

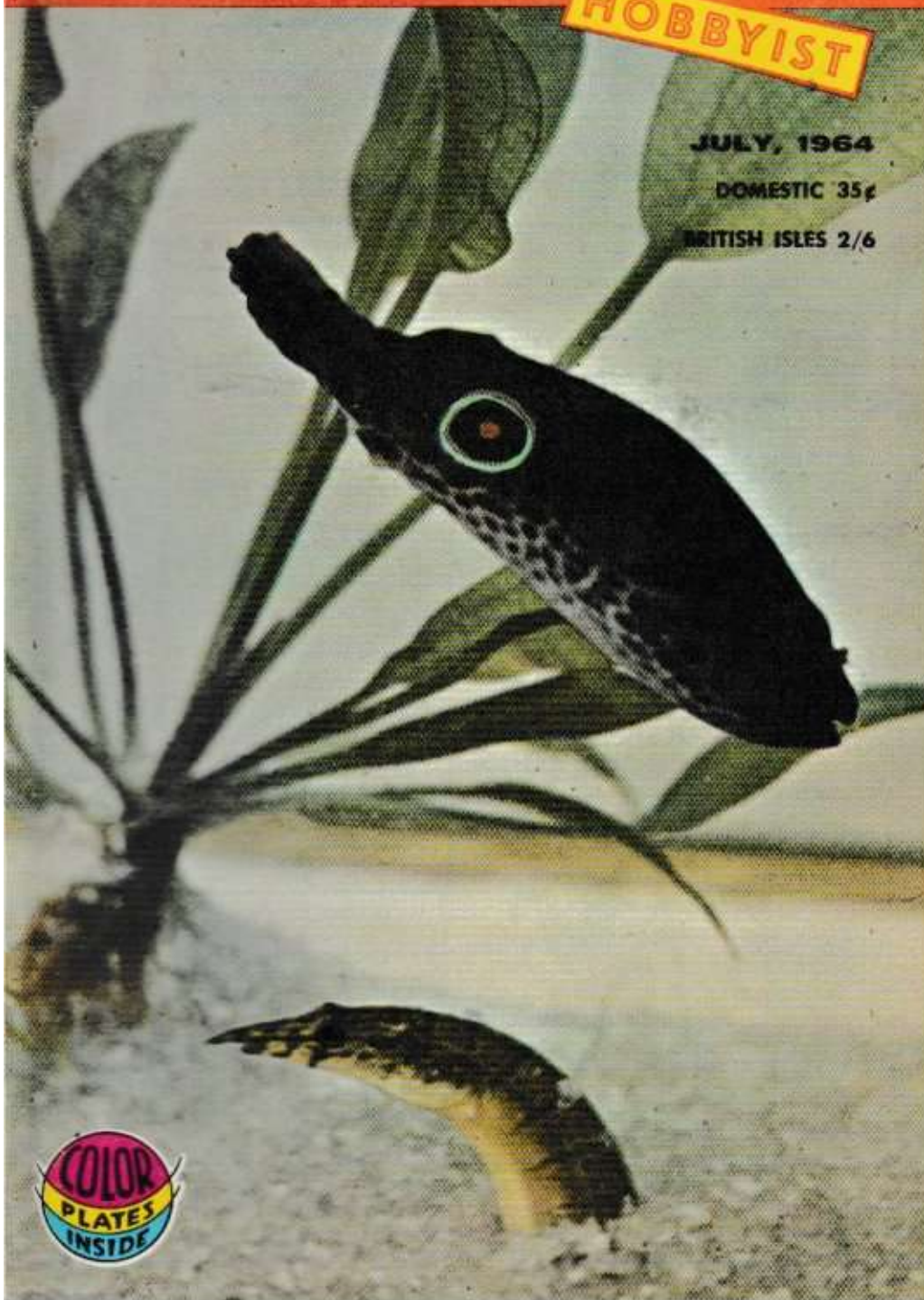
# TROPICAL FISH

HOBBYIST

JULY, 1964

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## TROPICAL FISH HOBBYIST

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Mail Call: p. 41; Guppy Corner: p. 52; Salt from the Seven Seas: p. 53; Society News: p. 60; Notes from All Over: p. 67.  
**COVER**  
Keeping a discreet distance between them and on eye out for interlopers, the Salt and Pepper survey their surroundings warily. The plant in the background is a Dwarf Amazon. Seedling obtained by Roger Martin of Exotic Fishes in Hollywood, Florida. On page 14 begins Rev. Thomas M. Morlock's article on Tetraodon cutolineatus, native to India waters. Cover photo by Dr. Herbert R. Axelrod.  
**EXOTIC TROPICAL FISHES SUPPLEMENTS**  
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July, 1964

## EDITORIALLY . . .

This hobby of ours would be in a very sad way if the fishes which we gather from all warm parts of the world just plain refused to adapt to the water we give them. Several readers have taken me to task for using as an example of two fishes with opposite water requirements the Molly and the Neon Tetra. They tell me they have been keeping these two together in the same aquarium, in perfect harmony. All right, so they have made adjustments. Perfect adaptation, however, does not mean that a fish tolerates conditions which do not occur in its home waters. It has to do more; it has not tolerated perfectly until its eggs have ripened and it spawns in this water. Not only that, the fry would have to grow up normally as well. There is a very great variability here: some fish seem to adapt beautifully to just about every type of water that comes their way, as long as it is clean, of the proper temperature, and contains enough oxygen for their comfort. Others, I am sorry to say, are doomed to be seen by only the select few who are fortunate enough to encounter them in their native waters. Here one meets with a highly frustrating experience: catching what one is sure will prove to be a new and beautiful species, and within a few hours finding every one of them in the collecting can dead as the proverbial door-nail!

*William Vanderwiltke*

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Tropical Fish Hobbyist

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July, 1964



The stream was shallow but extremely clear, and there was no difficulty in locating fish. Photo by Rodney Jonklaas.

## "Mining for Black Rubies"

BY RODNEY JONKLAAS

The wet, steaming tropical forests of central Ceylon are world-famous for their gems. The center of this area, a town called Ratnapura, is known as the "city of gems," although it can scarcely be termed a "city" in the modern sense. This is also the rainiest part of rainy Ceylon and the jungles have been, for the most part, felled to create huge rubber plantations.

The streams which run briskly down these steamy slopes are also famous—from the tropical fish angle, for it is in these that the best-known and best-loved of Ceylon's freshwater tropicals are found. And, truly enough, in these same streams one can collect real gems of great value. Although gemming is permissible only on special permit from the Government, hundreds of bandit gemmers operate in the more remote jungle areas, not only in the streams, but also in the alluvial hollows and swamps.

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Most of us know the Black Ruby Barb (*Puntius nigrofasciatus*) very well. When it first entered the tropical fish market round about 1935, it was a great sensation. It still is, and even I cannot resist netting for Black Rubies whenever I find myself in their territory.

The color photographs accompanying this article were taken last year when I had some collecting to do for a friend who wanted some wild Black Rubies to improve his aquarium-raised stock. One morning I took out the Volkswagen Van and with partner Eric Conway and diver-collector Sumanadasa Perera (we call him "Sums" for convenience) we left for Ratnapura, about 50 miles from where I live.

It was March, and the "drought" was setting in. (A "drought" in this part of the world indicates that it rains about once a week and not practically every day) and the foliage on some of the trees was almost autumnal. We parked by a rubber estate and entered a crystal stream, slow-flowing and cool, where in the boulder-strewn shallows the Black Rubies cavorted by the dozen. With them were a few *Rasbora waterfloris*, *Blotia signata*, *Danio malabaricus*, the ubiquitous and much-maligned *Rasbora daniconius*, *Puntius bimaculatus*, *Puntius dorsalis*, *Puntius pleurotaenia*, and less exciting others. In the weedy shallows and more numerous in tiny streamlets which fed this

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### Tropical Fish Hobbyist



Eric Conway searches for Black Ruby Barbs under tall plants growing along the margins of a Ceylonese stream as diver-collector Sumanadasa Perera holds plastic bag ready. Photo by Rodney Jonklaas.

Eric Conway holds netted catch of Black Rubies which will be added to catch already transferred to bag held by Sumanadasa Perera. Photo by Rodney Jonklaas.



In the bag and practically on their way to a hobbyist's tanks, these Black Ruby Barbs were caught in only a few minutes. Photo by Rodney Jonklaas.

At the end of the day the Barbs are given a final check and have their bags packed with oxygen for the journey ahead. Photo by Rodney Jonklaas.





larger one were *Aplocheilichthys dayi* and Cherry Barbs. We wanted only the Black Rubies and so wasted no time with the others.

There is no need to net frantically and furiously for these fishes; the best way is to lure them into your net, which must be large and of a color that does not scare them (brown does splendidly). One sits down comfortably in the stream wearing swim-trunks and stirs up the bottom, whereupon most of the Black Rubies in the vicinity swim obligingly into the net. When from 3 to 10 are within it, it is swiftly raised and the shimmering contents emptied into a polythene bag. In a good spot it takes about an hour to collect a hundred this way, lazily, easily, interestingly.

The spectacle of wild Black Ruby males in full color sporting in a crystal stream in Ceylon is always an experience for me. I never tire of it, and neither does Eric. No color photographs can hope to do justice to wild Black Rubies; on this occasion I had forgotten the close-up lens and had to be content with candid shots of Sums and Eric holding up their spoils.

We lunched on rolls and Coca-Cola in the shade of the rubber-trees, while our captives swam round bewilderedly in bags. After lunch we packed up and left for Colombo with some 400 Black Rubies in the Van. The skies were darkening and the two-day-old drought was about to be broken, as it usually is, several score times each year!

## Inheritance of the Black Factor in the Guppy

By DR. EDUARD SCHMIDT  
Bad Homburg, Germany

Note by the translator: Black Guppies are getting popular in this country as well as in Germany. People who want a hardy as well as handsome Guppy of the old-fashioned short-finned type are turning to this attractive strain. In this article Dr. Schmidt tells us how it is arrived at and about the causes behind its coloration. With the amount of professional as well as amateur breeders, I have no doubt that we will see much progress in this direction.

W.V.

Black color is not a rare occurrence among livebearers. We have long known it in Platies, Swordtails, and Mollies. On the other hand, an intense black color was not known in the Guppy until several years ago, and then in two different occurrences. These were mutations, spontaneous changes of hereditary factors. The most interesting thing about these mutations is that the tendency for the black factor lies in the sexual chromosomes. Black color appeared only in Guppies that had a short, wild-type tail. This fact brings us to the conclusion that the factors responsible for the caudal development are responsible and that those which are responsible for the black coloration must be very close in sex chromosomes.

In 1956 there occurred in a batch of Leopard Guppies a male which was half-black in color. The Leopard strain came from Mr. Phillips in London and had been spawned through many generations. There were always the same results, with the males showing the typical leopard markings in the caudal fin, while the females were uncolored in all their fins. From the caudal base to the first dorsal rays this mutation showed a black coloration. The black edging brought out a particularly beautiful contrast in the yellow spotting of the tail and dorsal fin. This unusual pattern in the later generations of this fish drew much attention at the International Guppy Show in Berlin.

Crossings between the first half-black male with normally-colored females surprisingly resulted in no black males. The black coloration showed up in all females for the first time, however. It was less intense than in the male, and might be described as a smoky black. When these smoky-black females were mated to a normally-colored Leopard male, there were among the offspring 25% half-black males, 25% smoky-black females, and 50% normally-colored Leopard Guppies. When a half-black male was mated with a smoky-female, the results were 25% intense black females, 25% smoky-black females, 25% half-black males, and 25% normally-colored males. These attempted crossings let the conclusion be drawn that the half-black factor must be stored in



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One of the three-quarters black males being bred in Germany. Black is the predominant color even in the tail. Photo by Dr. Eduard Schmidt.

One of the first German half-blacks was discovered in a highly inbred strain of Leopard Guppies, a male of which is shown here. Photo by Dr. Eduard Schmidt.



Continued on Page 59



## Tetraodon cutcutia

BY THOMAS M. MACKESSACK S.J.

With an economy of words hard to beat and a native ingenuity worthy of a better calling, the lowly Indian fisherfolk have christened the pygmy freshwater Puffer found in Bihar, Bengal, Orissa, and Assam "*cutcutia*," meaning "the fellow that makes a koot-koot sound." Now, as the reader will agree, that is quite a mouthful in English! The word is onomatopoeic and succinctly describes the manner in which this Puffer registers a determined audible protest each time it is taken out of its natural element.

*Tetraodon cutcutia* is a member of the family Tetraodontidae. As far as I am aware, it is not only the smallest but also the handsomest of freshwater Puffers yet discovered. Virtually unknown to aquarists even in India, it is but a name only to those outside the country. I find it aplenty in the lakes in my area in Bihar, north of the Ganges.

The genus *Tetraodon* is represented by several marine forms in tropical and sub-tropical seas, especially those entering estuaries, and by a few freshwater forms inhabiting the rivers and lakes of tropical climes. I must qualify the word *few*, for there are many more freshwater forms now known than was the case about two decades ago.

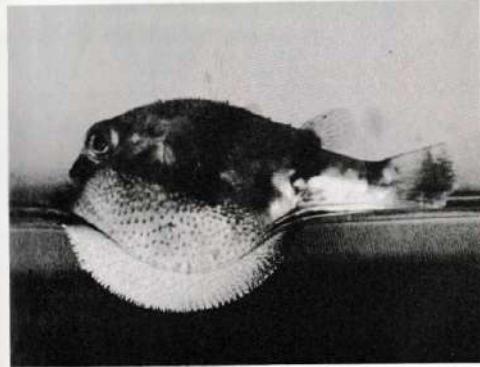
In Germany the Puffers, which resemble short, stubby clubs, go by the popular name of Ball Fishes, and in English-speaking countries by the name of Globe Fishes, Puffers, or Bloaters—indicating thereby their ability to blow themselves up into a ball by gulping down either air or water, depending on the element they are in at the time.

The members of the genus *Tetraodon* are not the only fishes that can inflate themselves; other common Puffer species are included in the genera *Diodon* and *Canthigaster*, both of which are composed primarily of marine fishes.

Some *Tetraodon* species, like the giant *T. scleratus*, which must be a really mean beast considering that "*scleratus*" in Latin means wicked, profane, accursed (and there's not much one can choose from in such an ugly and uncomplimentary string of epithets) grows to a length of at least 2½ feet and can blow itself up into a balloon three feet in diameter. The midget *T. cutcutia*, on the other hand, can only inflate itself up to the modest proportions of a ping-pong ball. This trait is sometimes its undoing, for Indian village boys occasionally tickle its belly to make it blow itself up, then put it on the ground and stamp hard on it to make it go off with a pop.

In nature this behavioral trait provides these fishes with a natural defense against a predator's sneaking up on them. They present too much of a mouthful, so the predator goes away disappointed. This is also true when

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*Tetraodon cutcutia* in action. Although the ability of the Puffers to blow themselves up to bulging proportions is a useful device in frustrating their aquatic enemies, Puffers in this condition are of a disadvantage in escaping from collectors because of their reduced mobility. Photo by Wilhelm Hoppe.

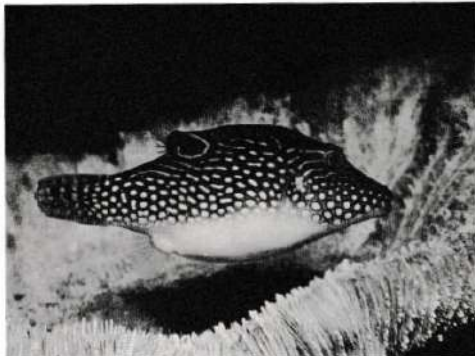
they distend themselves with water, which they can squirt or "shoot" in a jet at an enemy approaching uncomfortably near.

As a second line of defense, most Puffers are also equipped with dermal spines which stand out like a porcupine's quills when they blow themselves up to discourage their foes from snapping at them. *T. cutcutia*, however, is innocent of spines.

As a third safeguard, and presumably for the same reason as the skunk, many of them emit a stench. But, here again, *T. cutcutia* is quite a little gentleman.

A goodly proportion of this genus is also poisonous, and that to varying degrees. The offending organ seems to be the gall-bladder, for Day relates that in some districts of Burma, where Puffers are a food-fish, the Burmese, who are aware of their poisonous nature, eat them only after removing the gall-bladder. He also says that one spotted variety at the Cape of Good Hope occasioned the deaths of several sailors in harbor. Also, that formerly some of the Japanese were accustomed to eat one such lethal Puffer to commit suicide. And Bleeker, the Dutch ichthyologist, mentions *T. oblongus* and *T. reticularis* as being especially venomous. Some others are of opinion that

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The Puffers are a widely distributed family, occurring in both fresh and salt water in many parts of the world. The beautifully marked salt water Puffer shown here is *Canthigaster marginatus*. Photo by Klaus Payson.

females at breeding time are particularly venomous. Death is often preceded by spasms of shooting pain sufficient to drive the victim crazy. *T. cutcutia* will nip the hand that comes too near them in a transporting can, but while the bite will draw blood it is not poisonous.

Our present subject is, as I said earlier, a handsome little fellow. Against a background of yellow it has irregular dark green markings on the back and sides. The pectoral and dorsal fins are transparently gray. The caudal is of the same hue, but broadly outlined in purple. The eye, which is the one jewel this fish wears, is an electric blue-green ringed with purple. A purple patch graces the underside of the mandible. The belly is snow-white. A black ocellus, edged in white and located near the root of the dorsal, completes its gay attire.

As far as appearances go, *T. cutcutia*, like other Puffers, is all head and belly and little else. Some aquarists like their fish sleek, slim, and streamlined. Others want theirs to be fat, as Shakespeare's Caesar liked the men around him to be:

*Let me have men around me that are fat,  
Sleek-headed men and such as sleep o' nights;  
You Cassius hath a lean and hungry look!*

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The author and two of his young friends discuss the characteristics of a recently captured native Indian fish.

But plumpness is also a disadvantage. It does not make for the speed necessary for self-preservation. As the cynic put it: the more waist the less speed. With so much waistline *T. catesbeii's* speed is, well, not exactly fast. But if you watch him in an aquarium you will see him flutter his pectorals at a clip your eye will hardly be able to follow. With their help, he glides along with the greatest of ease. However, it is his eyes which he can wiggle in every direction that are his first line of defense.

He is an insatiable feeder—a gourmand of gourmands. Accustomed to luxurious living in his native haunts, he avidly welcomes fresh or live foods. Deny him these and he'll soon use his sharp-toothed beak of a mouth, with its dovetailing rows of teeth, to pick on companions slower moving than himself, and tear them to shreds . . . fins, body, and all! When his nature rebels against this rapacious behavior, he will lay off and rather go hungry. But soon he will become hollow-bellied and hump-backed and finally pine away and die.

The protagonists for fat fish claim that as regards looks the primary requisites are color and visibility. Fat fish, as everybody knows, don't HAVE to make themselves visible!

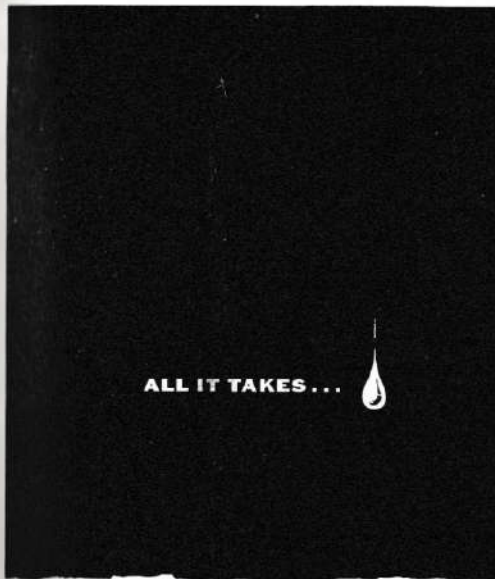
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Bustling Copenhagen, Denmark's capital, blends the traditional with the modern. Beyond the municipal center shown here lie the Tivoli Gardens, one of Europe's foremost attractions.

**The Aquarium Hobby in Denmark**

BY S. A. OLESEN  
Copenhagen, Denmark

Photos courtesy of Danish Information Office.

Here in Denmark the interest in tropical fishes and aquatic plants grows more intense every day, perhaps because of Denmark's northern geographic location and relatively cold climate, factors through which the truth of the adage "absence makes the heart grow fonder" is brought out. If Denmark had native tropical fishes and plants, we Danes would no doubt have less interest in



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The Danes have a great love of animals and natural beauty of all types, and they try to preserve it wherever it is found. This is a winter scene in a "deer park" just outside Copenhagen.

things tropical; as things stand, however, we are fascinated by tropical aquatic flora and fauna. If we had held onto the Danish West Indies, now the Virgin Islands, we might still have our flag flying in the tropics, but as it is we are satisfied with Greenland, the largest island in the world, which remains our property, along with the Faeroe Islands.

Millions of Americans know Denmark mainly through acquaintance with our beers and the song about Copenhagen, Victor Borge, *Hamlet*, and our dairy and fish exports; with the exception of the melancholy prince, we're happy to have such nice representation, but all of our cities can't be as big as Copenhagen (population about 1,000,000, or almost a quarter of Denmark's 4,500,000 people), and we can't all be as talented as Mr. Borge. Still and all, we get along fine, and we like our tropicals.

Danish interest in aquariums goes back a long way, to before 1850. In 1888 one of our first shows featured Goldfish and Paradise Fish, plus native fishes, but as the hobby became more popular in Europe our native fishes were dropped in favor of the more colorful tropicals. Today about the only



The harsh northern winters give way to pleasant summers in which the whole country springs to a new life. Here is the Gudenriver, which supplies Danish hobbyists with some of the country's native fishes, mostly Sticklebacks.

native Danish fishes to be seen in hobbyists' tanks are two Stickleback species, *Gasterosteus aculeatus* and *Pygosteus pungitius*. These have remained popular, despite their aggressiveness, because of their beauty and their interesting habits, particularly the male's nest-building activities at spawning time.

Around 1900 the first nature hobby societies were formed, incorporating bird, plant, and fish hobbyists, but it was not until some time later that the first regular aquarium societies came into existence. Today we have 25 societies in the country, 8 of them in Copenhagen alone; of the approximately 35,000 hobbyists in the country, only a few belong to aquarium societies. The biggest society in the country, the Aquarium Society of Copenhagen, has about 200 members.

What kinds of fishes do Danish aquarists have in their tanks? Most hobbyists, especially those who do not belong to societies, have community tanks. Luckily, most hobbyists here take care to keep only compatible species together, but you sometimes see Bettas, Gouramis, and Cichlids kept with livebearers, Barbs, and Tetras. This situation is caused more often by lack of space than by lack of knowledge of the differing requirements of the species.

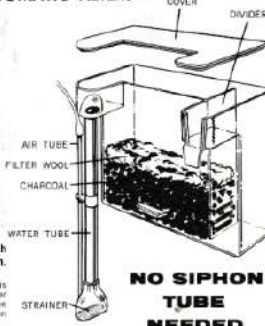
During the last ten years many new species of plants and fishes have been imported from the United States, Belgium, Holland, and Germany. The Cardinal Tetra is one of our favorite imports, although we also bring in many other Tetras, as well as Killifishes and Cyprinids; the *Rasbora* species are the

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most popular Cyprinids. Guppies are becoming more popular all the time, and we are now developing strains which can hold their own in competition with foreign strains.

Salt water tanks are seldom seen, mostly because they are prohibitive in price, both for fishes and for corals to decorate the tanks. But one of our marine specialists has great success with Sea Horses.

Like other Europeans, we pay more attention to plants and planting techniques than American hobbyists, although our tanks are sometimes criticized as being planted too densely. A few Danish hobbyists have specialized in the propagation of aquarium plants, with good results. The new method of using carbon dioxide in a tank to stimulate plant growth (TFH September, 1962) has been helpful.

Most Danish tap water is too hard (between 160 and 360 ppm) for tropical fishes and plants, so we have to soften it by mixing in distilled water or using special softening filters.

We have comparatively many pet shops; Copenhagen alone has about 60, although not all have good selections. Here are some representative prices for fishes and plants:

FISHES	Price
Emperor Tetras	\$.75
Sphenops Mollies	.40
Cardinal Tetras	1.75
Common Guppies	.10
Fancy Guppies (Males)	3.00
Rasboras	.50
White Clouds	.20
Neon Tetras	.50
Tiger Barbs	.40
Platies	.35-.40
Red-Tail Shark	1.50
Aphyosemosias (ordinary)	.50-.60
Aphyosemosias (rare)	1.50
Lyre Tail Mollies	2.00
Simpson Swordtails	2.50
PLANTS	
Echinodorus	3.00-4.00
Hygrophila and Water Wisteria	.50
Cryptocorynes (ordinary)	.50
Cryptocorynes (rarities)	2.00-3.00
Val and Sag	.05-.10

There are many differences between the hobby in Denmark and the hobby in the United States, but one thing is the same: we all think the aquarium hobby is the best hobby of them all.

## A Simple Daphnia Culture

BY HARVEY SIEGAL

The problem of obtaining live *Daphnia* during the extremes of the seasons has always been a difficult one for me. During the summer the food has a way of sinking down to the bottom, making it unobtainable. During the winter it seems to vanish altogether, or the ice is so thick that collecting is impractical, if not impossible.

Some time ago, in order to avoid the frustration involved in returning empty-handed from collecting trips, I decided to try my hand at raising an adequate supply of *Daphnia* at home. Gratifyingly, this has worked out very



*Daphnia pulex*, greatly enlarged. These little crustaceans make a good live food, but they should not constitute the great bulk of the diet. Photo by K. Lerch.

well, for the equipment necessary is uncomplicated and inexpensive, and a successful *Daphnia* culture will provide plenty of live food during those times when you need it most.

Experience has taught me that the largest containers give the best results. The ultimate in this respect is the fifty gallon refrigerator lining. These can easily be obtained from any junkyard at a nominal cost. I prefer these containers to smaller ones because larger volumes of water slow down the



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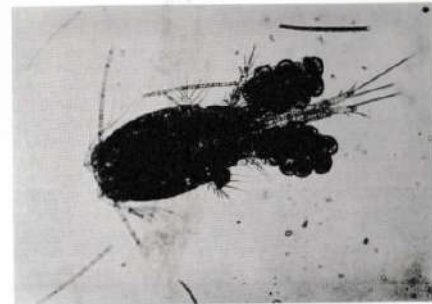
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TFH 64-7

processes of alteration of water composition, thus allowing the animal life being cultured to adjust to changes over a longer period of time. This is beneficial, because it cuts down on the danger of "shock." Also, of course, much more food can be cultured in a large container than in a small one.

If one does not have the room for these large vessels a 7 1/2-gallon cheese can will work equally well. These can be obtained from any dairy for no cost at all.



A female Cyclops with eggs. Smaller than *Daphnia*, Cyclops are often eagerly accepted as food, but they sometimes harm both eggs and fry of tropical fishes.

Their only drawback is that they cannot support as much food as the larger vessels, and more of them would have to be set up to supply the desired amount of food.

As with everything else in the hobby, water is the most important factor. Slightly aged water with a pH of neutral to slightly alkaline will work best. Water hardness has very little bearing upon this "community."

*Daphnia*, a small crustacean, is an excellent fish food. Under proper conditions it is quite prolific. *Cyclops*, another small fresh-water crustacean, is smaller than *Daphnia*, making it a fairly good baby food. (It must be used with caution, however, because at times it has been accused of killing baby fishes.) Both of these animals feed on microscopic animals and plants. In nature there are a large number of these organisms present in every drop of water. It is our goal to make life possible for these forms of life so that they in turn will be present in sufficient number to support our culture animals. A culture made from stringbeans or green peas works well. Approximately sixteen ounces of either will do nicely for the fifty-gallon size. In the smaller



**Tropical Fish Hobbyist**

(7)-gallon) container about two to three ounces will suffice. The medium should be crushed and washed thoroughly and spread evenly through the vessel. About two to four days later minute organisms will be observed in the culture. Now is the time for the introduction of the crustaceans. Unfortunately, this may prove to be a trial and error experience, due to the fact that certain types would be better suited than others for artificial raising. Usually the "blood red" or dark green *Daphnia* take best to this procedure. As far as the *Cyclops* go, they all adjust very well.

In about two weeks' time the culture will be ready for harvesting. This can be done in a number of ways. One method is to run a fine net through the water to catch the food, but this method has one serious drawback: as the net is pulled through the water the bottom is stirred up, making further collection impossible until it settles. Another method is to place a powerful bulb in one corner of the container housing the culture. Owing to the animals' phototropic tendencies, they will collect under the light, where they can be easily netted or siphoned out. I prefer this method to the former.

On occasion the culture may go bad, killing all, or most, of the animals. This may result from overcrowding of the culture organisms, the presence of too much waste material, or allied causes. If this happens you might want to start all over and thoroughly drain and clean the housing container, later starting up a new culture, but there is an easier way than this. Just let the whole culture stand as it is; after a while it will clear up by itself and you can use it again. The disadvantages attached to this method are that you are using up valuable space while you wait for the culture to clear. Also, fouled culture medium left around without care will in many cases develop a most unpleasant odor, so it might be best to adopt the first procedure if your culture goes bad.

I have had a lot of success with this type of culture, and I sincerely believe that you can do the same.

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**MAIL CALL**

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**Believe it or not!**  
Q. I recently read an article about Goldfish eggs being shipped successfully, and I thought some of the Goldfish fans among the hobbyists might be interested in what I found out about storing them. Even though it was by accident that I did this, I learned something new about one of my favorite fishes.

Back in the spring, I brought back some Spanish moss from a trip to Mississippi and put a generous bunch together with a weight and dropped it in my 10-gallon tank of Goldfish, and forgot all about them for a day or two. However, every now and then when I went to feed them I would have to extract one or more of the fish from the moss. After this kept up for a few days I got disgusted with the whole mess and as the water was due for a change I took the moss out and washed it off thoroughly, laid it out on paper to dry out well, and then put it in a plastic bag and stored it in a box. I set up another

tank, dipped out most of the old water the fish were in, and put the water and fish into the fresh tank. I finished draining the water out of the aquarium they were in and washed the gravel until it was clean (I even bleached the gravel), spread it out as thin as possible on the drying rack and left it there for about ten days, sacked it up and stored

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it for future use. This took place in March. NOW comes the surprise! Some time in the latter part of August I was expecting a shipment of fish, so I set up two more 10-gallon tanks, using the gravel from the previous Goldfish tank in one of them, and the moss in the other. The next morning when feeding the fish I looked over the freshly set up tanks to see if everything was working properly, and you can imagine my surprise when I saw baby fish swimming about in both tanks. There were about 15 little Veiltails, as healthy as you please and looking for food. At the time I didn't have any brine shrimp left, so I fed them on the baby food from a tube until they could eat dry food. By that time I had another hatching of brine shrimp ready to feed them. I never saw anything grow as fast as those little Goldfish did. They were stored almost five months, dry, not moist. I didn't even know the fish had spawned. I never had the nerve to tell anyone about this if my dealer hadn't said I should.

Mrs. D. J. Pharr,  
Jeffersonville, Ind.

A. Mrs. Pharr, there will be many readers who will say that what you have written is a figment of your imagination which stretches the truth further than a 25-cent girlie, but I have stuck to the facts exactly as you have put them down. If you need any defending, I'm with you! Before anyone says you're wrong they've got to do exactly what you've done to prove it isn't so. And who knows? Maybe in 10 days they'll prove you're right!

### Zebra Spawning.

Q. I am not writing to contradict your information, but trying to add to it. I am speaking about your recommendations to use more than a single pair in breeding the Zebra Danio. First I started with a 7-gallon aquarium. Then I placed just one row of glass marbles on the bottom. Then I filled the tank to the top and placed a large Water Sprite plant to float on the water for oxygen

because I didn't have a pump or filter at the time. I then let the water stand for seventy-two hours. Then I went to the petshop and bought a heavy female and one male. When I arrived home I floated the fish for three hours and put them together into the tank. While all of this was going on the water temperature was 72° F. All of the rest of the day they chased each other all over the aquarium. The next day the fish started laying eggs at 10:30 a.m. and finished at 1:15 p.m. Two days later I could count approximately 300 fish on the bottom of the tank. At the moment the fry are doing fine and so are the two parents.

Bill Norden,  
Clarendon Hills, Ill.

A. With a fish that spawns as freely as the Zebra, the only absolute necessity is to have a male and a female and enough water for them to swim in. I have known of cases where a pair was purchased and spawned in a half-pint cardboard con-



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tainer in the short time it took to get them home. The methods we recommend are not by far the only ones, but they are the best means to get the largest possible spawning, save the most eggs, and raise the most fry.

**Smoking and the fish hobbyist.**  
Q. My husband and I are having a problem with our fish tank and would appreciate your advice. We have a 20-gallon tank with a large pump, under-gravel filter, and another filter with glass wool and charcoal. The tank also

contains several rocks (bought in an aquarium supply store) and a number of plants. It is also equipped with a fluorescent light. Our problem is that our fish keep dying. We have tested the water and everything else and have been unable to find anything wrong. So far two large Angelfish, one male Swordtail, a Spotted Catfish, two Black Lace Angels and a Betta have died. Nothing was visibly wrong with these fish. We now have left four Cardinal Tetras, two

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Penguins

Penguins, four Zebras, one Sucker Catfish, one female Swordtail, two Head and Tail Lights and two Scorpas. Could our problem have been overcrowding? Both my husband and I smoke, and we live in a 4 1/2-room apartment. We have been told that smoking (especially in an apartment) will harm the fish, as the filter draws the smoke through the water and the tar and nicotine kill the fish. Could this be our problem?

Mrs. J. Douglas,  
Mineola, N.Y.

A. No, I do not consider your tank overcrowded now. You have touched on a good point when you blamed the amount of smoking done in your apartment. A pump picks up a good amount of air in the course of a day, and if that air is laden with smoke some of it is bound to get into your water. No, I'm not going to tell you and your husband to quit smoking; I know how hard that would be. But how about moving your pump to another spot where there is a minimum of tobacco smoke? Tubing costs little, and then you and your husband could smoke in comfort knowing that your fish were getting air from another room that was not contaminated. Perhaps you have a nearby closet which is kept closed and gets a good deal less smoke.

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More about "green water"

Q. In regard to the inquiry by Joyce Darrington in the February '64 issue, may I offer some information? Some friends and I were working late one night at the biology lab when we first discovered the presence of some green water in one of our test samples we were taking after a heavy rain. This was long before we had gotten interested in raising tropical fish, so we never realized the importance it had for the hobbyist nor had we ever come across anything like it before other than in the textbooks! We ran some tests and found it to be composed of millions of microscopic bacteria which were quite harmless; it was discovered, however, that these bacteria had the ability to produce oxygen in large amounts in the day time while at night they absorbed it, but in very minute quantity. They also seemed to feed on other bacteria, and that probably explains why certain sick

fish thrown into water containing them got well. Now that we know what it is good for we try to grow it, but with poor results. It might interest you to know that this green water is also good food for the smaller, more delicate fry.

Michael K. Fox,  
Detroit, Mich.

A. The organism in question is not a bacterium; it is one of the smallest of the algae, a free-swimming species of Euglena.



Euglena

Scientists are not quite sure whether to classify Euglena as plant or animal. They have a nucleus which contains chlorophyll, giving them the ability to produce oxygen, as you mention. The fact that they

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consumes it in only small amounts during the dark hours is news to me; I had always thought that they consumed almost as much as they produced, and for that reason had hesitated to recommend them. The addition of a small amount of amino acids to their culture is said to cause them to flourish. Usually they occur when they are not wanted, and when they are needed no amount of coaxing and cajoling can culture them. Yes, they are an excellent food for fry, especially the smallest egg-layer fry.

*Monodactylus argenteus.*

Q. I own a foursome of a species of fish which I feel to be one of the most neglected in our standard reference materials available to the hobbyist. Only very general information is available to me on *Monodactylus argenteus*. My purpose in writing you is to obtain as much specific information as possible concerning the requirements of this fish.

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It would possibly be best if I describe the environment my Monos now have to see if their conditions can be improved. I have them in a 30-gallon aquarium which is equipped with an undergravel filter. For additional filtration and aeration I run an airstone and an outside filter to capture any sediment that may rise. The air supply is provided by a large vibrator pump. I maintain a constant water temperature of 76°F. The water itself is alkaline, approximately 7.6 to 8.0 pH. The water is very hard, above 324 ppm, and a teaspoonful of non-iodized salt is added per gallon. The diet consists of three liberal feedings a week of frozen brine shrimp, two feedings of a spinach-meat formula, and one feeding of prepared pelletized food. Occasionally, when available, young live Guppies and other livebearers are eagerly accepted. I feed them once daily, and food is readily accepted. My Monos are



*Monodactylus argenteus*

approximately a year old and are 3 1/2 to 4 inches in length. They do not molest any of the plants, nor have they ever been affected with any signs of disease. Do you recommend any area in which I

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can improve their conditions? What pH and DH range do you recommend?

Donald R. Komm,  
Roswell, New Mexico.

A. The Mono is a fish which is easily kept under the proper conditions; most people who have trouble with them are keeping them in purely fresh water. This species occurs in marine and brackish waters along the African and Australian coasts, and there is no information as to their spawning; perhaps they spawn in the open sea, and we cannot duplicate these conditions even in a marine aquarium. I would say that you are keeping yours under very close to ideal conditions; the fact that they have remained healthy for a year and grown to a size of 3 1/2 to 4 inches is a good indication that there is nothing lacking. Keep up what you are doing, and the only change you will have to make in the future will be to provide them with a larger tank! They attain a maximum size of 8 inches in nature, and yours have a little growing to do yet.

Female Barb chases male.

Q. 1. I have a pair of Rosy Barbs in a community tank. The female often chases the male. Is this unusual?

2. Do female Albino Paradise Fish make good community tank inhabitants?

3. Could you tell me where I can find information on the fish called Oscars?

Debbie Storeh,  
Lynbrook, N.Y.

A. 1. It is not at all unusual for the female to take the spawning initiative with a pair of Barbs. It could also be that she is full of burping and ripe eggs and his sperm have not yet matured.

2. Paradise Fish are generally too rough for a community tank, unless the fish with them are just as rough or a little rougher than they are. Generally the albino strain is a bit gentler, but they are not to be trusted either.

3. Our booklet Cichlids has some space devoted to *Astronotus ocellatus*, which is also known as the Peacock Cichlid or the Velvet Cichlid, but most commonly as the Oscar.



Spawning pair of Rosy Barbs.

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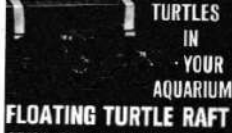
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**Vacation worries.**

Q. I am planning to go on a two-week vacation and would like to know how I can leave my fish and not worry. I have a small 5-gallon tank with Guppies, an Angel Fish, Catfish, and Platies. I have only artificial plants. Is there a plant I can put into the tank that the fish can eat while I am away, or maybe a slow dissolving fish food? I would appreciate it very much if you could tell me how other owners of tropical fish handle this problem.

**Mrs. Peter DeLaurentis, Richmond Hill, N.Y.**  
A. Every year this question comes up. No, there are no plants or fish foods that will fill your requirements. Best thing to do is to make sure the tank is clean and do not feed them at all. They can stand a two-week starvation period very easily and can subsist on the bits of algae which are always forming. Your only problem is that your tank is crowded at present, and if you run into trouble while away it could easily be big trouble in such an overpopulated tank. An automatic fish feeder could solve your problem handsily.

**Goldfish in an outdoor pool.**

Q. I. I recently bought a male Rainbow Swordtail. His tail is black, and he has no sword. What do you think he is?  
2. Will Goldfish spawn in an outdoor pool? If they do, at what time of year? Where do they lay their eggs?

**Michael Finnann, Gretna, La.**

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5. Microworms produce 1000's of worms overnight?		
6. Whiteworms ("fat" bugs) are a standard live foodstuff?		

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A. 1. The name "Rainbow Swordtail" has no scientific meaning; to my way of thinking it is one of the many strains of Xiphophorus variatus.  
2. Yes. Eggs are usually laid in clumps of aquarium plants or among roots of Water Hyacinth, which should be provided for them. Spring and early summer are the preferred months. There should be no snails in the pool, as they are very greedy egg eaters.

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**Guppy Corner**



By Paul Hahnel

**Plastic dishpan.**

Q. Yesterday afternoon I cleaned my 5-gallon aquarium. In it I had about 40 Guppies. Some are now in my Goldfish pool. I put them in a plastic dishpan while I was cleaning the tank, and some of the males as well as a few females died very quickly. My mother told me that the water in the aquarium must have been foul. What would you say is wrong?

**Robert Wittnebel, Oshkosh, Wis.**

A. Forty Guppies in a 5-gallon tank is a little out of proportion. This number of Guppies would be fine for a 20-gallon aquarium. The question is, what did you have in this plastic dishpan before you put the Guppies in it? There might have been traces of soap or detergent in this pan, or the plastic may not be designed for aquarium use and poisoned your fish when they

were put in. Your mother might also have been right, and the water in your aquarium might have been so unbearably dirty that your fish could not live in it. Clean your tank regularly.

**Record?**

Q. About 4 months ago I purchased a common female Guppy who measures about 1 1/2 inches long and at that time appeared to be pregnant (but I could not be sure). Soon after she gave birth to 36 young. Since I have had her she has only been exposed to one male fancy Guppy who is very much smaller than she is. Could this be a normal number of young or is it a record? I have had two other seemingly normal-sized females who had 12 and 13 each, but I was certainly not prepared for this large

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amount last week. Would you comment on this for me please?

**Mrs. Mildred Helverson, San Antonio, Texas.**

A. Very young females always have a very small litter at first. It is also possible that if you counted only 12 babies in one litter, half of the babies were already eaten up. By my own experience I counted 170 babies from a full-green female. Two of my friends who had females from my strain counted 181 and 189 babies. It is not always advantageous to have such a large number of babies in one litter, as they are often of smaller size. Thirty to 50 babies I would consider a fair amount for a full-green female.

**Good books.**

Q. I. I am raising Guppies and would like to purchase a good book about them. Could you recommend one and where could I get it?

2. How can I become a member of the Paul Hahnel Honorary Guppy Society?

3. Also, could you recommend some breeders in this area who might sell some of their strain?

I enjoy your column very much, and think it is too short.

**James Whisenand, Iowa City, Iowa.**

A. I. Write to T.F.H. Publications for the book you want. Here are some titles and authors:

**Guppies as Pets, by Dr. Myron Gordon**

Hybrid Guppies, by Wilfred Whiters

Guppies, by Dr. Herbert Axelrod and Wilfred Whiters

Fancy Guppies, by Mercur F. Roberts

All About Guppies, by Dr. Leon Whitney and Paul Hahnel.

2. Get in touch with Robert Mobil, 42-42 80th Street, Elmhurst 73, N.Y.

3. Try to get information from the Davenport Aquarium Society, Friendly House 303, Taylor, Davenport, Iowa or Thomas Kelly, 4314 South Archer Ave., Chicago 32, Ill.

**Odd Guppy.**

Q. I have the oddest Guppy I have ever seen. I just bought him today and he cost me 39c. He has a Beta tail. His body is a slight yellow with blotches of red. As you go on down the body it gets a deeper blue until it gets a baby blue. His tail is white with black lines running through it. What kind of Guppy is he?

**S. E. Huddleston, East Point, Ga.**

A. This must be an interesting-looking fish. I hope you got a female which comes from the same strain; try to breed them. Sometimes you find an odd-looking fish in the petshop; in your case you get a bargain.

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By Alfred A. Schultz



Sea anemones.

5. How many sea anemones would be good for my tank?

Paul Fuller, Beverly Hills, Calif.

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Q. I am going to set up a 21-gallon marine aquarium. Since I live on the California coast, I am going to stock my tank with some of the tidepool fish. Please answer the following questions for me:

1. How many fish could I put in a 21-gallon tank?
2. Is a substand, an inside, and an outside filter enough to take care of my tank?
3. Is it possible to keep a small octopus? If so, what should I feed it?
4. In the tidepools I recently found three types of nudibranchs. Can I keep them in a tank, and if so what should I feed them?

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Octopods.

1. Six.
2. Yes.

3. Usually they cannot be kept for long. They have enough strength to push open even a heavy cover glass and squeeze

through an unbelievably narrow opening to wind up on the floor. If you want to try, they will eat chunks of raw shrimp.

4. Yes; they will eat frozen brine shrimp.

5. One.

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## Inheritance of the Black Factor in the Guppy

Continued from Page 13

the X-chromosome XY (according to Winge, 44+X+Y). The female sex chromosome is XX (44+X+X). For the heredity formula, see the chart.

At about the same time as the half-black male showed up in my Leopard strain I heard that there was a half-black mutation which showed up for a Berlin breeder. I saw the first specimens of this fish at a later Guppy show in Berlin, shown by Aquarium Hamburg, where they had gotten somehow. To my astonishment, the black factor was still more in evidence than in my specimens. Again they were short, round-tailed fish, with the black coloration extending from the caudal base to the beginning of the pectoral fins, which also showed black pigmentation. To simplify, I will call these three-quarters black in contrast to my half-black specimens. A spontaneously appearing hereditary change is what this is, with a strain which was not related to mine. The black color even extended into the tail and covered all other colors, with the exception of a faint yellow. Michael Drzwillo examined the black factor and reported on it in his doctorate thesis "Genetic Examinations of the

Normally colored Leopard Guppies			
Female		Male	
XX		XY	
X and Y are the sexual chromosomes.			
The male has his half-black factor in the X chromosomes. This is represented by the letter N, the symbol for the half-black factor.			
Female		Male	
XX		NXY	
F <sub>1</sub> First Filial Generation			
All females carry the black factor in one X chromosome and are smoky black, and all males are normally colored Leopard Guppies			
Female		Male	
NXX		NXY	
F <sub>2</sub> R — Crossed back to the father			
Female	Female	Male	Male
25%	25%	25%	25%
NXX	NXX	NXY	XY
With the female the N factor works as a smoky black, with the male always a deep black.			



Original males of the half-black strain were short-finned, but they were hardy and pleasing in color pattern. Photo by Dr. Eduard Schmidt.

Domesticated Strains of *Lebistes reticulatus*," published in 1959 by the Hamburg Zool. Mus. Inst.

He found the same hereditary system which I did with my half-black Guppies. Again the three-quarters black factor was stored in the X-chromosome.

The domesticated Guppy is the ideal subject for the student of heredity. Hardly any other aquarium fish has brought out so many new colors and forms in such a short time as our Guppy. It seems that the hereditary possibilities of the Guppy have become particularly flexible by domestication in our aquaria. Of interest to the hobbyist is how these short-tailed fish could be bred into the highly imposing Fantail varieties. With both of the black strains the black factor was closely tied to the short-tailed wild form. Meantime, in the U.S. with the three-quarter black variety as well as here in Germany with the half-black variety, it has become possible to break up this pattern, and half-black and three-quarters black Guppies are now found with long fins.

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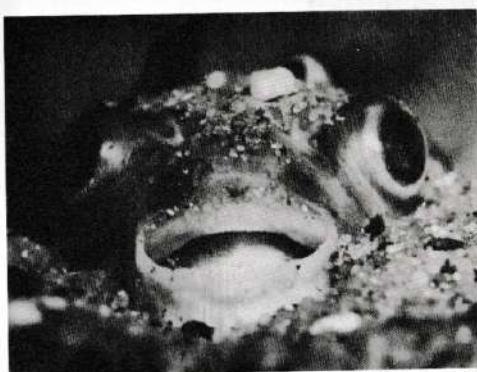
"Most of the credit for my prize winners goes to Rut-King foods fed according to recommendations. Dr. Rutkowski, Konig's 'FEEDING' manual." Ed Harbo, Coarabona Falls, O. International Guppy Champion

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Rosario La Corte, Elizabeth, N.J. Author, breeder of Cymatodus, Chichlid, Characin, Acarocara and uses Rut-King foods for fry and adults of these species.



Some Puffers, like Spiny Eels and some Loaches, bury themselves in the aquarium gravel, with only part of the head protruding. The digger pictured here is *Tetraodon fahaka*, an African species. Photo by Klaus Payson.

**Tetraodon cutcutia**

Continued from Page 20

The curiosity which this fish betrays would kill a cat! By comparison, it makes that of the fair sex look silly (and we all know how irrepresible that can sometimes be!) Well, if you don't believe me, just watch his eyes and you'll see! He swivels them now this way, now that, now forward now backward again, each eye independent of the other, as though he had to know what was going on around him. Of course, this is a wholly superfluous trait he has brought with him from the wild into the aquarium. However, there it is!

As far as breeding goes, this fish follows, I would hazard, the behavioral pattern set by its cousin, *T. fluviatilis*, also a native of India. First it makes a nest in the mud among the weeds, where it deposits its eggs. (*T. fluviatilis* deposits its eggs on a rock, but the lakes here have no rocks.) The male then fertilizes them and stands guard over them until they hatch and the fry are big enough to shift for themselves. When seining, I frequently net *T. cutcutia* fry little bigger than tadpoles, but quite capable of looking after themselves.

**SOCIETY NEWS**

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

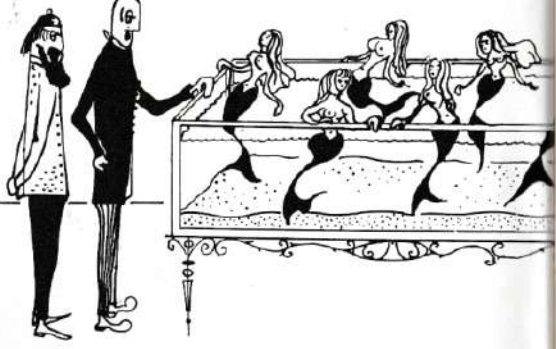
**Long Island City, New York . . .** The annual tropical fish show of the Queens County Aquarium Society will be held on June 26, 27, and 28 at the Republican Hall of Astoria, 31-27 41st Street, Long Island City, New York.

**Olean, New York . . .** A new

society, the Olean Area Aquarium Society, is presently conducting a drive to enroll members and to obtain contact with other aquarium societies. The address of the Olean Area Aquarium Society is 815 E. State Street, Olean, N. Y. 14760.

**Chicago, Illinois . . .** The Ninth Annual Convention of The International Federation of Aquarium Societies will be held at the Chicago Midway House Motel, 5400 S. Cicero Ave., Chicago, Ill. on July 10, 11, and 12, in conjunction with the International Guppy Show sponsored by Guppy Associates International.

"A very interesting setup, professor. And what does your wife say?"



**NOTES FROM ALL OVER**

I

A recent account appearing in a New Jersey newspaper mentioned that Governor Richard J. Hughes of New Jersey was still undecided about signing into law a bill that would pave the way for construction of a seaquarium to be situated on the Boardwalk at Atlantic City, New Jersey's famous recreation center. Although the newspaper item gave no reason that the Governor might have for temporarily shelving the bill, it intimated that the Governor's hesitancy is probably concerned with other than strict money matters, for, as the bill stands, New Jersey is not being called upon to invest any state funds. Under the proposed law, a seven-man municipal authority would be established, with power to finance the seaquarium by selling bonds. Supporters of the bill (proposed by State Senator Frank S. Farley of Atlantic County and passed by both houses of the state legislature) expect that the total cost of the security issue would be paid off by the revenue derived from admission charges to the seaquarium, and the cost to the taxpaying public would therefore be nil.

Dr. Herbert R. Axelrod, President of T.F.H. Publications, has written to Governor Hughes expressing his support of the bill and giving his reasons why a public aquarium on the state level would benefit the state from both an educational and esthetic standpoint. Dr. Axelrod urges all New Jersey resident hobbyists also to write to Governor Hughes in support of the bill. In view of the status of New Jersey hobbyists, professional and amateur, and the activity of New Jersey's progressive and well-knit aquarium societies, it is fitting that the aquarium hobby should not go without representation in the Garden State.

II

Shortly before press time it was learned that Governor Hughes has decided on the seaquarium issue and has signed into law the bill allowing the Atlantic City municipal authorities to float a bond issue for construction of a seaquarium.

TFH is justly proud of Dr. Axelrod's instrumentality in the passage of this bill, and we feel that his efforts can be considered an object lesson to hobbyists all over that action in support of the hobby, besides being justified through principles of self-interest, can prove of definite benefit to the public at large in matters of education and entertainment.