

TROPICAL FISH

HOBBYIST

More Color Photos,
More Information And
More Readers Than
All Other Aquarium
Magazines Combined.

FEBRUARY, 1967

DOMESTIC 35¢

BRITISH ISLES 2/6



TROPICAL FISH
HOBBYIST

BREEDING FISHES
By Dr. Herbert R. Axelrod.
25 cents from your dealer or direct from TFH.

Dr. Herbert R. Axelrod has come to the aid of the beginning tropical fish breeder in his 32-page book *Breeding Fishes*. Leaving nothing to chance, the book covers all aspects of breeding tropical fishes in 11 fact-filled chapters in which general requirements, such as sexing and conditioning the breeders, providing the correct environment, and isolating the breeders, are considered as well as more specific chapters dealing with specific groups of fishes.

The beginning breeder usually starts with the livebearers, and these popular fishes are considered early in the book. Mollys, platies, and swordtails are covered in one chapter, and the all-important guppy is given a chapter of its own.

Every ambitious beginning breeder hopes to breed the lordly Siamese fighting fish successfully, and *Breeding Fishes* devotes a chapter to the spawning of this gorgeous fish. Of the other bubble-nest builders, the gouramis are given a chapter. Other fishes meriting their own individual chapters are the old favorites, the angelfish and the aristocratic discus. Perhaps the easiest of egglayers to breed, the white cloud, is one of the most often-suggested first egg-layers for beginners and is also given its own chapter.

Chapters are also included on danios, tetras, barb, and rasboras. The book is illustrated with a number of instructive photos showing fishes in the act of spawning.

Dr. Herbert R. Axelrod, President
William Vanderwinker, Publisher
Mike Reed, Editor
Dr. Leonard P. Schultz, Advisory Editor
Dr. Aaron Axelrod, Business Manager
Ulenel Winograd, Art Director
Warren W. Howlett, Art Associate
Emily Kusso, Art Assistant

Contents
Vol. XV, Feb. 1967 (#132) No. 6

Eleven Years Spawning Discus 4
Yet an Oyster for the Aquarist 27
Aequidens nana 33
Sexual Varieties, Texas, Red, and Striped Texas Platies 37
Aequidens nana 51
Pelmatochromis olivaceus, A Rough One? 73

FEATURES
Notes From All Over: p. 45, Mail Call: p. 52, Career Corner: p. 64, Sale From The Seven Seas: p. 67, Your Fishes: Health: p. 68

COVER
It is amazing that one fish, the discus, could excite so much interest among the most discerning aviculturists. Large and showy, yet the most dignified of the tropicals, these fish are extremely sensitive to water conditions and require special feeding. Keeping them in good health is the mark of an accomplished aquarist, and breeding them and raising their fry has long been the mark of an expert. The discus featured on our cover is still relatively young; you can tell because the dorsal and anal fins are large in comparison to the body. The body will soon grow and assume the typical almost perfectly round, flattened shape of the adult. If you want to get the benefit of an expert's 11 years' working with discus, read the story beginning on page 4. Photo by Wolfgang Bechtel.

EXOTIC TROPICAL FISHES SUPPLEMENTS
Pages 23 and 24, 31 and 32. These pages are prepared for your interest and rounded to fit into the Localist Edition of EXOTIC TROPICAL FISHES.

RATES: 35¢ per copy in the U. S.; 25¢ per copy in Canada or foreign. \$2.50 for 12 issue subscription in U. S.; Add 50¢ per year for foreign subscriptions. All back issues available at 25¢ per copy unless available in every 12th issue.

In Canada Tropical Fish Hobbyist magazine and books are sold exclusively through Canadian Aquarium Supply Co., 1125 Talbot Street, St. Thomas, Ontario. All subscriptions and inquiries from Canadians should be directed to them.

In England and the western Sterling area Tropical Fish Hobbyist magazine and T.F.H. Books are distributed exclusively through T.F.H. Publications (London) Ltd., 39 Shelton Road, Barking, Surrey, England. All subscriptions and inquiries should be sent directly to them.

©1967 T.F.H. Publications, Inc.
Second Class Postage Paid at Jersey City, New Jersey. Published monthly by T.F.H. Publications, Inc. at 245 Correlation Avenue, Jersey City, N. J. 07302. Printed in U.S.A.

EDITORIALLY . . .

As I write these few lines, New York City and its environs have become very smog-conscious. A blanket of stagnant air has been hanging over the area and holding in much of the poisonous wastes (which are part and parcel of any large city) to a point where conditions have reached dangerous proportions. I wonder how many people who are alarmed by these conditions are able to compare them to a poorly-kept aquarium: wastes from too many fish accumulating to make things noxious, and not enough water circulation to disperse the gases or filtration to remove the solid wastes. These conditions often are at the root when people write in and ask what causes fish diseases. Often they think that all that is needed is to dump half a bottleful of medicine of some sort in their tanks. Good health, whether it is human or animal, is greatly dependent on a healthy environment. You cannot take a fish, a dog, a cat, or what have you and expect it to remain healthy if it does not have a reasonably clean place to live and a sufficient amount of oxygen in the air it breathes, unpolluted by any poisonous wastes. It brings to mind stories I have read of races of Indians who live high up in the Andes Mountains of South America. They certainly are not forced to live in crowded quarters and are not particularly dirty. But there is one thing they lack: oxygen. The air so high up is pure but very thin and low in oxygen content, and the Indians are utterly incapable of indulging in any form of exertion. The lack of oxygen makes even the simple process of breathing a strain on the body. A person who has been fortunate enough to attain the age of thirty is considered old. How are your fish lately?

William Vanderwinker



The great beauty and unusual compressed shape of the discus plus the challenge of trying to breed a pair, have kept the species one of the most desired fishes in the aquarium world. Photo by Hansen.

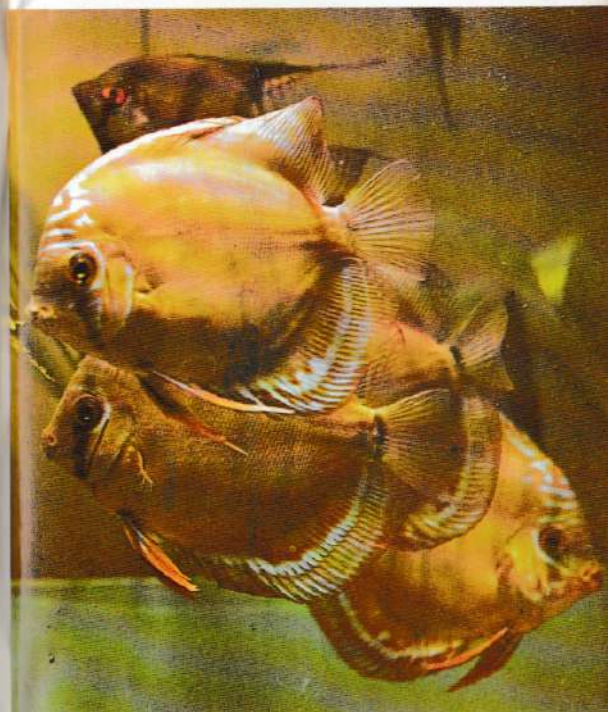
Eleven Years Spawning Discus

BY HEINZ LINDNER

HOHENSTEIN-ERNSTTHAL, GERMANY

About 11 years ago a hobbyist friend of mine presented me with four young *Symphysodon aequifasciata axelrodi*. These discus were placed in a large tank with angelfish and given good attention with frequent feedings and a temperature of about 77° F. After a short time they died for reasons I cannot explain.

My friend was persistent. About a year later he received three more young discus. These were also put with other cichlids. We did not yet know much about discus and what demands they put on their owners. Not much time



It is not wise to mix discus in a community tank with a number of other species selected indiscriminately. One fish which seems to live quite compatibly with discus is the angelfish, and many collectors keep large tanks in which these two attractive species are kept together. Photo by Kocar.



this is the miracle hydramatic pump and filter

It filters more than 200 gallons of water an hour, three times as much as any pump now on the market for the same price. It has a magnetic drive and the pump can be attached to any outside, inside, corner or undergravel filter. It is the most silent and versatile pump ever to be placed on the aquarium market. If you buy one and are not convinced it is everything we say it is, your money will be cheerfully refunded. NO OTHER PUMP MANUFACTURER EVER DARED TO MAKE SUCH A GUARANTEE!

□ Invented by the people with know-how.

MIRACLE PLASTICS CORP., Box 33, Jersey City, N. J. 07303

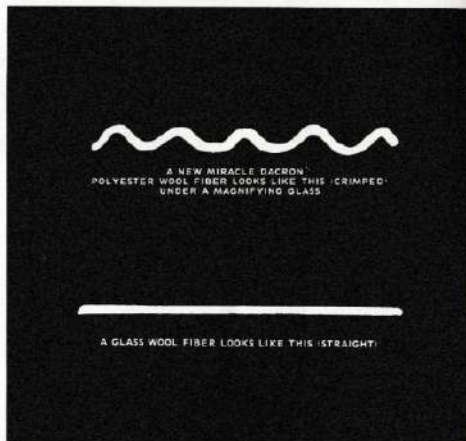
passed before two died. My friend lost his confidence at this point and presented his last discus to the Leipzig Zoo. In the aquarium at the zoo, this discus grew to a size of about 6 inches and lived for about a year. Up to this time, I was a quiet bystander. But, this was soon to come to an end.

On January 11, 1956, my friend and I took a trip to another hobbyist's, where we were treated to our first look at a family of discus. The parents were swimming about with their youngsters; it was a beautiful sight which was well worth the long ride. Both of us bought five youngsters, and we rode home on a cloud.

To our joy, the youngsters are well and seemed very much at home. However, my friend fed them some tubifex worms from a questionable source, with the result that two of them died, and the remainder became sick. Some days later I forgot to warm the food up to tank temperature before feeding my own discus, and one of the five died shortly afterward. The remainder were given much more pampering and attention. But we were to make many more mistakes. For example, now and then the water temperature dropped below 83° F., bringing in its wake the well-known discus tumors. No medication or drug helped here. Nevertheless, we soon found out that these tumors went down when the temperature was raised. After 9 months, my friend enjoyed three successful spawnings. On the other hand, in my 150-gallon tank, which, as a safety measure, was equipped with three glass bottoms atop each other, there were no results. The two larger discus developed sickly black patches, one fish becoming black over half of one side with the other side remaining normally colored. Between the three bottoms some decay gases had formed; I do not know if the sick-looking discoloration was caused by this, but I replaced the glass bottoms in my aquarium with a 2-inch-thick slab of slate.

The old discus were loaned to a breeder, as I had no extra tanks for breeding. He was able to get one spawning. The young discus were again colored normally. The old ones, however, did not lose their black blotches. With renewed enthusiasm, I again purchased six young discus and tried my luck once more. After about a year, at a temperature of 86° F., a pH of 6.0, and a DH of 4, I got my first youngsters to the freeswimming stage of development. My pleasure was not long lived, because after 10 days the parent discus spawned again. Then they kept catching and spitting the already well-developed youngsters against the spot where they had spawned until they had all died. The new eggs they had laid were eaten after 2 days.

Meantime, I divided my tank with a glass pane and put two females with only one active male, with success. In both halves of the aquarium, which had no gravel or plants but was well covered with algae, there were swarms of small discus. Meantime a severe winter had set in, and the pond which had become covered with a foot of ice, no longer harbored any tiny microorganisms for food. Necessity became the mother of invention, and I



YOU'LL BE GLAD WE CRIMPED OUR STYLE

The Miracle product is made with Du Pont's Dacron® 88 polyester fiberfill, and the little crimps in it make a big difference. They create many more filtering spaces and, much more important, they keep the material springy so that it will not mat up in the top layers. This allows the dirt to slowly work its way down into the material, leaving the top free to continue as an effective filter!

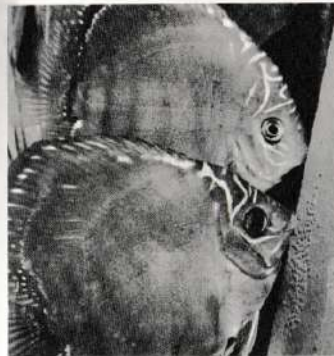
Up 'till now, glass wool has been the best filtering material available, but in carefully controlled, comparative tests it has been proven that . . .

MIRACLE DACRON® POLYESTER WOOL OUTPERFORMS GLASS WOOL 4 TO 1 — TRAPS TWICE THE DIRT IN HALF THE TIME!

Ask for it at your petshop.

DEALERS—CONTACT
MIRACLE PLASTICS CORP., P. O. BOX 33, JERSEY CITY, N. J. 07303

®Du Pont's registered trademark.



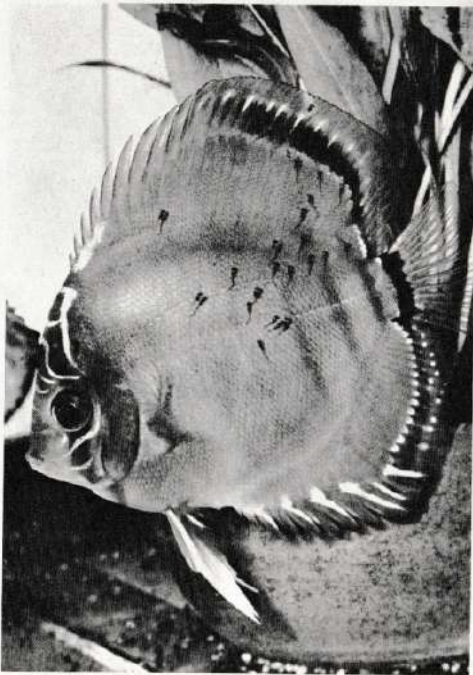
In typical cichlid fashion, discus parents fan and clean their eggs. Photo by Three Lions Photos.

other female kept interrupting, pushing the female away from four different places upon which she wanted to lay her eggs.

Good advice was badly needed. I visited the discus breeder Gotthard Richter in Nierendorf bei Stollberg. My plea that he lend me a male was not refused. He gave me, one after the other, three fully grown fish believing faithfully that they were males. But every one of these fish, when they were put into my tank, laid eggs beside those of my female. This was very discouraging.

A true discus, *Symphysodon aequifasciata discus*, whose sex I had not yet established, was again treated with sex hormone, even once injected with this substance. When I put this fish with a reddish-brown *Symphysodon aequifasciata axelrodi* female, it showed itself to be a male. Four times we watched him fertilizing a batch of eggs, and on the second and third day saw him caring the young fry as they hatched. My friend and I had often had such useless males before. Therefore, I widened my search for usable males.

This was not so easy, because who would willingly loan someone a discus? Finally, a friend in Rochlitz agreed to exchange a *Symphysodon aequifasciata discus* male for one of our females. The three of us were astonished when the male donned his breeding colors and swam quivering about the female, who was ready to spawn at the time, and was accepted. The following day the courtship already described was still in progress, and the spawning site

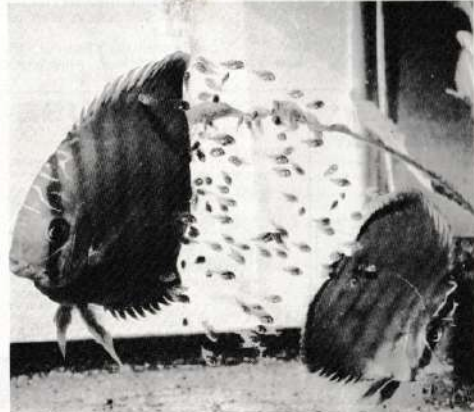


This is how the very young fry look when feeding on the nutritive substance secreted by their parents. Photo by Three Lions Photos.

was cleaned off. On Monday there was a spawning. That Thursday the first youngsters were seen hanging and were taken care of vigorously. The following Monday the little discus hybrids made their first swimming attempts. And just at this time I had planned a 2-week vacation with my family. To be honest about it, I was a bit uneasy about going. But my friend came every day from about 13 miles away just to look in on my little swarm of discus. When I saw the youngsters 2 weeks later, they had grown to a size of about $\frac{3}{4}$ inch. There were 40 of them and they had developed an excellent appetite. When they were 8 weeks old, they were divided among three of my aquarist friends.

While this latter female swam with her next youngsters, I put the male with the other female in the other tank compartment. Another successful spawning took place. But of 100 swimming fry, there were only 11 left within 3 days. For some reason that was inexplicable to me, there had become fewer each day. As the 11 youngsters swam with their parents for a week, there was another spawning, this one exceptionally big. The squirm-

The fry continue feeding off the parents' bodies for quite a long time. These youngsters are switching from one parent to another. Note how large they are. Photo by Three Lions Photos.



Supreme[®] HEETMASTER

the only aquarium heater with the patented[®] sealed unit and new safety cap!

SAFETY CAP
Protects hobbyists' precious fish stock prevents impossible fixers from turning the thermostat.

PATENTED SEALED UNIT
Prevents the condenser and pilot from high humidity - concentrated around aquarium - also separates heating from control zones so a more accurate temperature is maintained.

CHECK THESE ADDITIONAL FEATURES:

- Element is wound on outside of heater core to permit faster heating of water.
- Heat light is visible from any angle.
- Numbered control knob for accurate setting.
- Highest quality workmanship and parts.
- Compact, modern design.
- All parts easily replaced due to simplicity of design - no rivets are used.

AVAILABLE IN 8, 10, 12 & 15" TUBES

8" available in 25, 50 & 75 watts.
10" available in 25 & 100 watts.
12" available in 100 & 150 watts.
15" available in 125 & 200 watts.

MASTER THERMOSTATS
Equipped with 3-way outlet to accommodate plain heaters. 300 watt capacity.

Replacement parts always available.

EUGENE G. DANNER MFG. INC.
1960 Summerfield Street • Brackley, 27, N. Y.

OTHER Supreme PRODUCTS

- Filter Pumps
- Pump and Motor Oil for Aquariums
- Pre-Cut 1800 Fish
- Aquarium Filters
- Adjustable strainer, dip tubes and air stones
- Pond traps, young plant boxes
- Precision gages and all regulations, 400g, 500g and 600g scales

Guarantee
Supreme Heetmaster...
...warranted for 1 year...
...at no charge.

*Pat. Nos. 3477463, 3511021

ing newly-hatched youngsters were changed from spot to spot, while the first 11 still clung to the sides of the parents and busied themselves with the edible gray body slime of the parents.

The fry from the second spawning eventually began to swim and wandered about the tank. The two parents picked them up and spat them at each other's sides. But, unfortunately, the youngsters did not stay there. Next day they were gone, while the first 11 are living to this day and resemble the mother. The rare spectacle of discus parents taking care of two broods at once had been observed by several friends. Until this time it had never happened to me.

My 6 1/2-inch females vary in their brood care. One picks out the fungused eggs from among the good ones, but the other ignores them. With this latter one, I must poke out the fungused eggs with a long knitting needle, to keep the fungus from spreading to the healthy ones. Whenever I do this, my wife must drive off the vigorously attacking parents. They are completely without fear at this time and will ram, bite, and pinch the hand that threatens their eggs, until it is taken out of the water. Even when I just want to feed them at this time, they jump half out of the water and attack the hand, thinking it to be an enemy. When one moves a finger up and down the glass, the parents rage as they follow it, bumping their heads in an effort to attack the finger. They spread their gill plates and put on their most gorgeous colors.

My first youngsters are 9 months old at the time of this writing. These hybrids show beautiful colors, with bands through the head and tail base, as well as the one in their middle that is somewhat more prominent than all the others.

Please Mention T. F. H. When Writing to Advertisers

WHEN YOU CHANGE YOUR ADDRESS

You won't want to miss your TROPICAL FISH HOBBYIST when you move to your new home — so please tell us, well in advance, what your new address will be. (It isn't enough just to tell the Post Office, for they won't forward your copies unless you pay extra postage.) When you write us, be sure to give us your old address, too — even better, enclose a clipping of the address label from a recent wrapper. We'll see that you don't miss a single copy if you notify us at least six weeks in advance of your moving date. Please don't forget to include your zip code number! Write to: TROPICAL FISH HOBBYIST, 245 Cornelison Ave., Jersey City, N. J. 07302.

ALWAYS DEMAND THE BEST!
for cleaner, healthier aquariums

inst. on
"E-Z"
The Perfect Control
**AQUARIUM
CLEANER**

ONE HAND OPERATION

- Churning action separates and removes dirt deeply imbedded in gravel.
- Delicately skims dirt from top of gravel.
- Cleans aquarium without disturbing gravel, plants or ornaments.
- Durable, quality construction.
- No mechanical breakdown.
- "E-Z" to operate.
- Made in U.S.A.

CHURNING ACTION SEPARATES DIRT FROM GRAVEL.

WATER AND DIRT PASS INTO FILTER BAG.

PRESSURE RELEASE VALVE

EQUIPPED WITH PORTABLE "E-Z" EXTENSION TUBE. Early design for larger tanks.

CLEAN WATER RETURNS TO AQUARIUM.

Patent Pending

Manufactured by
"E-Z" AQUARIUM PRODUCTS CO., INC.
12 Fox Avenue, New York, N.Y.

26

Native Gobies for the Aquarium

BY ALFRED SCHEINBERG

Many aquarists who would like to have a marine aquarium feel that they can't afford to indulge their interests. Marine fishes are often very expensive, delicate, and hard to obtain. Also, many species of marine fishes require large amounts of tank space and heavy aeration. The perfect fish for the aquarist who is concerned with these problems is the goby. Gobies are hardy, small, and require limited aeration. And they are, in many cases, native to our shores. This last fact makes them easily obtainable and usually quite inexpensive. Often the aquarist, if he lives near a bay, can collect them himself.

Gobies live along our warmer southern shores and may be found in tide pools, oyster beds, and mud flats. In these fishes, the two dorsals (spiny and soft) are always separated. The ventral fins are closely joined or modified to form a sucking disc. This suction apparatus is most likely used by the goby to keep it from being carried about during tidal changes. The goby, unlike most other fishes, lacks an air bladder to make it buoyant in water; therefore, it is a bottom dweller. Both scaled and naked gobies are found. Gobies' eyes are situated on the tops of their heads, enabling them to view the activities which occur above them.

One of the commonest species of gobies is the naked goby, *Gobiosoma boscii*. It is completely scaleless, and, consequently, its internal organs are visible through its translucent skin. This fish is quite prevalent in the waters from Cape Cod south, but it is found mainly in the warmer southern bays and inlets. As with most gobies, the naked goby spends a great deal of its time in the shelter of empty shells on the bottom. The usual adult size of the naked goby is 2 inches, but specimens of 3 inches are not uncommon.

The largest goby suitable for the home aquarium is the sleeper, *Dormitator maculatus*. It is also one of the hardiest of the gobies and can easily adapt to fresh, brackish, or salt water. Up to a foot in length, the size of the sleeper makes it a sometimes-used food fish. Although usually a brown shade, the markings and coloring of the sleeper are variable. This variability in coloring is due to its ability to change its color to some extent to match the ground on which it rests.

The sharptail goby, *Gobius hastatus*, lives in brackish and saltwater bays along the Gulf Coast of the United States. It has a fleshy, smooth skin that is tinted green. The caudal fin is rather elongated, but this fish, as do all gobies, still swims with a creeping motion along the bottom. Adult size is about 6 inches, but specimens may reach 10 inches in length.

One of the hardiest gobies and certainly one of the most important commercially, is the longjaw goby, *Microgobius gulosus*. This fish, occasionally

27



Dormitator maculatus, the largest goby suitable for the aquarium.
Photo by Laurence E. Perkins.

28

called the mudsucker, is a Pacific Ocean fish. Its economic importance is its rather extensive sale and use as a bait fish. Adult size is about 3 to 4 inches.

Feeding a goby in the aquarium poses little difficulty. The fish will readily accept brine shrimp, spinach, grated beef, tubifex and white worms, and dry foods with an animal base. Gobies are voracious eaters, but caution should be exercised not to overfeed them. Small feedings, three or four times daily, are advisable.

Most gobies prefer a water temperature of about 70° to 75° F., but a few degrees fluctuation is not detrimental. The specific gravity of their water should be about 1.022 to 1.024, and the pH should be about 7.4 to 7.7. A good commercial brand of sea salts will supply the right water conditions. Any brand advertised in this magazine will do quite well.

Gobies are bred easily in the home aquarium when they are kept under optimum conditions and given sufficient room. Their breeding habits differ widely; some gobies build nests of seaweed and watch these carefully until (and even after) the hatching of the eggs. This vigil is usually stood by the males. Other gobies release their eggs haphazardly in the water. (The eggs sink to the bottom, for they are heavier than sea water.) Still other gobies stick their eggs to the undersides of shells.

Gobies cannot be positively sexed, so obtaining a pair is simply a matter of luck. To better your chances of breeding gobies, select an adult trio, feed them with the best foods available to you, and increase the temperature of their water about 2 or 3 degrees when they seem ready. Extending the hours of daylight may also help; in nature, gobies spawn from early summer to fall.

There are several dozen species of gobies in United States coastal waters, and the few presented here are typical of almost all of them as far as feeding, temperature, and breeding habits are concerned. With only the most elementary care, any hobbyist can raise, and perhaps breed, gobies with success. The goby is one of those saltwater fishes which put the marine aquarium easily within the realm of even the novice aquarist.

Aquarium Fish Diseases by Dr. Rolf Geister. A new, up-to-date booklet published to answer the modern aquarist's demand for more science and less guesswork in the keeping of tropical fishes. *Aquarium Fish Diseases* covers poisoning by dissolved substances, nutritional malfunctions, external parasites, internal parasites, and many other ailments. It provides information on the life histories of the causative organisms, how they are transmitted, and their prevention and control. A profitable investment and a valuable addition to the aquarist's library.

From your dealer or direct from T.F.H., \$1.00.

29

GET ACQUAINTED



The **ENCYCLOPEDIA OF TROPICAL FISHES** by Axelrod and Vorderwinkler is the largest, most complete book on aquarium fishes ever published in any language. It has more than 760 pages with about 600 monochrome photographs and 300 color photographs. Every phase of the aquarium hobby is completely covered and there is special emphasis on how to breed aquarium fishes. Chapters on Commercial Breeding, Aquarium Plants, How to Feed your Fishes, Diseases, Snails and Scavengers, plus many others, covers points never before considered by other books. More **ENCYCLOPEDIAS** have been sold since its publication than any other book on tropical fishes. Due to the large printings its cost is amazingly low . . . only \$8.95 at your petshop or bookstore.

Published by T. F. H. Publications, Inc.
245 Canal Street, Jersey City, N. J. 07310

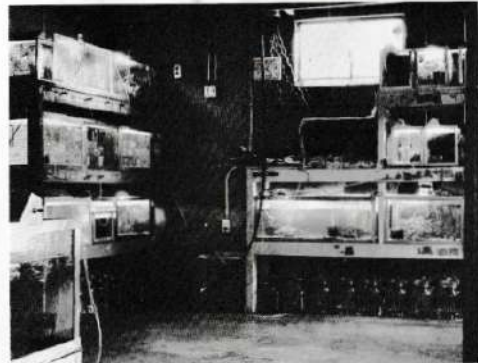
Sunset Variatus, Tuxedo, Red, and Spotted Topsail Platies

BY DR. JOANNE NORTON

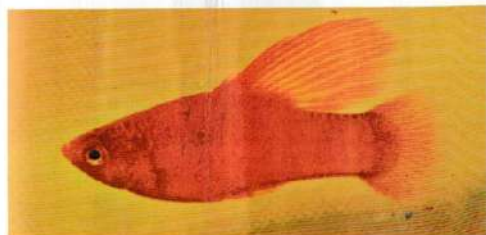
Since Mr. Hearin's topsail variatus platies were introduced (*Tropical Fish Hobbyist*, September, 1963), topsail platies have increased in total supply. Also, more colors of topsail platies have been produced (*Tropical Fish Hobbyist*: June, 1965, and February, 1966).

Topsail platy colors most often listed by tropical fish wholesalers are marigold and "variatus." Probably most of the topsails listed as variatus are blue variatus, although perhaps in some cases they may be sunset variatus. Since I have not seen a published picture of sunset variatus topsails, I thought it would be of interest to include a color photo here so that readers may compare their color with that of blue variatus, which can be seen in the September, 1963, *TROPICAL FISH HOBBYIST*. My strain of sunset variatus topsails was obtained from a mating of a sunset variatus female (regular dorsal) with a blue variatus topsail male. All of the offspring were sunsets, some of which were topsails. These fish are large and hardy. As in

Successful breeding programs require a greater number of tanks than most hobbyists have. This is just one corner of the author's basement and shows only a few of her breeding set-ups. Photo by Dr. Joanne Norton.



When Dr. Herbert R. Axelrod invented the adhesive properties of certain freeze dried fish foods, he didn't limit it to tubifex or brine shrimp! These fishes are eagerly attacking the **MIRACLE LIVER TREE** contained in the **MIRACLE FEEDING BELL**. Available mix for 50¢ per 10 gram plastic can.
MIRACLE PLASTICS CORP.
Box 33, Jersey City, N. J. 07303
(The People with Know-How)
Available in England through T.F.H. Publications (London) Ltd., 13 Nutley Lane, Reigate, Surrey, England



Top to bottom—the author's sunset variatus, tuxedo, and red topsail platies. Photos by Dr. Joanne Norton.

WORK A MIRACLE IN YOUR AQUARIUM

Miracle undergravel filters have been working miracles in home aquariums for 15 years. They work to keep water crystal clear by breaking down wastes and other debris into forms that can be used by aquarium plants or are completely water soluble. This is nature's method of filtration and is so effective that you should not have to ever break your tank down. You need merely replace some of the water now and again to keep it "sweet" and fresh, ideal for your fishes!

In addition, Miracle undergravel filters are not visible once installed, allow you to plant and landscape without getting in the way, and utilize the entire area of your tank bottom as a filtering surface. So why not work a miracle in your tank by letting a Miracle do the work?

Sold at most petshops.



MIRACLE PLASTICS CORP. P. O. BOX 33, JERSEY CITY, N. J. 07303
1243 W. COWLES ST., LONG BEACH, CALIF. 90810

sunsets with ordinary dorsals, the female sunset topsails have color similar to that of the male. That is, they have a yellow-orange body color and red tail. In contrast, blue variatus females are gray, like a female gray guppy.

Several steps were used to produce red tuxedo topsails:

Step 1: A black variatus female (regular dorsal) was mated with a sunset variatus topsail male. This produced some black variatus topsails.

Step 2: a red crescent female (regular dorsal) was mated with a black variatus topsail male. Their offspring included some brick red tuxedo topsails.

Step 3: A brick red tuxedo topsail female was mated with a blood red tuxedo male (regular dorsal). Some of the offspring from this pair were blood red tuxedo topsails. Since these breed true for

Please Mention T. F. H. When writing to Advertisers

Tired of a Trunkful of Air Pumps That Won't Work? You Buy A WISA Only Once...It Lasts a Lifetime!



MODEL 300

"My Kilditch hobbyist has used WISA constantly for the past 6 years. I recommend WISA as the greatest air pump and the best buy on the market today."
John L. Gonzalez, 680 Pine St., Philadelphia, Pa.



MODEL 200

"You'll never again buy an air pump! The only pump with these features: TOTAL SILENCE, NO MAINTENANCE, TREMENDOUS POWER. Model 200 devices will run 300 G.P.M. for 1 to 20 aquaria based on power/pressure. Model 300 approximately 500 G.P.M. PRECISION BUILT. Revolutionary new patented development of the vibrator principle gives amazing performance — yet Model 300 uses only 5 watts. Model 200 1 watt. 1 year guarantee."

"... have had their pumps for 10 years... they sure are good."
L.E., Chicago, Ill.

SOLD BY QUALITY DEALERS . . . TO DISCRIMINATING CUSTOMERS!



THE THINKING MAN'S FILTER... THE MIRACLE HIPOWER FILTER



- 1 The new Miracle HiPower Undergravel Filter is about 1" lower in the back than the older model and has optional knockouts for stems to fit on either side.
- 2 Just apply pressure firmly with your thumb and the disc easily breaks up to accommodate a Miracle HiPower stem assembly.
- 3 Don't break both discs unless you want to use both stem assemblies in one filter as this kit contains only two filter stems, one for each filter.



4 Snap the filter stem into place; the wider nipple fits into the wider slot. In all cases the narrow air tube goes to the rear as shown.



5 This is the new Miracle HiPower Undergravel Filter set up and ready to be placed in your aquarium, where it never need be serviced again.



- 6 For ultra-high power filtration where your fishes are overcrowded, you can use two filter stems in one filter. (Perhaps stock and sell extra stems.)
- 7 The normal approach is a filter stem in each filter at opposite corners so the stems "hide" in the corners of the aquarium.
- 8 Look for the Miracle HiPower Undergravel Filter in the red and black box at your petshop. It is the most powerful undergravel filter in the world!

MIRACLE PLASTICS CORP. P. O. BOX 33, JERSEY CITY, N. J. 07303
1243 W. COWLES ST., LONG BEACH, CALIF. 90810

blood red color, they will not produce any brick red tuxedos in future generations.

I have not seen any of the Hearin strains of red topsail platies. Comparing my red topsails with the pictures of his reds (*Tropical Fish Hobbyist*, September, 1963), I think that mine differ in that they have red dorsals, while the Hearin red males have yellow dorsals. Perhaps in the future my red topsails may produce some reds with yellow dorsals, since one of the original parents used in development of my red strain was a red variatus male with a yellow dorsal.

NOTES FROM ALL OVER

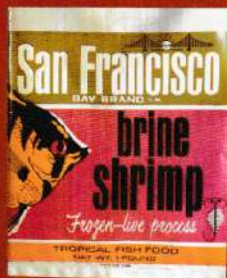
CITY OF MONTREAL AQUARIUM PLANNED

More and more big cities are realizing the great educational and amusement value given by a public aquarium. The latest plans for such an aquarium to come to our attention are for one in Montreal. The buildings are being constructed by the Aluminum Company of Canada and costs are being shared by them and the City of Montreal, which will assume full ownership, operation, and maintenance when the Aquarium is completed.

The largest building houses a Dolphin Pool, where a dozen of these spectacular mammals will perform for visitors. Then there is an area that simulates the Antarctic regions where penguins are found, with a community of these strange birds.

Of course there will also be aquaria that contain a wide variety of both marine and freshwater fishes from all over the world, shown in a manner that duplicates their habitat among coral reefs, etc.

Director of the Montreal Aquarium is Paul Montreuil, and the Curator and Veterinarian is Dr. Joseph Geraci, formerly with the New York Aquarium.



FROZEN BRINE SHRIMP AND BRINE SHRIMP EGGS ARE NOT ALL THE SAME.
 It's true that brine shrimp are the best food for fishes; it's also true that Bay Brand is the best frozen brine shrimp because it's made of the best live brine shrimp. Brine shrimp raised in San Francisco Bay (the only place that brine shrimp can achieve perfect richness and succulence) and frozen live. And it's only natural that the best brine shrimp should provide the best eggs. Discover why the pros insist on the famous San Francisco "Bay Brand" Brine Shrimp Eggs... the eggs with more hatch in every batch. So remember, frozen brine shrimp and brine shrimp eggs are not all the same. Next time you're at your dealer's, specify "Bay Brand."



SAN FRANCISCO FISH FARMS, INC., 711 HAMILTON AVENUE, MENLO PARK, CALIF. 94029



The author's spotted topsail platy. Photo by Dr. Joanne Norton.

My red topsail platy strain resulted from a three-stage breeding program:

Step 1: A gold crescent topsail female was mated with a red crescent male (regular dorsal), producing some red crescent topsails.

Step 2: A red crescent topsail female was mated with a red variatus male (regular dorsal). From this cross came some red topsail males having a deep, clear red color.

Step 3: A red platy female (regular dorsal) mated with a red topsail male produced the next generation, which includes both male and female red topsails. (In addition, some red crescent topsails were produced by a red crescent female (regular dorsal) mated to a red topsail male.) Red females also have a large dorsal, although not as large as that of the males.

My spotted platies came from a gold crescent topsail female mated with a spotted male (regular dorsal). Some spotted white and spotted red topsails were produced. The black spots, which occur mainly on the rear part of the body, are due to a dominant gene, **Sp**, which causes the development of macromelanophores.

All of the topsail platy strains described above are prolific. As is true of most platy and swordtail strains of hybrid origin, there may be some cases of sterility. Apparently most individuals of the sunset, tuxedo, red, and spotted topsail strains are productive.

DEALERS, BREEDERS, ADVANCED HOBBYISTS!

Custom-made multiple tank installations are one of our specialties.

Give us a rough idea of your needs.

We'll not only provide the equipment, we'll make suggestions that will often improve upon your idea and save you money too.

Bader manufactures a complete line of quality aquariums and aquarium equipment



BADER INDUSTRIES, INC., CHANGE BRIDGE ROAD, PINE BROOK, N.J.

MAIL CALL

By William Yorderwinkler

If you have an aquarium question that you would like answered, send it to MAIL CALL. Each month the most interesting questions received and their answers will be published in this column. Letters containing questions cannot be acknowledged or answered personally. Address all questions to MAIL CALL, T.F.H. Publications, Inc., 245 Cancelloni Avenue, Jersey City, N. J. 07302.

Plant requirements

Q. I have a theory about aquatic plants which I would like either verified or disproved. Since plants with larger leaves absorb more light than plants with smaller leaves, would it seem likely that the larger-leaved plants would require less light per day than the smaller-leaved plants?

Fred S. Dowell, Atlanta, Ga.

A. You can't generalize about plants in this way. The largest-leaved aquatic plant I know of, *Victoria regia*, which has leaves about 4 feet across, always grows right out where the tropical sun beats down on it. If you planted it where it got less light, it would probably go into a decline very rapidly.

Rasbora heteromorpha

Q. Well, I have decided to take some time from my activities to send you this. Every time I pick up my October 1966 issue, I keep on saying to myself "No, no, not in a hundred years!". I am

referring to the article that claims that rasboras are livebearers. I have bred them, and they are egglayers, no doubt about it, and they are not easy breeders. I would like to thank you for your article on the redeyed catfish. I have

Please mention T.F.H. when writing to advertisers

SERIOUS HOBBYIST??
 They show your own **LIVE FOOD**

Freshwater SHRIMP (MP's) (Pacific)	\$1.75
WORMS (BRITTLER'S Easy and Clean)	1.75
MICROWORMS (1,000's overnight)	1.25
WHITEWORMS (Small, prolific)	1.50
DAPHNIA (Water "buggy", natural food)	2.00
OLLIES (worms grow in aquarium gravel)	2.75

Free directions. Always 30¢ extra. Quick service. Fishmaster kit (\$5.50), Fry-aidout hair algae (\$1.25), Scale ff. nets (same color, \$1.75). Prize winning GUPPY strains (Green, Blue, Multi, \$10.00 pair, \$12.50 trio, plus \$5.00 handling).

AQUA ENGINEERS
 Box 1, Orvilleville, Michigan 48462
 Box 87, St. Bonde in Grand, Quebec

A New Concept in pH Testing . . .



RILA fresh water pH TEST KIT
 with a LIFETIME GUARANTEE

- GUARANTEED to remain STABLE & ACCURATE INDEFINITELY
- ACCURATE and EASY-TO-READ Color Chart supplied.
- Tests performed INSTANTLY . . . Results always RELIABLE.
- The FIRST & ONLY pH Test Kit with a written lifetime guarantee. Ask your dealer today . . . or write for complete Product Information.

RILA PRODUCTS • Box 114, Teaneck, N. J. 07664

seen only one of these fish in 7 years, and I tried to buy it from the wholesaler, but they would not sell it. Also I am very glad to know the proper name for the fish. The wholesaler referred to it as an African shark, but this name did not satisfy me. Now I will not be satisfied until I find another one somewhere.

Irene L. Gorman,
North Hollywood, Calif.

A. Your letter asks no question, but I figured it would be interesting to our readers anyway. Mr. Ong is one of the leading breeders in Singapore, but when it comes to taking sides I would have to admit that I would be on yours. Our feelings were expressed in the footnote on the bottom of the first page of the article.

As for the red-tailed catfish, *Phractocephalus hemiliopterus*, it is neither African nor a shark. It comes from northern South America and, of course, is a catfish. Once in a while, a baby one is exported from there, but there is little demand for the fish because they grow to such a large size.

An interested hobbyist

Q. I am 15 years old and have kept fish for about 5 years. Right now I have two adult discus and 30 neon tetras in my 20-gallon tank. My problem is that none of my friends are interested in tropical

fish. They think I'm kind of odd because I spent 30 dollars for my discus. Do you know of anyone I could write to who likes to keep fish? I would be grateful if you would send me their names and addresses. Mine appears below.

Mike Daniels,
1824 Virginia, Joplin, Mo. 64801

A. It's easier to give your name and address and hope that you'll get many new friends writing to you as a result. Lots of luck!

Snails

Q. Many of our fish tanks are invaded

Please mention T.F.H. when writing to advertisers

LIVE SEAHORSES

Order LIVE MATED SEAHORSES sent Air Mail outside from Fla. All orders receive a lit with FREE food, our feeding and simple instructions for raising these exquisite little fish in a jar, fish bowl or aquarium. The female (male) seahorse gives birth to the young alive. The Educational, Relaxing, and Enjoyable hobby with hours of fun for all the family.

LIVE DELIVERY GUARANTEED.

ONE PAIR \$2.25
TWO PAIR SPECIAL - \$4.00 - Order TWO PAIR and receive (B) ONE PAIR FREE (One address please)

F. F. MARINE LIFE
P. O. BOX 248-77-42 DANIA, FLA. 33004

by snails. Do you know of a remedy to fight and destroy these snails? Fish like the *Tetraodon* species are good for eating snails, but it is a hard thing for the fins of our fishes. There is no problem in a tank with large fish, but in a tank of the small species of fish it is not the same thing.

Pierre Lebrun, Grivegnée, Belgium

A. There have been several methods devised to eradicate snails, and I agree that a puffer in mixed company is very apt to nip fins. A small turtle might also do this on occasion. Here is a new wrinkle you could try: Feed your fishes with a portion of the new Miracle Freeze-dried Tubifex Worms. Then stick another portion on the glass and turn off the light. After a couple of hours turn on the light once more and you will no doubt see a lot of snails congregated about the spot where the food is. It is a simple job to net out these snails and dispose of them. Keep repeating this operation every couple of days until the snail population has gone down.

Guppy-platy cross?

Q. In a recent MAIL CALL question about a guppy-platy cross, you said the two species just will not cross. But I disagreed: recently I purchased some Mickey Mouse platies of both sexes. When I put them in my aquarium,

nearly immediately my guppies started chasing them. After my female platy had her babies, I found out that I had a guppy-platy hybrid. It has a gold body

Please mention T.F.H. when writing to advertisers

STER-AQ

ULTRAVIOLET AQUARIUM STERILIZER
KILLS BACTERIA & FUNGUS • ELIMINATES CLOUDINESS • DESTroys ODORS • ABSOLUTE SAFETY • FRESHWATER OR SALTWATER

WITH INSIDE FILTER WITH OUTSIDE FILTER

The Ster-Aq installs in minutes. Using your present inside, outside or sub-sand filter, water is circulated past the shielded ultraviolet germicidal tube. You send your fish must be delighted, or return the Ster-Aq within 30 days for full refund. 120 V. 60 Cy. 4 Watts. \$16.95 POSTPAID. CASH WITH ORDER. C.O.D. ABOUT \$1.30 EXTRA. FREE BROCHURE.

STER-AQ 15702 S. F. MICHIGAN BLVD. CARBONDA WELLS, CALIF. 91344

Please Mention T. F. H. When Writing to Advertisers

IMPORTERS and EXPORTERS
Attractive News from Hong Kong
TROPICAL FISH and GOLD FISHES
Bred by Lui Chi Keung
100% On Delivery • Lowest Prices • Highest Quality
Fair Prices for Importers. Get my Catalog and Price List Quick.
LUI KEUNG AQUARIUM
No. 198, Fa Yuen Street, 1st Floor Kowloon, Hong Kong
Cable Address: "ANGELFISH" Hong Kong Tel.: 805511 - 802171

Please Mention T. F. H. When Writing to Advertisers

YOUR ZIP CODE IS ESSENTIAL

New post office regulations make it essential that you include your zip code on all correspondence to TFH for which a reply is expected and on all subscription or book orders. Thank you.

and dorsal fin and orange and white spots in its white and green tail fin. That is why I disagreed.

Gary Darling, Capitan, N.M.

A. Just because you observed copulation between the guppies and platies does not

Please mention T.F.H. when writing to advertisers

PET TOWNE
THE MOST COMPLETE TROPICAL FISH STORES
Always The Best Quality

Featuring:
Extra Fancy Guppies by: Emile Poro
Nifin and Lyrelal Swords
Libby Bettas by: The Youngs
WETHERSFIELD, CONN.
671 Silas Deane Highway - Route 9
PROSPECT, CONN.
Waterbury Road - Route 69
SPRINGFIELD, MASS.
776 State Street - Route 20
SHOP PET TOWNE

mean that the babies had a guppy father. Livebearers of most genera can have a number of batches of offspring from the same fertilization, and many people assume wrongly that they have a genuine hybrid just because their fish has not been in contact with their own kind since their last delivery. I say that you have platies from a previous cross, and not guppy-platy hybrids.

Artificial plants

Q. I am interested in planting my aquarium completely with artificial plants. Where I live, the assortment of them is very slim and there is little choice. Also they are not very attractive. I am interested in all different kinds.

John Bailen, Bloomington, Ill.
A. Artificial plants have gotten to the point where they must be looked at very closely in many cases to be sure they aren't the real thing. Miracle Plastics is putting out plastic plants that should please even the most fastidious, and if your dealer does not have them right now, he should very soon. Ask him about them.

Baby perch

Q. While on vacation this summer, I caught three baby perch in a net. I brought them home and put them in my tropical fish tank. At first they stayed at the bottom of the tank with very quick movements, stirring up the sand. Now, a month later, they are swimming

Please Mention T. F. H. When Writing to Advertisers

Aquatic Plants—Grown Indoors in Greenhouses.
Superior Quality—Rare Plants. Get our list.
Tropical Fish—We produce them like minnows, by the thousands. We import many rare varieties.
Our large warehouse is full of aquariums and supplies of bargain prices.

WHOLESALE RETAIL
Color Chart showing 90 fish in color 19" x 28" - \$3.00 Postpaid
BELOY'S AQUARIUM, Inc. - Hazelwood 22, Mo. Since 1920

just like the other fishes and eating from the feeding ring. They don't bother the other fishes and all seem quite happy. I have never heard of anyone with an arrangement like this. Is it harmful?

Elaine Joyce, Park Ridge, Ill.

A. Not while they're babies. Of course, tropical temperatures are a bit high for fish from temperate climates, and you would be doing them a favor if you gave them their own tank and left out the heater. You will find that they have hearty appetites and a voracious preference. If you let them grow for a time, they will develop into fish that you will have to treat like the larger cichlids. They are very attractive, interesting fish.

Noisy headstander

Q. Since I have never noticed this in any of the pertinent literature, I thought you might be interested to hear

Please mention T.F.H. when writing to advertisers

36 YEARS OF RELIABILITY, QUALITY & SERVICE

That's **EVERGLADES!!**
Known for fine Aquarium Plants • Home Grown Tropicals • Conditioned Tropicals
PET DEALERS & JOBBERS
We want you on our mailing list.
NO FANCIER LIST AVAILABLE

Write us!
EVERGLADES AQUATIC NURSERIES, INC.
P.O. Box 597, Tampa, Florida

Please mention T.F.H. when writing to advertisers

AQUARIUM PLANTS THRIVE

and so do fish . . . Plantabbs Aquarium Plant Food Tablets feed your aquarium plants to thriving, full-blown beauty. Helpful to fish, too. Economical and convenient, just put in 1 tablet per week. 5 gallons of water like one every 10 days. Greenhouse Sale!

PLANTABBS
AQUARIUM PLANT FOODS
Plantabbs, Timonium, Maryland

about my noisy *Chilodus punctatus*, which I recently acquired. He is a beautiful specimen and quite large for a *Chilodus*, at least 3 1/2 inches. But the peculiar thing is his "typewriter-complex." He spends most of the day, head down, clicking away at debris, largely imaginary, on leaves in my 20-gallon tank and, so help me, the noises he makes can be heard clear across the room. The sound seems to be coming from deep in the throat. When he takes a particular fancy to an algae-covered leaf, his "click-click!" sounds like an underwater typewriter. I can hear him at this minute, between my own typing, and I have a Bach Brandenburg Concerto blaring in my ear as well. I panicked when I first heard it, because the sound was vaguely familiar, not unlike the stress signals an old 10-



Photo by Toyoko Inn, Osaka, Japan, W. G. Corbett



This is the factory: Here your TetraMin Flake Foods are made by over 100 workers.

During 15 years of untiring research, development and quality control, we were able to obtain the renowned reputation and the quality which makes TetraMin the most desirable Tropical Fish Food in the world.

With the pictures following in this ad series we would like to introduce ourselves to you and want to show you what happens "behind the walls" of our above factory. You will find out how careful we constantly search for even further improvements in your TetraMin Foods, employing the finest methods of research, production and quality control.



Our Research and Your Success Speak for TetraMin



Two *Chilodactylus punctatus*.

gallon display tank made a few months ago before it burst apart at the seams and flooded my room. The noise is made only when he picks at a leaf, but it doesn't seem to emanate from his sucker-like lips. Has this been observed before?

Rev. William J. Fulco, S.J.,
Los Gatos, Calif.

A. One thing I know, Father Fulco: if I had a choice between a solo by the *Chilodactylus punctatus* and the *Brandenburg Concerto* I would definitely be inclined to listen to the *Back music!* Seriously, though, I seem to remember an article in one of the German magazines which described this same phenomenon in the same fish species. Amazing, isn't it, how some fish species can make audible sounds? Some of them can make a sort of clicking sound somehow in their throats and the swim-bladder acts as a sounding-board to amplify it to truly amazing proportions. Ever hear a doctor in freshly-caught croakers? There's a *Brandenburg Concerto* for you!

Fairy shrimp
Q. Are fairy shrimp eggs available

commercially? These crustaceans would seem to be an ideal live food for home culture, yet one seldom hears of them. Is there any particular reason for this lack of popularity?

David B. Shonyo,
Washington, D.C.

A. No, and I hardly think they will ever be. Fairy shrimp, *Chirocephalus grubei*, put in an appearance early in spring as soon as the winter snows have melted. They quickly grow to full size, about the same size as their saltwater cousins the brine shrimp, *Artemia salina*. Their life cycle is about the same, living a short but highly active existence during which many eggs are laid which dry out and remain dormant until the same pool fills up again the following spring. It would not be commercially feasible for these eggs to be collected in any quantity, because there are never the amounts or concentrations that one can get of *Artemia salina* eggs. Otherwise, you would have something far superior to brine shrimp eggs, because they could be hatched in any fresh water. But no use worrying anyway. All the live foods, or most of them, will be available shortly in freeze-dried form. This process makes it possible to keep the food at ordinary temperatures without having it spoil, and with very little loss of food value. And we have reports of difficult-to-feed species such as discus going wild for these foods.

live cultures (with instructions)

Micro Worms	\$1.00
White Worms	1.50
Meal Worms	1.50
Drosophila (wingless)	1.75
Food for Cultures	\$1.00 ea.

(Mailed U.S.A. only)

Authentic Distributors, Inc.
Box 4148 St. James, N. Y. 11780

the females. Can you tell me if he is just mean and if there is a possibility that he will ever breed?

2. I own an arwana; he is 5 inches long and in a 10-gallon tank. Can you tell me how large a tank he will need when fully grown at, say, 20 inches? What is a good diet for him?

3. I work for a petshop and recently we got a white halfback. Can you tell me the name of this fish and where it comes from?

Larry Crafts, Riverside, Calif.

A. 1. A male betta who kills a female usually does so when he is all set to spawn but the female is not. Chances are that when the female is first conditioned properly until she is full of ripe eggs, your troubles will be over. Of course, your male could also just be a nasty individual.

2. Your arawana should have a tank of at least 20 gallons in capacity at this time. I dare say he will never attain his full

size, but a 50-gallon tank is good for a big specimen. Many owners feed their arawanas live goldfish. If you live near a place where fishermen get live minnows, my suggestion would be to try feeding him with these.

3. It could be that you received an albino specimen of *Dermogobius pusillus*, which comes from Thailand, Singapore, Sumatra, and Borneo.

Livebearer "wasting"

Q. 1. Some of my fishes, particularly livebearer females who have just given birth to fry, are constantly subject to "wasting". I always feed my fishes a variety of prepared foods, and frozen brine shrimp at least once a week. When I buy the fishes, they are all in perfect health. What can I do to stop the wasting?

2. Because of little tank space, I am forced to keep fry in a 3-gallon tank. They grow quite slowly (these are all

Please Mention T. F. H. When Writing to Advertisers

Your Fish May Be Victims of Hard Water — Less Lively... Less Colorful... Hard to Breed!



Hard water contains an excess of calcium and mineral impurities. This can be as tough on fish and plant life as polluted air is to humans. When the air you breathe is clean and wholesome, you feel healthier... more active. Have more color in your cheeks. The same principle applies to your fish. In fact, very hard water may even impair their respiratory systems. So why deprive your fish of the healthy environment of soft water when two simple steps can solve your problem.

First, See How Hard the Water is, with **CHECKRITE**. Second, Soften the Water Properly with **SOFTRITE**.

CHECKRITE
A few drops from the numbered bottles... a swirl... you get a reading in seconds. Accurate, safe, dependable. Includes complete instructions. (Lasts two years) **\$2.95** each

SOFTRITE
Just place Softrite in the filter, and water is softened — quickly, completely. Safe, harmless. Lasts forever — can be used over and over again. **\$1.35** each

AQUARIUM STOCK COMPANY, INC.
27 MURRAY ST., NEW YORK, N. Y. 10014 BEVERLY BLVD., LOS ANGELES, CALIF.

PUT A TURTLE IN YOUR TANK



79c

WITH AQUA-STOCK'S EVERFLOAT TURTLE RAFT

- Hours of fun. Watch them dive, swim, frolic.
- Now keep turtles in the same tank with your fish.
- Fit any aquarium.
- Turtles can get on and off raft easily.
- Special food compartment. Turtles can eat and dry themselves at same time.



The unique EVERFLOAT slide design lets the raft slide or fall with the water level, yet keeps the raft in a fixed position.

AQUARIUM STOCK COMPANY, INC.
27 MURRAY ST., NEW YORK, N. Y. 10014
2727 BEVERLY BLVD., LOS ANGELES, CALIF.

Please mention T. F. H. when writing to advertisers

livebearer fry) and I am wondering how many of them I can keep safely in a 3-gallon tank.

3. My zebra danios will not breed. I have tried an adult female heavy with eggs with several adult males. What could be the matter?

4. Does maturity in a livebearer depend on age or size?

George Chialtas, Delton, Ill.

A. 1. In your first question you ask me something, and in the second you practically answer it for me. Crowding a lot of fish in a limited space always results in bad water and a concentration of bacteria. In no time at all the bacteria get into the fish's digestive tract and the damage is done. A fish should have clean, uncrowded conditions at all times to keep in top health.

2. Using a 3-gallon tank as a sort of "catch-all" for your livebearer fry is not

at all my idea of giving them a proper start in life. Never wonder how many fishes you can get away with in a small tank; instead of working with a maximum, stay well below it. The maximum, of course, is roughly 1 1/2 inches per gallon. Figuring six fry to 1 1/2 inches, your 3-gallon tank is good for only 18 fishes, and as these grow, they would become crowded too.

3. Your female may be too-bound and unable to get the eggs out of her body. Try another female and use her for spawning as soon as she fills up with eggs.

4. I have seen many more small mature livebearers than large immatures ones, so I am forced to admit that maturity depends more on age than size. This is a generalization, however, for there are several definitions of "maturity", and the determining factor would depend on what definition you are using.

Please mention T. F. H. when writing to advertisers



WORLD'S MOST VALUABLE TROPICAL FISH HANDBOOK/CATALOG

Aquarium Stock's completely revised 1965 catalog is the most comprehensive book of its kind ever published for tropical fish hobbyists. It has over 64 pages (many in full color) chock full of the newest aquarium equipment. What's more, it contains accurate information on proper breeding procedure, fish care (diseases and treatment), fish identification, etc. No wonder hobbyists find it so valuable. Get one today. At 60¢ it's a bargain!

ONLY 60¢
AQUARIUM STOCK COMPANY, INC.
27 MURRAY ST., NEW YORK, N. Y. 10014
2727 BEVERLY BLVD., LOS ANGELES, CALIF.



Culling

- Q. 1. Is it possible to cull young fish (at about 1 month to 2 months old)? If so, what do you look for in deltalails?
2. My fish are 1 1/2 inches long (male) and 2 inches long (female). The male's colors are dark blue-black with a few pale blue streaks, a pale yellow dorsal, and a few rose-colored spots on the body. Females have a large box tail with a point. This tail is 1/3 as wide as the body is long. The male's tail is about half as wide as his body is long. The female's colors are red, white and navy blue. There is blue and white on her dorsal. I paid nearly \$10 for the pair. Are these good guppies to breed for a hobby and possibly to sell?
3. How can I take pictures of my fish?
4. I have only two 5-gallon tanks and one 10-gallon tank for my fish, with no

room for any more. How many of each sex should I try to keep?

5. Is a bare-bottom tank better than one with gravel?
6. I feed flake food supplemented by daphnia, mosquito larvae, frozen adult brine shrimp, frozen raw clams, white worms, and tubifex. Is this diet OK?
7. Should I start my fry on frozen daphnia and frozen brine shrimp? Or what would you suggest?

Diana Miller,
West Covina, Calif.

A. 1, 2 weeks to 2 months is in my estimation too soon to sell what the fish will look like when full-grown. A fish about 4 months old with a quite large body

Please mention T.F.H. when writing to advertisers

FANCY GUPPIES

INTERNATIONAL OPEN 1st PRIZE WINNER AT 1966 SHOW IN MANCHESTER, ENGLAND

Our prize winning strains are Delta tails \$7.00 a pair or \$12.00 for two pairs. \$4.00 a pair or \$14.00 for two pairs. Available in Red, Blue, Green, Multicolor, Mottled Black and 1/2-Block Delta tails. Structure 150. Guaranteed live delivery by express Air Mail. Send Check or M.O.

RAINBOW GUPPY AQUARIUM
P.O. Box 535, Leeburg, Florida 32748
Phone 787-2071

Please Mention T. F. H. When Writing to Advertisers

FIRST PRIZE WINNER AT THE INTERNATIONAL 1960 GUPPY SHOW, BERLIN, GERMANY

THE BRONZE DELIGHT

After more than 30 years of breeding exhibition guppies, Mr. Hartung now introduces his greatest achievement — the Bronze Delight — with its large V-tail broadens base. They are a first hybrid of golden and gray guppies. You may choose from Green, Leopard, Blue, Variegated or Blue-green tails. \$4.49 per pair. (\$5.00 extra for 100).

HARTUNG GUPPY SPECIALIST

Other prize-winning varieties are your choice of Red, Blue, Black, Dark Blue, Variegated — only \$4.00 a pair. Albino Yells, \$8 a pair. Beautiful Green Body and Vells \$9 a pair. **GUARANTEED Live Delivery — Fast!** Send check or money order to Mr. HARTUNG, VI-24 - 88th St., Woodhaven 21, N. Y. — VI 7-2338.

and a good size tail in proportion to its body would be a promising specimen.

2. The description of the coloration and size of your fish looks like a promising type to work with.
3. Usually this is done by a professional photographer, who has specialized equipment for this type of work.
4. 5 gallons is quite small, to keep your fish population as small as possible. Keep the ratio at 3 to 4 females to one male, but don't forget that if you want to sell, as you mentioned in your letter, you have to sell an even number of males and females.

Teo Way Yong & Sons

Importers & Exporters of
**Fancy Tropical Fishes,
Wild Birds & Animals**
Shipments to Any Part of the
World

1063, Yio Chu Kong Road
Singapore 19

Cable Address:
"CATFISH" SINGAPORE

5. Personally I like planted tanks, but many hobbyists have bare-bottomed tanks.
6. The food you provide for your fish sounds reasonable to me, but nevertheless there are still other types of food which you could add.
7. Frozen brine shrimp are perfect, but I usually use live newly-hatched brine shrimp, along with a large variety of dry foods.

A satisfied reader

Q. I have been using your conditioning methods (as outlined in GUPPY CORNER and your book ALL ABOUT GUPPIES) on my guppies and am well pleased. I would like to know more about veiltail guppies, particularly their prices.

Kevin Greiman,
Mason City, Iowa

PRIZEWINNING DELTA GUPPIES
GUARANTEED YOUNG AND VIGILE

Green Large fish. Excellent showy finnage. Proud. Males bright colors. Snappy strain. Beautiful.

Blue Wide delta tail. Large flowing finnage.

Pair \$10.00. Trio \$12.50. Add \$3.00 for handling.

Golden Service — Year 'round live Delivery Guaranteed.

GUPPY LABS
P.O. Box 1, Oronville, Mich. 48642

Please mention T.F.H. when writing to advertisers

A. Glad to hear you are satisfied, and I hope your guppies are as well as they should be with the conditions you are providing for them. Water conditions are, in my experience, the most important item in our hobby, and this goes not only for guppies, but for all of the tropical fishes we keep. I do not have any price list near do I ship fish, but some of the breeders here on the East Coast get \$25 and more for a pair of their top guppies. This magazine contains ads from several good breeders.

Please mention T.F.H. when writing to advertisers

THE DEGAULLE GUPPY
(Flag of France)

The most unusual breed of this era. A large, slim hybrid with light base, jet black body. Raring red tail, and white dorsal fin. Pacific females are olive color with black cast. They breed true: \$12.50 per pair. (\$4.50 extra for 100).

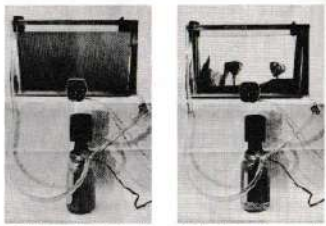
Other varieties include Albino Vells, Red Peacocks, Ice Vegas Green, Lavender. \$7.50 per pair. (\$2.50 extra for 100).

Guaranteed Live Delivery. Postpaid, Airmail. Send check or money order to . . .
MANHATTAN AQUARIUM SERVICE
274-21st St., Manhattan Beach, Calif. 90266
Phone: 243-4421



"DIATOM" a Fabulous New Filter
CLEANS 10 GALLONS OF AQUARIUM WATER IN LESS THAN 15 MINUTES!

- POWERFUL**
- Never needs cleaning—Simply back-flush and recharge.
 - No foul odors.
 - No messy irritating glass wool.
 - No valvular tank space lost.
 - Self-contained—Quiet operation.
 - Positively does not change water chemistry.
 - May be moved from tank to tank without spreading disease.



Repeating of rock washed check. Diatom filter "traps" all the diatoms and contains unshredded gravel, cigarette ashes and floor sweepings. After use, filter will produce murky conditions or worse, if even the most an aquarist will not see.

After 15 minutes, even the most sensitive (2000x or less) microscope of an inch has been filtered from the water. All that remains are a few bits of flakey debris which did not mix with the water and can be removed easily from the water.

FILTERS OUT FISH KILLERS Diatomaceous filtration actually filters out protozoan parasites such as "ick".



DEALERS: Order Now!

- Sales-Making Display Box.
- Colorful Window Banners.
- Nationally Advertised.

Only \$34.95 Retail

Ask Your Distributor or Write:



Salts From The Seven Seas



By Alfred A. Schultz

Q. Is it safe to keep a saltwater clam in a freshwater tank?

Jack Brownchwell,
New York City

A. Only if it is chopped up real fine and used for food for the freshwater fishes in your tank.

Q. This is my second year as a subscriber to TFH and I find your column one of the most interesting features of the magazine.

I recently purchased a book on saltwater aquarium keeping (NOT one published by TFH Publications) and find that many of the author's ideas conflict with those of others, including yourself. For instance, the number of

fish that can be kept in a tank. I have a 2 1/2-gallon, all-plastic tank. You stated in your article that marine fish should not be crowded. The following is one of the combinations the other author gives for a 2-gallon tank:

- 3 small clownfish
 - 2 neon gobies
 - 1 small hermit crab
- Wouldn't you consider this as crowding such a small tank?
- My tank has an outside filter, silicate sand, an airstone, a plastic cover and reflector, one hermit crab and one clownfish. Can I add any more fish and if so, what kinds (including crustaceans)?

Please mention T.F.H. when writing to advertisers

RARE & EXOTIC TROPICAL & MARINE FISH

mailed to you — live delivery guaranteed. Individual rare specimens often available. Let us know your wants. Enclose 10c for price list and details.

AQUA-DECOR
715 - 4th Avenue
Brooklyn, N. Y. 11232

Please Mention T.F.H. When Writing to Advertisers



WHY RILA MARINE MIX?

Simply because you'll be getting the finest synthetic sea salt available — proven by years of consistent, dependable performance.

A quality product guaranteeing the highest degree of uniformity and purity.

Contains the 10 major trace elements of natural sea water. Provides the ideal media for all marine life.

Ask your dealer today or write for complete Product Information Bulletin and free Salt Water Bulletin.

RILA PRODUCTS • Box 114, Teaneck, N. J. 07660

This author also states that most of the fish he writes about are easy to keep in one way or another. He calls the dwarf seahorse the "guppy" of the saltwater world. I have tried keeping seahorses and have never been successful. Is this really such an easy fish to keep? One more question: do you recommend keeping marine plants and cured corals in a tank? I'm afraid that my tank would be too crowded and hard to clean. I clean with a dip tube every week, but there is always some dirt left behind. My clownfish and hermit crab are quite healthy and I don't want to disturb them too much if I can help it.

Susan Yanover, Brooklyn, N.Y.

A. Thank you for the nice compliment in the first sentence. Yes, the addition of fishes would certainly crowd a 2-gallon

Please mention T.F.H. when writing to advertisers

MARINE TROPICALS HAWAII

saltwater aquarium fishes
exotic hawaiian species

TANGS BUTTERFLYS WRASSE
ANGELFISH TRIGGERFISH
DAMSELS MOORISH IDOLS
CLOWNS SEAHORSES
INVERTEBRATES AND OTHERS

DONALD E. MORRIS
P. O. BOX 835, HAILUA, HAWAII 96734
Phone: 253912 Cable: Martray, Hawaii
— WHOLESALE —

Salt Water Fish!

Sea Horses, Angelfish, Gobies
Butterflyfish: All Kinds



FAST DELIVERY! Little Waiting!

Don't be fooled by dealers who offer cheap prices on marine fish. They can't deliver and will only disappoint you. Send \$1.00 for Sea Horse Book and Marine Pamphlet. National Distributor for Reef Sails and Reef Corals. Lowest prices on Sails and Filter Medium. Dealers wanted.
Robert P. L. Strayhorn, Marine Collector.

CORAL REEF EXHIBITS

P. O. BOX 902214
MIAMI 39 (AMI) BE., FLA.
Ph. Miami 271-3331

Send for free price list. "We deliver fast not promises!"

Please mention T.F.H. when writing to advertisers

tank. I would not consider the dwarf sea-horse an easy fish to keep. My candidate for the title "guppy among saltwater fishes" would go hands down to the clownfish. Marine plants usually die very shortly in the aquarium, and a small tank like yours would be quite crowded if you added corals.

Live Foods for Aquarium Fishes by Robert Gannon. Are any live foods dangerous? What are the best all-round live foods? How much live food should be fed? How do you maintain live foods? These and many other questions are fully answered in this remarkable booklet, which lists and describes all of the available live foods. It is a "must" addition to the reference library of anyone who thinks of himself as an aquarist, and who would like to speak knowledgeably on the subject of live foods. 36 pages. Price, 35c. At your petshop or order direct from T.F.H.

YOUR FISHES' HEALTH

BY MIKE REED

Freeze-Dried Fish Foods

The most recent breakthrough in fish feeding is the development of freeze-dried foods. Having played a small role in this development by testing some of the Miracle freeze-dried products (the first on the market) and, as a result, having fed my own fishes with them for perhaps longer than anyone in the world, I feel more qualified to talk about them than most... at least from a hobbyist's point of view. Just what the process of freeze-drying is will be covered in an upcoming article in this magazine, so for the purposes of this column, I will confine myself to an investigation of the worth of freeze-dried foods to both your fishes and you.

Let me say at the outset that it is my opinion that freeze-dried foods offer more advantages than any other food, bar none.

FREEZE-DRIED VERSUS CONVENTIONAL DRIED FOODS

It has been my experience that most fishes will attack freeze-dried foods with such enthusiasm that they end up eating roughly three times as much of it as they will of any conventional dried food. Add to this the fact that these foods are at least as nutritious as most conventional dried foods and it is easy to see that your fishes get much more out of each single feeding with freeze-dried products. The reasons for this are that conventional drying (dehydration) removes much of the flavor, scent, and natural texture of foods, whereas freeze-drying preserves all these things, removing only water, which is restored the moment the food gets in the tank!

FREEZE-DRIED VERSUS FROZEN FOODS

There is no question that frozen foods are relished by fishes and are highly nutritious. However, freeze-dried foods are at least as nutritious as frozen foods and sometimes are more nutritious. I prefer freeze-dried foods for several other reasons, however. First and foremost, fishes seem to prefer them and eat more of them. Second, the frozen products are often handled incorrectly by someone along the line between the initial processor and your refrigerator's freezing compartment. The result is that some of the material (occasionally most of the material) is thawed and refrozen. This leads, at best, to the breakdown of the structure of the food or, at worst, to the decay and partial decomposition of the food. Most fishes will not eat much of the food if it has had its structure broken down. Virtually no fishes

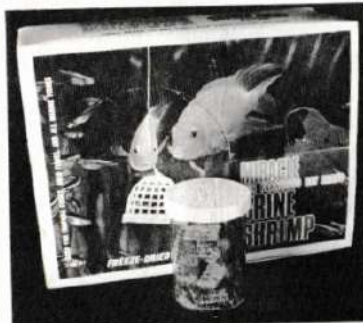
will eat food that is decaying. And, by the way, if you feed frozen food by dipping the whole chunk into the aquarium rather than breaking off a single feeding, you are thawing and refreezing the surface of the food each time you use it! Just what total percentage of the food this effects adversely depends upon several factors, but it's for sure that a great deal of the food is being wasted. In addition to being preferred by most fishes and not spoiling as easily, freeze-dried foods are less bother than frozen foods. They can be stored just like any conventional dried food, and they are easier to handle and break into pieces that are the size you want. And keep this in mind: when you buy freeze-dried products you do not pay for any water.

FREEZE-DRIED VERSUS LIVE FOODS

Some fishes will take only live foods. For these, you have no choice. You must provide them with it. If you have such a fish though, try the freeze-dried products a few times. Most of us have heard of fishes that were converted to freeze-dried foods from strictly live-food fare. Anyway, it's worth a try. Most fishes will eat freeze-



Miracle Plastics Corp. makes small plastic feeding balls in which freeze-dried foods can be placed. The fishes gull the food through the small openings. This assures a more even distribution of the food among the fishes, confines the feeding area, and prolongs feeding time so that the quarant can enjoy watching his charges eat longer. Photo courtesy Miracle Plastics Corp.






Miracle Plastics Corp. originated freeze-dried fish foods. Their first one was freeze-dried tubifex worms. This was followed closely by brine shrimp (pictured) and a number of others. All the foods are packaged in durable plastic containers. Photo courtesy of Miracle Plastics Corp.

dried foods just about as enthusiastically as they will live foods, and the nutritional value of equal quantities is identical. Of course, you don't have to go out collecting to get the freeze-dried products, and you don't have to keep them under special conditions once you have them. In addition, freeze-dried foods cost a heck of a lot less than live foods if you are buying at your local pet shop. Also, freeze-dried foods cannot bring in any enemies or germs, for the processing that the foods go through kills all living organisms that they may harbor.

FREEZE-DRIED FOODS AS THE MAINSTAY IN FEEDING

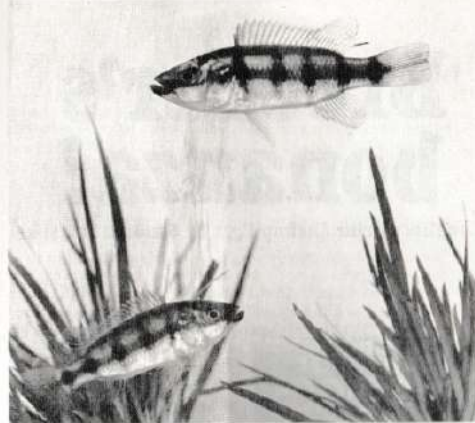
We all know the importance of variety in our fishes' diet. I do not know of any food that fishes will eat at every feeding with relish. Since I began feeding freeze-dried foods, I have made them the staple in the diet of my fishes. To provide variety, I alternate Miracle Freeze-Dried Tubifex Worms, Brine Shrimp, Fish-Nip, Liver Treet, and Goldfish Treet (this one is good for tropicals as well as goldfish). About every third or fourth feeding, I switch from freeze-dried food entirely, using high-quality dried food. I have never seen my fishes eat as greedily, grow as fast, or look as good as they do on this diet. Furthermore, special conditioning diets are a thing of the past now; most of my fishes are constantly in spawning condition (many are spawning regularly in the community tank, but the eggs are eaten). And if you think this means a more colorful and interesting tank, you're right.

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

\$20 per copy.



Published by T. F. H. Publications, Inc.
245 Cornelison Avenue, Jersey City 2, N. J.



Two young *Pelmatochromis arnoldi*. Photo by G. J. M. Timmerman.

Pelmatochromis arnoldi, A Rough One

BY RALPH WOODBINE

It started several years ago when one day my wife and I stood in front of a dealer's tank containing two dozen small cichlids. The dealer had just offered to give us as many as we wanted, since he planned to feed the others to his piranha.

The fish reminded me of our native yellow perch because of their brownish-yellow sides and five black spots that at times, depending on the mood of the fish, tended to elongate into bars. A diagonal black bar running through the eye and the alert, perky attitude of the fish combined to create an impression of raccoon-like cleverness. Their fins were ragged; they had been fighting among themselves. During the weeks they had been in the petshop

Breeder's bonanza!

Longlife's Brine Shrimp Eggs by Sanders in 2 sizes



Guaranteed Fantastic Hatch! Longlife's new, improved brine shrimp (*Artemia salina*) eggs by Sanders. Offering the incomparably nutritious value of live food. Ready for hatching, in vacuum packed containers of 4 lbs. 6 oz., and 1 lb. 4 oz. Write for our complete price list, on your letterhead. No order too large!

LOGLIFE
FISH FOOD PRODUCTS

DIVISION OF STERCO INDUSTRIES, INC., 50 COOPER SQUARE, NEW YORK, N.Y. 10003

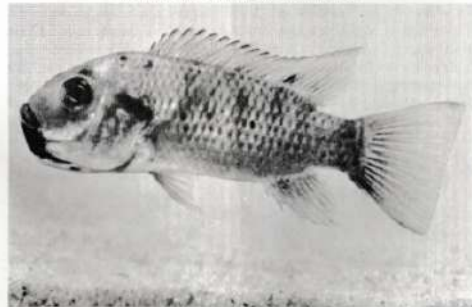
tank several had been sold, and returned. I was not able to identify the fish at this time.

We took four home and placed them in a 29-gallon tank containing full grown bleeding heart tetras, giant danios, *Hemiodus seminaeatus*, *Moenkhausia oligolepis*, hoplosternum catfish, and a *Gyrinocheilus aomieri*. That should solve the problem; surely no fish measuring 1½ inches would cause trouble in a tank of lively fishes from 4 to 6 inches long. For 3 days the little cichlids were model citizens, although the other inhabitants were careful to keep their distance. Then, one night I returned home from work, turned on the tank lights, and found that the little cichlids were the only fishes in the tank with any tails.

I moved them to a 60-gallon tank containing two male 8-inch black-chinned mouthbreeders and a 10-inch plecostomus. It was a standoff; the little cichlids would charge the mouthbreeders head on and back them down every time. Quite a sight! The easy-going, gentle mouthbreeders could have solved their problem at any time simply by opening their mouths and swallowing their attackers, but they never did. The little cichlids doubled in size quite rapidly and fought among themselves until only one remained; a pathetic, finless, fungus-covered specimen. By rights he shouldn't have survived, but he did. Slowly I nursed him back to health. In the meantime, one of the mouthbreeders died.

The little cichlid, now completely recovered from his ordeal and in fine fettle, proceeded to drive the remaining mouthbreeder into a corner of the

Even the large black-chinned mouthbreeder is no match for *Pelmatochromis arnoldi*. This mouthbreeder is carrying a mouthful of eggs.



Tropical Fish Hobbyist

tank where he huddled in misery for days. If the little cichlid had not been removed, the mouthbreeder would probably have died of starvation.

I moved the little devil to a 26-gallon tank that had two large pieces of shale leaning against the rear glass and a layer of water sprite floating on the surface. He went on a hunger strike; he moved aimlessly around the tank, his colors dull, his markings indistinct. The frozen brine shrimp, pieces of canned shrimp, liver-Pabulum paste food, and dry pellets that he had eaten previously were refused.

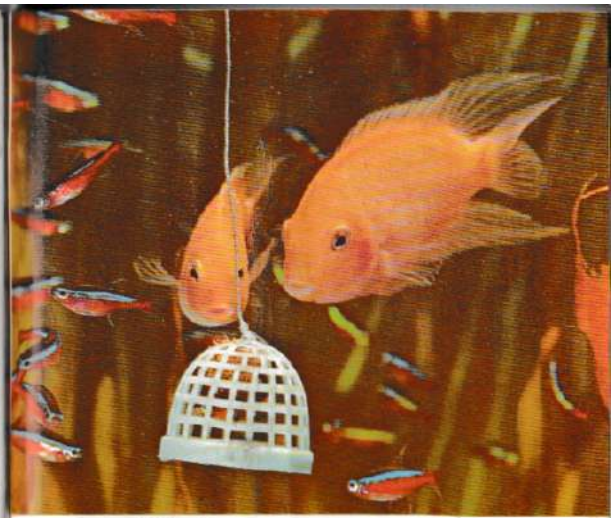
He was bored, so I put the 10-inch plecostomus in with him and the problem was solved. They have been together ever since. Some of their early battles were classic. Sometimes the tank would be peaceful with the plecostomus resting in his rock shelter and the cichlid intently watching the entrance, his pectoral fins waving gently and the tip of his dorsal fin flicking in a motion that is somehow feline. Then the plecostomus would leave his shelter, flying across the tank like something out of a bad dream, in pursuit of the elusive cichlid. The cichlid would finally turn and grab the plecostomus by the dorsal fin and attempt to shake him. No permanent damage ever resulted from these encounters although the dorsal fin of the plecostomus would be thoroughly shredded, and the cichlid's mouth would be torn from contact with the rough skin of the sucker cat. Several times, the cichlid became careless and was knocked unconscious by the headlong charge of the plecostomus, but the big fellow never pressed his advantage and the smaller fish always recovered.

The cichlid is now a handsome fish 5 inches long with colors and markings that change rapidly with his moods. At times he is almost black. When excited he literally glows; each yellowish-brown scale is outlined in dark brown and the normally green fins show red. A white edging appears on his dorsal fin. He has developed the high forehead characteristic of mature males. I have finally been able to identify him as *Pmatochromis arnoldi* from West Africa.

He seems to be mellowing with age. The pitched battles of the past have been replaced by what appears to be a ritual sparring involving little bodily contact and no injuries. At times he will industriously, and a little sadly, I think, clean a piece of rock or a patch of the slate bottom. When in a playful mood he will zoom to the front of the tank, sometimes striking the glass with an audible thump, and scurry back and forth, gills flared, in pursuit of a finger touching the outside of the glass. Yet, the next time you approach the tank, he may dive for the shelter of his rock. One day he may feed ravenously, the next he may eat little or nothing, apparently preoccupied with an intensive study of the contents of his tank. All in all, he is an interesting, unpredictable, moody, and durable fish.

What is the moral of this story? It depends on the way you look at it, I guess. One of the following should be applicable. "Beware of pet shop owners bearing gifts." "The best things in life are free." Take your choice.

76



Do you think these fishes are attacking a feeding bell filled with Miracle Freeze Dried Tubifex???

You're wrong!

They're going wild over our new MIRACLE FREEZE DRIED BRINE SHRIMP

Available now everywhere. Manufactured by the people who invented freeze dried natural fish foods.

Miracle Plastics Corp., Box 33, Jersey City, N. J. 07303

(THE PEOPLE WITH KNOWHOW)
Available in England and the western Sterling area through T.F.H. Publications (London) Ltd., 13 Nutley Lane, Reigate, Surrey, England.



77