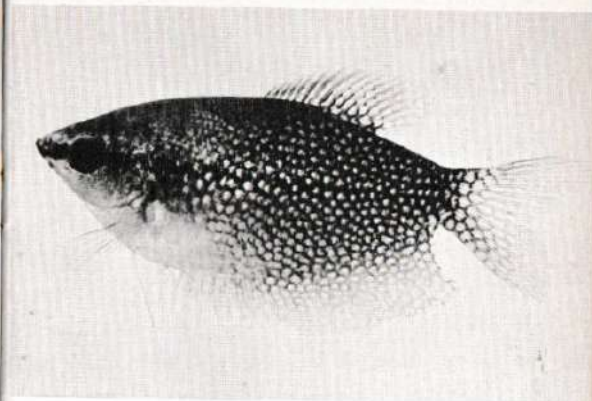
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The female Pearl Gourami has shorter fins. Photo by Timmerman.

In the second place I had always made every effort to give the prospective parents as much tank space as possible. Consistent with this practice, I should have placed my Pearl Gouramis in a fifteen-gallon tank. However, at the time of their arrival, I had none available. I had to settle for the ten-gallon tank. The eventual success in their spawning convinced me that, in this matter of tank space, I had also been over-emphasizing its critical value.

In this manner I compared age and condition of water, sand, plants, feeding, and so on. What I came up with may be of value to the tyro aquarist.

Why had I failed in the past? My comparisons now provided the obvious, embarrassing answers. Here they are:

#### (1) THE TWO SEXES ARE INDISPENSABLE

Yes, Nature still demands, both, mother and father. That should be obvious to anyone. However, differentiating the sexes in the egg layers is no cinch. The tyro may think he has a pair when, in the final analysis, he probably has two males or two females. In fact, he may be



excused for his error because he may have ordered a pair and has no way to determine whether or not his dealer has strictly complied with his order. I regret to say that I have met some dealers who construe the term "pair" to mean, simply, "two fish." Any two fish. It was my good fortune to learn that the better dealers do not do this. A better dealer, for example, sells a true pair when you place an order for a pair. They do not simply supply you with any two fish. Consequently, to the tyro aquarist who wants to breed egg layers, I advise: Be sure you get a true pair, and if you are depending upon a dealer for the sex determination, be sure you know your dealer.

#### (2) YOUR PAIR MUST BE RIPE AND READY

Assuming that you have a true pair and you have provided all the necessary tank conditions for breeding, one other matter is of extreme importance. Your fish must be mature and they must be ready. This means that the female must have a supply of eggs. It also means that she must be ready to accept the male's attentions. If she is loaded with eggs she will undoubtedly cooperate with the male; on the other hand, if she cooperates with the male she will probably have a supply of eggs. As for the male, if he is truly mature and healthy he will probably chase the female whether she likes it or not.

Most good books and pamphlets on the subject of breeding do not emphasize these matters; perhaps, because they seem so obvious. The fact remains, however, that I tried over a period of many months to spawn different species of fish, and did not realize that a continued neglect of the obvious was the explanation of my failures. Temperature, water, space, food, sand, and plants received my best attention. But the fish? Well, I usually took any two fish of the same species. Only later did I realize that, often, these were fish of the same sex or fish not yet fully mature and ready for mating.

To the tyro, then, I suggest that the pair to be spawned deserve the first and the most consideration. The best tank conditions are of no value unless you have a true pair ready for breeding. On the other hand, if you have the latter, you will probably enjoy success even when the tank conditions vary from those described in the best texts. Fish are sufficiently complex members of the animal kingdom to possess a certain amount of adaptability to environmental variations. I am not advising that you ignore the excellent instruction given by the experts; I am trying to emphasize the importance, the extreme importance, of beginning your attempts at breeding with a healthy and mature pair, a true pair. I believe that this is more than half of the battle!

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#### (d) Antagonism

Certain salts are able to decrease the toxicity of copper to fish. Sodium nitrite and common table salt have been used to decrease the toxic effect of copper concentrations of 10 ppm on goldfish. This is known as antagonism as the salts are antagonistic to the toxic effects of copper.

#### (e) Synergism

On the other hand, the toxic effects of copper are greatly enhanced by the presence of various substances. Zinc, cadmium and chlorine are more toxic when copper is present than is the case when they are present alone. Where one compound or element reinforces the other, as are the cases here, the effect is called synergism.

#### (f) Absorption of Copper by Organic Matter

Another factor involves the absorption of copper from solution by plants and other organic matter. As a result, fish in planted tanks can withstand higher copper concentrations than those in unplanted tanks. It might be mentioned that too much copper can easily poison the plants themselves. This is the basis for the removal of algae in lakes or ponds by the use of copper sulfate.

#### (g) Time-Concentration Relationships

The cumulative effects of copper have not been studied very thoroughly. Experiments with copper upon fishes have been of the "slug" variety where a comparatively large amount of copper is added to the aquarium water and its effects studied. Little work has been done where the copper is added slowly over a period of time or where fish have been exposed to "sub-lethal" concentrations for varying amounts of time. Under certain conditions, sub-lethal doses may become lethal ones. There is much room for experimentation here.

#### (h) Interrelation of Factors

More than a few of the above factors are interrelated. For example, young fish generally are more susceptible to copper poisoning than are older fishes. Their metabolic rate is faster and they use up more oxygen in relation to their body weight than do older fishes. Thus, factors (a) and (b) are closely related. Other examples are available and the bibliography is suggested for more complete information.

Tests have been made by the author on aquarium and tap water for copper using the N, N-bis (hydroxy ethyl) carbanilate of diethanolamine and colorimetric methods with known copper solutions. It was found that the first pint or so of water taken from some copper piping systems contains considerably more copper than the water that is obtained after the tap has been allowed to run for a minute or so. The

## THE COPPER QUESTION

by ALBERT J. KLEE, M.Ch.E.

Dissolved copper in minute concentrations spells death to fishes. Yet, aquarists the world over find this metal to be extremely useful for treating various fish diseases and in rectifying certain unsatisfactory conditions in their aquariums. On one hand, some aquarists are desperately striving to keep copper out of their aquariums and, on the other hand, some are deliberately putting copper into them. Common ground is shared by all, however, in their desire to learn more about the effects of copper upon fish and its control in the aquarium.

The study of copper and fishes has long been the concern of many people other than aquarists and it is not difficult to obtain the results of their experiments. It has been pointed out, however, that a variety of complicating factors prevent much detailed agreement among investigators. A study of these factors is important if the hobbyist is to understand the problem at hand.

#### (a) Variation With Fishes

Fishes differ in their tolerance to copper. Indeed, their tolerance varies not only with the species but with the size, age and condition of the individual. Here then, are four factors already that are a part of the copper question.

#### (b) Metabolism Factors

As copper kills by coagulating the mucous of the gills, followed by asphyxiation, anything that will decrease the amount of available oxygen to a fish already poorly supplied with it because of this action, will aggravate the condition. Thus, higher temperatures, higher concentrations of carbon dioxide and crowded conditions all serve to increase the toxicity of copper.

#### (c) Hard vs. Soft Waters

It has been generally found that fish have been more resistant to copper in hard, alkaline waters than in soft, acid waters. This is probably due to precipitation of copper in the form of less toxic salts like the basic carbonate. By way of illustration, the lethal threshold of copper sulfate for the Largemouth Bass is 2.0 ppm (parts per million) in soft water while it can withstand over 150 ppm in hard waters. Therefore, listing 2.0 ppm as the toxic concentration of copper for this fish is without meaning unless the water conditions are also specified. (Experimenters please note!)

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author's residence is supplied with hard water but the hot water lines are softened. The first sample of water taken from the hard water faucet contained 1 ppm of copper while the soft water faucet yielded water that contained 2 ppm. Both faucets tested 0 ppm after the water was allowed to run for one minute. It is obvious here that the soft water dissolved twice as much copper as did the hard water. After 12 hours, the concentrations of copper in the initial pints had built up to their previously high values. Therefore, it is suggested that water used for fishes having its source from copper piping be allowed to run for at least one minute. This is especially important when the water in the pipes has remained there overnight.

One more experiment proved of interest especially as it concerned copper removal. It was found that certain water softeners actually removed dissolved copper from aquarium water. The softeners used were of the common sodium zeolite type. These softeners not only remove calcium and magnesium ions but also metals like copper and zinc. Here is a possible solution to the problem of copper removal from aquarium water. Using a sodium zeolite softening agent, the author reduced a copper concentration of 1 ppm to 0 ppm in only a few hours. Softeners of the resin type do equally well, if not better.

The copper question is involved but as Fish and Wildlife specialists use it to advantage there is no reason why, with suitable precautions and some careful study, the aquarist can not do so also.

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**RASBORA TRILINEATA**

by O. GIRARD

from the August, 1955 issue of "Notre Aquarium,"  
Translated by William Vorderwinkler

Up to the present time, the *Rasboras* which we have presented to our readers have been small ones; with the *R. trilineata* we describe a large member of the family, captured in the waters of the Malay Peninsula, which frequently exceeds 8 inches in length, too big for the greater portion of our aquarist friends. However, young imported specimens, or those hatched in captivity have the good taste to protest against their deportation and remain relatively small, not measuring more than 4 inches. Probably if you gave those same specimens to our friend Goussef and he placed them in a tank several cubic meters in size, they would doubtless attain their normal growth, but not everyone has at his disposition the spacious living quarters offered by the Colonial Museum.

The *R. trilineata* is a fish of slender form, golden color and a gilded stripe which runs the length of its body; this last is topped with a black line which extends from dorsal fin to the caudal base. A similar border joins the anal fin to the caudal. All its originality lies in the tail, which is deeply notched and marked on each lobe with a black spot encircled with white.

This fish has been named "Scissors-tail" in the United States, because when it opens and closes its tail rapidly, the black spots give one the impression of the motion of a pair of scissors (at least to people with a great deal of imagination who have the need of a more commercial and less forbidding name than the scientific name for their new importations). (Note by the translator: Could it be that our Belgian friends are a bit unhappy that they didn't think of this name themselves? They use plenty of popular names; it just happens that they do not have one for this fish.) This bit of malice having been disposed of, let us return to business!

The *R. trilineata* is not a particularly greedy subject, one which might take pleasure in consuming its eggs immediately after laying them, or one which would devour each youngster with the double purpose of rendering unto Caesar that which belongs to Caesar, and of discouraging the blissfully hopeful aquarist.

The *R. trilineata* is a good subject where, rarely enough it is true, but not rarely enough to be exceptional, there are sometimes found to be youngsters in the same tank with the parents when spawning was not

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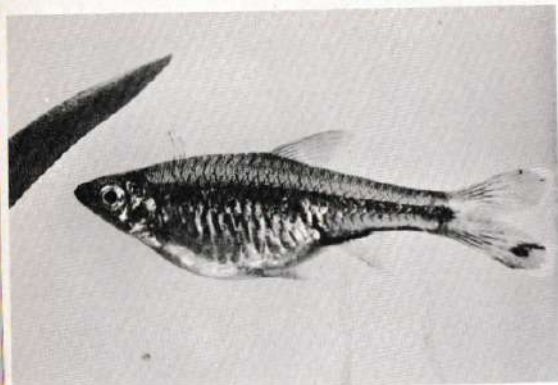


A pair of Scissors-tails, female above. The fish gets its popular name from the fact that when they swim, the spots on their tail go up and down, reminding one of a scissors action. Photo by Timmerman.

observed. Most of you have heard of instances where the aquarist has spent six hours with his nose glued to the glass waiting for his fish to spawn when finally, overcome by hunger, thirst or the shouting of his wife he drags himself away from the aquarium for only an hour, to have the spawning take place during this very hour.

Enough of this foolishness! Plant a tank of about 10 gallons of slightly acid water (pH 6.5 to 6.8) with stringy algae, Myriophyllum or any plants you may have which are bushy in places. Bring the temperature to 82° or 83°, and feed the breeders generously; there should be three, a heavy female and two of the best males. An empty stomach does not make for a strong paternal feeling toward eggs and fry, and if this exists, everything I have said previously might be found to be wrong. A good precaution is to keep living *Daphnia* in the breeding tank, but remember that I am writing *Daphnia*, which does not mean any small crustacean which swims with a hopping motion, because cyclops or other cypris which you might introduce would make a meal of freshly laid eggs.

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The female Scissors-tail, plump and ready for spawning. Photo by Timmerman.

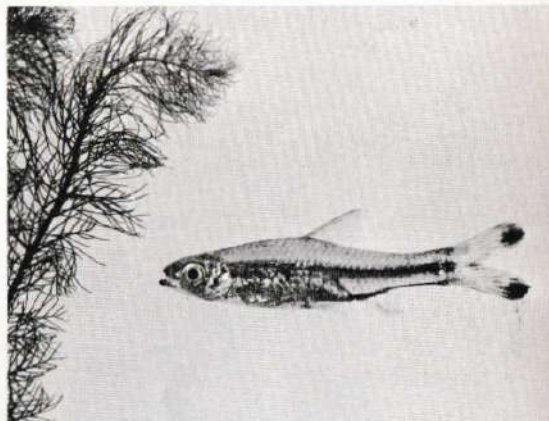
So now the trio has been installed; if they are in a reproductive mood, things will happen quite quickly.

The female will be put to flight by the two males, who will pursue her through the bundles of plants which you have put into the breeding tank, until she finally decides to permit one or the other of her males to catch up with her and rub her tremblingly against a bundle of plants, the embrace resulting in 10 to 20 eggs being released. The female is full of meekness toward her mates, and will accept the attentions of one or the other as long as there remains one egg to be laid.

After this it would be prudent, in spite of everything, to remove the breeders, thereby not putting temptation in their way. By also separating the sexes, you will permit your fishes to recuperate without having "guilty thoughts" or casting lustful glances at each other and slowing down their recuperation.

The eggs hatch in about 24 hours, but the fry do not begin to swim freely until the fifth day, at which time it is necessary to furnish them their first meals, consisting of infusoria which you may obtain by sprink-

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The slender male Scissors-tail. Photo by Timmerman.

ling the water's surface, at the time the eggs are laid, with powdered dried lettuce leaves. You are risking the transformation of your water into a smelly, cloudy soup with this method, so it might be better to add a few spoonfuls of infusoria culture obtained by other methods several times a day. As they grow rapidly, you may feed them newly hatched brine shrimp, micro worms and later Grindal worms, finely chopped white worms and finally *Daphnia* and other large foods.

These fish are quite accommodating and do not require living food at all times; they are quite contented with dried foods, all more or less marvelous, full of vitamins, hormones and claims by the manufacturers like those made for the chlorophyll they sell us; even on these foods they will prosper perfectly.

Now, fellow aquarist, rush to your friend the dealer, ask him for *Rasbora trilineata*, he may have some if you are lucky, bring them home and let them follow the advice from the Book of Genesis:

"Be fruitful, multiply and replenish the waters!"

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**MEET THE HOBBYIST**

An Interview with the American hobbyist

by  
AARON DVOSKIN



*Bill's favorite corner. In this chair many of his famous articles are conceived.*

The hobbyist visited by your author this month is certainly no stranger to the pages of this publication. Bill Vorderwinkler has probably authored or translated more articles on more aquatic topics in more aquarium magazines than any other hobbyist I know. Although translating is currently Bill's most important contribution to the hobby, Bill is also an accomplished aquarist who's experience goes back a long, long time.

Bill Vorderwinkler was born in Austria, but his family moved to this country when he was still a youngster. As a teen-ager way back in 1916, Bill was bitten by the tropical fish bug. At that time the hobby was more of a dream rather than a reality and those few who kept warm water fishes were looked down upon by the Goldfish fanciers as strangers from outer space. But Bill stuck out the ridicule and the high prices, (he recalls that in about 1928, *Rasbora heteromorpha* were \$20.00 a pair), and he's watched and helped the hobby grow to a point where

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now there are hobbyists and pet shops in almost every city and town in the country.

During his some 40 years as a hobbyist Bill has owned and raised almost every species of popular aquarium fish and many that are considered rare. In fact when certain species were unavailable in this country Bill would contact one of his many German friends and have new species shipped to him. The noted German author and aquarist, Hans Tuschke is one of Bill's German acquaintances.

When I popped the usual question, "What's your favorite fish?" the answer was already evident for Bill's tanks were loaded with many species of Dwarf Cichlids and Panchax.

Although Bill has bred and raised many of the more difficult fishes, his primary interest now is in translating articles from the very fine European magazines, and making the information available to the American fanciers. Lack of time and space currently limits the amount of tanks that he can keep and maintain, but even so he continually fusses over them. "Since I am not in a position right now to maintain many tanks for breeding, I feel that the most important contribution I can make to the hobbyist is by translating articles and by passing on some of my own personal experiences," states Bill.

*Just relaxing. Bill still finds it the greatest pleasure to just sit and watch the fish swim by. Note the aquarium publications on the lower shelf. Acquainting yourself with what others have experienced is one of the most important phases of accurate aquarium writing.*



*Candid shot catches Bill fussing with one of his tanks. Although lack of time and space has limited the number of tanks Bill can keep, he's still a very ardent hobbyist.*



*Bill often works late into the night translating articles from foreign magazines for the benefit of American Hobbyists.*

Bill is also very enthusiastic about the importance of aquarium societies as a means of sharing experiences and notes with other hobbyists. Bill is one of the founders of, and former President of the New Jersey Aquarium Society. He also belongs to the Staten Island Society and is an honorary member of Wasserspiegel Society in Hanover, Germany. Since Bill keeps no aquarium secrets he spends a good deal of his time lecturing to various societies and passing on the information that he's gathered in his 40 years of fish keeping.

As for things he's proud of, Bill believes that he's one of the first in this country to receive live fish eggs from Europe by air. He's also very proud of the fact that Mr. Axelrod, your TFH Editor selected him as Translation Editor of "The Hobbyist". Bill was the one who translated the very fine Nachstedt-Tuschke book, "Breeding Aquarium Fishes", and he's currently working on several translations which are due to appear later this year. This book is available from Aquarium Stock Company.

Writing the picture descriptions for the new and interesting "Color Guide to Tropical Fish" and the two TFH publications "Breeding Live-bearers" and "Breeding Egg-layers" are several more examples of how important Bill Vorderwinkler is to the American hobbyist.

As to the future Bill still feels that translating is his most important service, but if any new Panchax or Dwarf Cichlids should happen to come along he'll try his hand at breeding again—not just to say that he's done it, but to record it and pass the information on to his fellow hobbyists.



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IN PASSING...

The last hurried weeks in the preparation of the HANDBOOK OF TROPICAL AQUARIUM FISHES took much of my time. I had to drop everything in New Jersey and run down to Washington to confer with Dr. Schultz at the Smithsonian Institution on the matter of one of the catfishes (*Hypostomus plecostomus*). The meeting took a very pleasant turn and I had a wonderful treat when Dr. Schultz invited me to lunch with four of the greatest names in ichthyology—Schultz, Ginsberg, Lachner and Kanazawa. During the course of our luncheon (which took place inside the laboratory) the whole bunch decided to pour through the makeup copy of the HANDBOOK and look for various ichthyological bones of contention. What better item could we discuss than *Hypostomus plecostomus*? This particular fish is better known to aquarists as *Plecostomus plecostomus* through some author's insistence on using familiar technical names instead of correct ones. We all had a marvelous experience discussing the possibilities of the book and the furor it might create among the hobby when they finally get the correct names of many fishes.



Dr. Leonard P. Schultz, co-author of the HANDBOOK OF TROPICAL FISHES, examines a specimen of *Hypostomus plecostomus* checking it against the color photograph (Gene Wolfshoimer) illustrating that species in the HANDBOOK.

Axelrod and Schultz checking one of the tricky *Leptorinus* species to insure positive identification. It took close to 7 years to check all the species in the HANDBOOK (there are 450 species discussed).

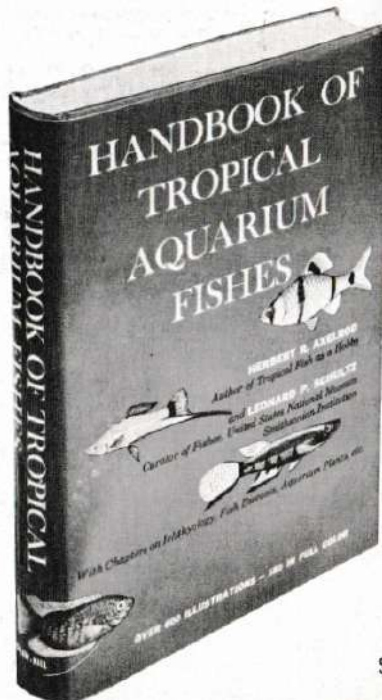


Left to right, Dr. Isaac Ginsburg, ichthyologist for the U.S. Fish and Wildlife Service, Dr. Ernest A. Lachner, Associate Curator of Fishes, U.S. National Museum, Robert H. Kanazawa, Museum Aid, and Dr. Leonard P. Schultz, Curator of Fishes, U.S. National Museum, discussing the HANDBOOK over their after-lunch coffee cups.

Dr. Schultz searches for one of the holotypes among the millions of preserved fishes in the museum's collection at the Smithsonian Institution.



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# HANDBOOK OF TROPICAL AQUARIUM FISHES

**By Herbert Axelrod and Dr. Leonard P. Schultz**

(CURATOR OF FISHES, NATIONAL MUSEUM, SMITHSONIAN INSTITUTION)

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With 600 black-and-white illustrations  
180 full-color illustrations  
Glossary and index



TROPICAL FISH HOBBYIST

When a new fish is discovered and described, a single specimen of the fish is designated as the *holotype* and is preserved carefully among the collection of one of the research centers of the world. The National Museum probably has more of these specimens than any other single museum. In every case where there was doubt about a particular species, Schultz obtained the original holotype and had his wife, Mrs. Dorothea Schultz actually draw the specimen perfectly to scale. Then Schultz himself would check the drawing, feature for feature, against the specimen to be certain that it was perfectly accurate. Hence there could be no doubt that the fish was actually the one we had illustrated. This sort of thing is done only for extremely technical scientific work, and only through the patient efforts of 5 years work did Mrs. Schultz and Dr. Schultz compile the necessary drawings to illustrate some of the mixed up species in our HANDBOOK.

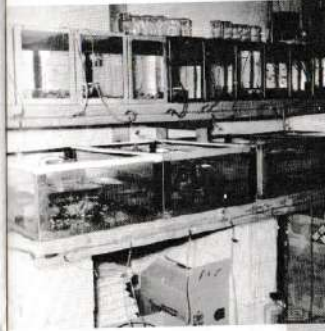
After our work in Washington, I had to fly to San Francisco and Los Angeles to the trade show held there. Aside from the wonderful condition of the pet industry in that part of the country, and the complete success of the show as a business venture, we had the opportunity to meet lots of people we hadn't had the pleasure of meeting before.

One of the pioneers in the saltwater fish importing business is the team of Bill and Kay Jue of Mei-Lan's in Oakland. Their store is a virtual warehouse of saltwater fishes from all over the world and they supply dealers all over America and Canada with rare and healthy specimens of marine life. It is against the policy of TFH to plug one dealer against the other, but I am making an exception in this case



The Jues, visiting TFH's booth at the California trade show.

A very popular marine fish is the Lionfish, *Pterois volitans*. Aside from their poisonous dorsal spines, these fish are very charming and they become tame enough to accept food from their owner's fingers.

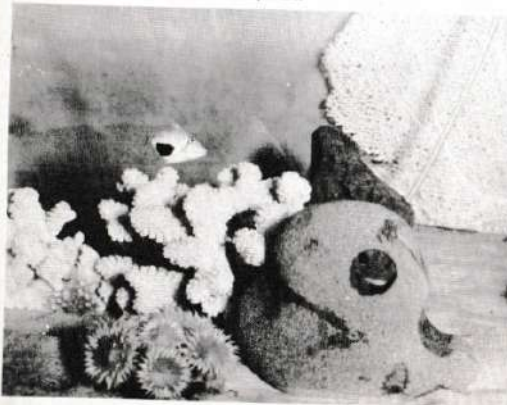


Marine fishes are stored in lots of aquaria of various sizes. The fishes are placed into large tanks when they first arrive, then they are slowly seasoned in smaller and smaller aquaria so they will not feel any ill-effects when they are transferred to the home aquarium.

Kay Jue of Mei-Lan's, stands in front of one of her marine aquaria.



Two of the marine aquaria setup by the Jues, Mei-Lan's, in Oakland, California. These aquaria contain some of the beautiful fishes and anemone that the Jues import for resale to dealers. Note the use of coral, sea fans and rocks to help beautify the aquarium.



TROPICAL FISH HOBBYIST

because the very success of the whole saltwater fish industry depends upon the Jues and people like them. Without beautiful, rare and healthy fish, there won't be any market for accessories, or anything else pertaining to saltwater fishes. The Jues spent long months and much money in collecting, shipping and storing these marine beauties. They know more about marine fishes (from an aquarist's angle) than any other pair of people in the world. I salute them for their unselfish effort to promote saltwater fishes as pets.

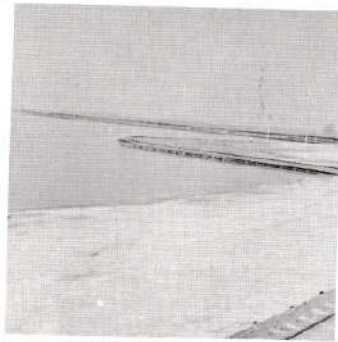
While visiting Californian dealers, we passed by one of the famous saltwater evaporating flats from which salt is made. The theory, as we understand it, is to pump sea water into large closed in flatlands. Then the California sun evaporates the water and the salt is collected. This process takes three to five years and during that process the brine can be used for raising brine shrimps and for collecting brine shrimp eggs. The pictures we've taken can hardly help you visualize the immensity of the operation for there are many, many square miles of brine pools.

This brine, by the way, is a brilliant red color and the many people who drive by it are always wondering why the color. The gentleman managing the area told us that some sort of marine plankton thrive



Marine fishes are 'aged' in large shallow aquaria first, then in smaller aquaria, until they are in acclimated condition for the home aquarium.

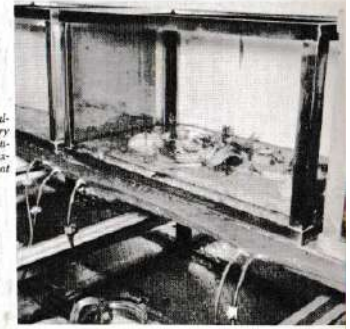




Some views of the salt flats where brine shrimp, brine shrimp eggs and brine are collected. This California flat is typical of the areas where brine shrimps occur naturally.



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The famous Mudskipper, *Periophthalmus barbari*, are maintained, in very shallow aquaria with ample opportunity for them to perch on racks extending out of the water. Taken at Mei-Lou's.

in heavy brine areas. These small animalcules serve as excellent food for the brine shrimps so together there is an excellent balance in the ponds.

We understand that one of the leading men in the brine shrimp world is also using the evaporated brine to prepare the stock solutions from which synthetic sea water can be made. What more ideal way is there to make sea water? (The Jews, by the way, say this type of sea water is very fine, indeed!)

From California we went to the Chicago show at the International Amphitheatre. This show is run by the pet shops themselves and it proved, as always, a great success. More and more, pet shops are getting together to help pass needed legislation, to advertise their hobbies, run pet shows and to promote fair and ethical practices among themselves. We sincerely hope that more and more pet shops will follow the leader.

Be talking to you next issue.

H. R. A.

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Continued from page 11

bred and produced many young; they turned out to be a hardy aquarium species. Within a few years a shipment of our new spike-tailed platyfish was made to Europe from the United States. It was gratifying to have been able to send this platy to the Old World aquarists who in previous years had sent so many fine species to this country. Scientific papers written by Herr Professor Curt Kosswig then of Braunschweig, Germany, later of Istanbul, Turkey, and now back in Hamburg, described the heredity of this species. We too have been working with them and we hope to extend the knowledge of genetics of the *xiphidium* beyond what has already been published about them.

In 1939 we discovered another hidden metropolis of the purple platy in a spring pool near Hacienda Santa Engracia, not far from Ciudad Victoria. At that time my wife, Evelyn, and I had been tracing a tiny stream entering the great Rio Santa Engracia to its source. Eventually we found its fountainhead in a six foot plant-filled pool from which we fished out more than 200 platies. Again we found them hiding in an almost solid mass of water weeds, probably of the Genus *Chara*. From the 1939 collection we have maintained the stock by inbreeding for sixteen years.



*Xiphophorus xiphidium* male with spotted pattern.

The ability of a platyfish population to "stay put" year after year in restricted natural areas despite droughts and floods may account for the building up over hundreds of years through a process of inbreeding the distinctive features of local races. For instance, in the northern tributaries of the Rio Soto la Marina very few of the platies were spotted, amounting to not more than one per cent; the populations of the same species further to the south contained more spotted members, about 60 per cent. While the same platyfish in the southernmost tributaries were nearly all spotted.

With these statistics in mind if I were given a single *xiphidium* platy, I could not tell from which tributary of the Rio Soto la Marina system it had come. But if I had been given about 50 platies all from the same pool, I could tell with some degree of accuracy where they came from. I could do this by counting the number of spotted members. If they represented only about one per cent they had to come from the Rio Purificación; if about 60 per cent were spotted, then they must have been from the Rio Santa Engracia; if about 100 per cent were spotted, they were from the Rio San Marcos. This points up an interesting fact about how groups of related fishes live in nature. Each community of a species becomes a distinct population that differs from its neighboring colony not necessarily by having certain unique features but by having a certain frequency of similar traits. In populations of primitive and civilized people living in isolated groups, anthropologists find a similar state of affairs. This is because local peoples and fishes are more likely to marry close relatives; as a consequence of some degree of inbreeding local populations take on distinctive traits.

The mature male *xiphidium* platy is a strikingly colorful fish. Its remarkable coloring does not depend upon its brilliance of yellows or reds that are characteristic of some of the other species of platyfishes but upon its deep purple which is almost black in its intensity. No other platy has this color; it is a natural, because it is typical of wild fish that live in their native habitat, not in the aquarium. The purple platy is a peaceable fish; when kept in good condition on the usual fish foods and when given adequate living space it does not eat its young or bother other species.

The only mystery about this purple platy, is why it is not made more available to the public by the commercial breeders. The purple platy like many other new species and many new varieties of old species has been distributed by the Genetics Laboratory of the New York Aquarium. Many breeders who have seen them to evaluate them in terms of public demand have turned them down. They didn't want to invest their time and hatchery space in breeding them. Why? Because they say that the fish does not have the flashy coloring of other platies and as a consequence they claim that the purple platy would not stand up in competitive buyer demand against the bright red and yellow platies.

Nobody can blame the commercial fish breeders for refusing to invest in a new fish for which there is likely to be no demand. It is a strange situation. Some of us may remember not long ago when a new fish species became available it was eagerly sought for as a collector's item. Where are the present day fish connoisseurs?



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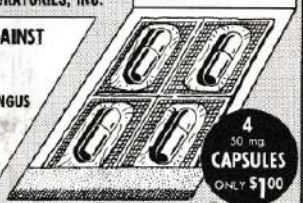
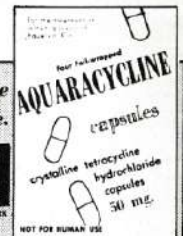
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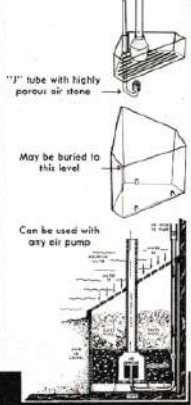
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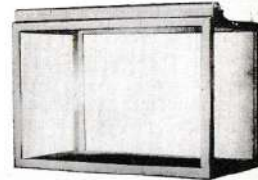
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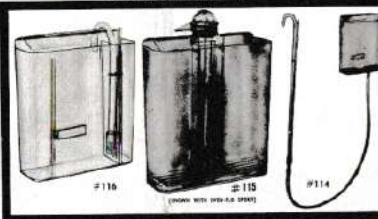
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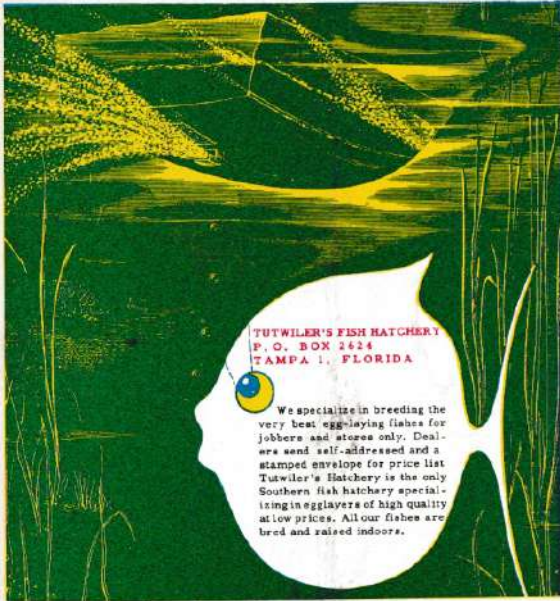
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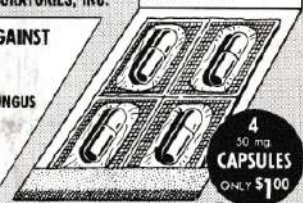
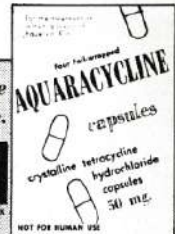
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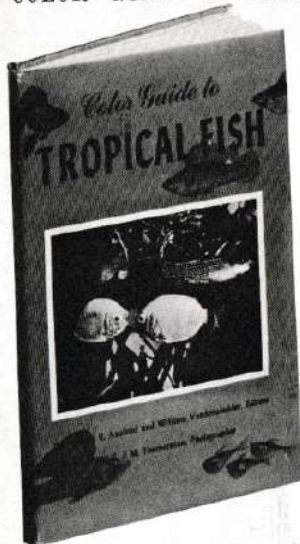


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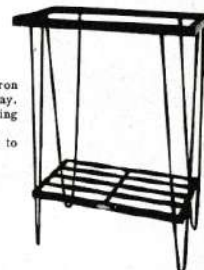
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