

TROPICAL FISH

HOBBYIST

OCTOBER, 1964

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SWORDTAILS



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What Wilfred L. Whitern has done for the Platy in his wonderful *PLATIES AND MOONS*, he has also done for the Swordtail in *THE COLORFUL SWORDTAILS*, again concentrating on the basics of good aquarium management as the means to healthy, lively fish.

Selective breeding is the key to success, and this topic is covered comprehensively step by step through the three main phases. With an eye on practical considerations, author Whitern shows the reader how it is possible to raise good stock with a minimum expenditure of time and effort. Best of all, from the standpoint of the hobbyist, is the fact this information is given clearly and simply.

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

TROPICAL FISH HOBBYIST

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COVER

Presented on our cover this month are two new developments in the tropical fish field that had long been the subject of conjecture on its part. The upper fish is a male of a newly-discovered *Simpsonichthys*, *Simpsonichthys* *brasiliana*; the lower fish is representative of the new species of *Golden Convict Cichlid* first described by Bass Sponoff of Gulf Fish Farm in Palmetto, Florida. Photo of Simpsonichthys by Harold Schultz; photo of the Golden Convict Cichlid by Dr. Herbert R. Axelrod.

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EDITORIALLY ...

In the 16th century the Emperor Akbar of India levied a tax on his subjects. It was not a huge burden, and the districts of his realm came through with their share of the burden - all but one town: Dubalhati, in the District of Rajhabi. When the tax collector investigated, it was found that this was a truly impoverished area. The inhabitants were so poor that they had no worldly goods to offer in payment. The Emperor wanted to know if there was nothing in abundance in that district. There was only one abundant thing, he was told: a small fish that had the strange habit of wandering from one body of water to the next on its spiny fins. The fish's flavor was so bad and its bones so numerous that nobody ever ate it. Very well, the Emperor decided, the town of Dubalhati was to be taxed 20,000 of these Climbing Perch every year. The Tax Office lost no time getting rid of this odoriferous tariff when it was paid every year, but it was the only thing they could collect from these poor people. This "fishy" tax went on for 200 years.

This strange tale was dug up by the late Robert L. Ripley and published in one of his "Believe It Or Not" books. The fish is *Anabas scandens*, occasionally kept as an aquarium fish by hobbyists, most of whom have no idea of the unique part this little fish played in history. I am wondering about one thing: wouldn't the good emperor turn over in his grave if he saw the same little fish being sold for about \$1 apiece in the stores these days?

William Vanderwinker



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A male specimen of *Simpsonichthys brasiliana*, the new Brasilia Lyrefin recently discovered in Brazil. Photo by Harold Schultz.

The New Brasilia Lyrefin

BY SATURNINO DE CARVALHO
Photos by HAROLD SCHULTZ

On the central plateau of Brazil, at an altitude of about 3400 feet, we find today the most modern of all the capital cities of the world, Brasilia. In the course of Brasilia's construction a small zoo was laid out. In order to feed the numerous swamp birds a great number of fishes had to be netted every day: golden *Aityanax* with blood-red fins, many *Rienlus*, gorgeous creatures with green bodies and deep red angular markings running the length of the body. Considerably rarer was a little fish about an inch long with such a distinctive finnage and wonderful coloration that it stirred admiration from the fish collectors. The Director of the Zoo, Mr. Jose Boitone, sent this fish immediately to the well-known ichthyologist Dr. Antenor de Carvalho of the National Museum in Rio de Janeiro for identification.

When Dr. de Carvalho saw this tiny fish he took it (as did everyone else who saw its pictures) for a small species of *Cynolebias*. Upon closer examination, however, he noticed that the fish did not have ventral fins and therefore could not be classified with the true *Cynolebias* species. The skeletal structure and other generic marks of identification also differed, and he saw that this was a new fish genus. He named it *Simpsonichthys* in honor of his friend

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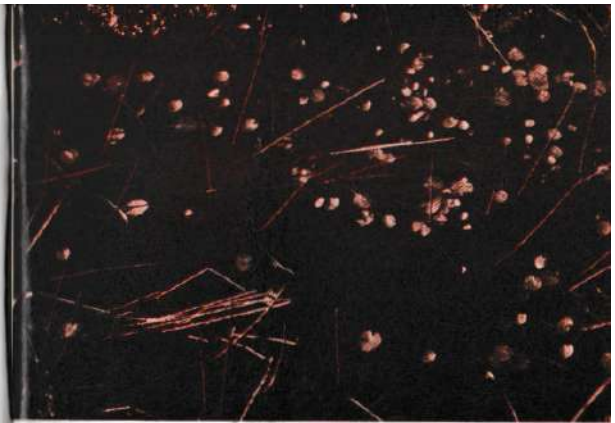
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A view of the typical habitat of *Simpsonichthys boitoni*: dense grass, which becomes submerged when the rainy season comes. The water is crystal-clear, and the bottom is covered with gray mud.

Charles J. Simpson, of California, and gave the first species in this genus the name *boitoni* in honor of its discoverer.

The body of this dwarf fish is very similar to that of the true *Cynolebias*. It is wedge-shaped, with a large tail. The ventral fins are missing. As with the *Cynolebias* species, the pectoral fins are very big and are moved like paddles. The dorsal fin is set in the center of the back and the anal fin a little farther back, but both end in the same vertical measurement. The last fin rays above and below are extended outward in fine points. For this reason I am proposing "Brasilia Lyrefin" as a popular name for this fish. These typical dorsal and anal fin points are lost in captivity, most often as a result of battles caused by close confinement during transportation. Naturally these fin rays grow back again, but of course in many cases they are not as beautiful as before. These injuries are easily avoided by not crowding them into a small space. In the aquarium they must be given places where they can retreat. I do not think that battles are common in their home waters, because as near as I could observe the single fish, whether male or female, occur much too far apart and are mostly found in dense grass thickets. All newly caught specimens had perfect fins. I am sorry that the lyrefins shown in the color illustrations were photographed a few days after they were captured. None had undamaged fin rays, even though I picked out the best ones to photograph. Although the

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The female *Brasilia Lyrefin*, like the females of many other Cyprinodont species, is much less colorful than the male. This female, photographed a few days after capture, shows a slight ruddiness to the fins, the result of confinement. Photo by Harold Schultz.

colors show up quite well in the pictures, it must be understood that freshly netted specimens are far prettier. Given good surroundings, they should get back their full beauty.

The climate of the Central Brazilian highlands where our beauty is found undergoes two changes, the hot and dry summer and the cooler wet winter. The two seasons go slowly from one into the other, so that the spawning period comes during the time of great heat and low water levels. As Mr. Saturnino de Carvalho, Assistant Director of the Zoo, informed me, the water temperatures varied from a minimum of 40° F. in the winter to a maximum of 98° F. in the summer. Temperatures are at their highest during the hot summer months.

Where do the *Astyanax* and the countless *Rivulus* go when the water dries out in the course of the summer and the bubbling brooks themselves disappear? For the *Astyanax* species, the answer could be that there are still some stretches of water left downstream into which they can retreat, or it could be that they die out and new ones come to replace them when the rainy season sets in again. *Rivulus*, on the other hand, can almost assume the role of annual fishes; there are many waters where they occur which become completely dry for several months in the year and are again populated with fish when the wet times begin.

Tropical Fish Hobbyist

The shallow waters in which *Simpsonichthys boitoni* is found quickly match the prevailing air temperatures. Probably there are some places where they are very shallow which become exceptionally hot when the sun beats down on them and then drop greatly at night. So at the beginning of the winter, when the fry hatch after a dry and hot period, they have withstood relatively high water temperatures which drop sharply, again to rise when the fish become mature and begin to spawn toward the beginning of the summer. But the highest temperatures are met when the eggs have been laid and are developing in their protective mud, which is moist at first and soon becomes hard and dry. Some months later, perhaps toward November or December, when the first downpours begin, there is a drop in temperature and soon the fry begin to appear.

Armed with the necessary information, one could duplicate the various air and water temperatures connected with the spawning, development of the eggs in dry mud, hatching, and the various stages of growth. This would be very welcome information for an intelligent keeping and breeding of this fish. Of course, to gather this information a scientist would have to live with them for at least a year.

Doubtless *Simpsonichthys boitoni* can be found in a much wider area around Brasilia than it has been so far. The surroundings are characteristic:

José Teixeira de Magalhães has great skill in discovering the right spots where *Simpsonichthys boitoni* hide. They prefer quiet shady spots under clumps of grass, in corners, with no flowing water.



Senhor Saturnino de Carvalho, Assistant at the Brasilia Zoo, shows *Simpsonichthys boitoni* to Dr. Martin Brittan, Professor of Ichthyology at Sacramento State College. Mr. Carvalho had some in his aquaria. Both the ichthyologist and the author were excited and think it is one of the most gorgeous Brazilian annuals to be found so far.

endless savannahs, grassy plains with low bushes and knotty trees, sand, rocks, and outcroppings. In the valleys there are numbers of small springs that never run dry and supply enough moisture to permit some farms to be worked. From afar such places are marked by the foliage of the beautiful buriti palms (*Manerita flexuosa*), and a traveler who makes his way across the hot dry savannah can look forward to a cooling drink. These little streams have their galleries of trees marking their meandering progress across the landscape.

During the height of the summer every year fires rage over many miles and turn everything to ashes. The sky is covered with a smoky gray mist. The landscape left behind is melancholy and black, but it turns green again after the first rain-drops and soon blooms with yellow, white, violet and pink.

When toward the end of May 1964 I arrived in the swamps near the Zoo to collect fishes, everything was almost dried out, much against my expectations. The year 1963 had been the driest in a hundred years, and it did not rain much even that winter!

There was a deep grass-covered valley which became very dense in the lowest places. Here there were countless waterholes which were connected with tiny creeks. Here there were fish to be found. I had proven myself a

Tropical Fish Hobbyist

disgrace as an aquarist by bringing no equipment to fish with. My fisherman, José Teixeira Magalhães Filho, fished from 9 AM to noon and caught about 10 fully grown males and 25 mature females, which are very much more modest in coloration. He was able to catch many hundreds of *Rivulus* specimens, and the golden *Astyanax* were also much more numerous than the rare *Simpsonichthys*: it could be seen that these waters had contributed heavily to the feeding of the bird life in the Zoo and also to the demands of the local fish hobbyists, but the percentage of fish species seemed to have been maintained.

The bottom of the waterholes where *Simpsonichthys* was found consisted of loose gray mud about a foot deep, sometimes less. After José had waded through it, the glassy clear water became gray and murky, but there was a tendency to soon return to its former clarity. The water's depth seldom exceeded 20 inches and was frequently less than half that. Unfortunately, I had no means of measuring hardness and pH values; I estimated, however, that the water was of medium hardness and just about neutral. There were many beetles that looked like whirligig beetles and their larvae as well as many dragonfly larvae and a few small leeches that attached themselves to the legs of our fisherman. José got them to let go by smearing his legs with soap.

The collector used a sieve such as is used to sift flour. Small insects would pass through, but the larger fishes would stay. It took four hours to catch only about 30 annuals.



October, 1964



The new Brasilia Lyrefin is similar in form and, to a lesser degree, in coloration to this other Brazilian Killifish species, *Cynolebias whitei*. Photo by Dr. Herbert R. Axelrod.

There also were numerous dark-brown tadpoles with darker markings. A tiny brown non-poisonous watersnake with a reddish belly found its way into our net. There did not seem to be many crustaceans. They might have been small enough to slip through our nets, but surely the main diet of *Simpsonichthys* consists of mosquito larvae and other edibles.

I consider the Brasilia Lyrefin to be one of the most beautiful of Brazil's annual fishes, easily competing with the most beautiful African species. With proper care they are probably longer-lived than the real *Cynolebias* species, or the similar *Cympoacichthys* species which frequently live longer than one year in their natural waters. Therefore I have to say that *Simpsonichthys boitoni* will please all my hobbyist friends.

My Wife Is Anti-Fish

BY LUCKY LUCKENBILL

You gotta be crazy. At least, that's what my wife says about my tropical fish hobby.

Looking back at the last year that I have been in the hobby and thinking about it objectively, she may be right. In the past year, I have got up at all kinds of weird hours to prevent some mother fish from eating her spawn; I have spent fairly large amounts of money on fish and fish keeping supplies; I have raised flies and mosquitoes; and once, when we were forced to move into a smaller house for a short time, I set up four tanks in our bedroom.


The whole family gets involved, pro and con, in my hobby. Billy, aged five, is on my side, at least most of the time. He can tell at a glance the difference between a Cardinal Tetra and a Neon and can tell you all the differences between a male and female Betta, although I am not sure he knows yet just what male and female mean.

My number two son, Bobby, who is only 18 months old, is on my wife's side, I believe. He has been known to throw shoes, ash trays, apples, and whole

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cans of fish food into my tanks. He once emptied a whole can of Old Dutch Cleanser into a newly spawned tank of White Clouds with disastrous results. At least, my wife said he did it . . .

Most people who keep tropical fish have had, at one time or another, to scrape the inside glass to remove algae, but have you ever had to scrape the outside to remove jam, jelly, chocolate, and peanut butter? I have, compliments of my number two son. It seems that he has the idea that the fronts of my tanks are actually fingerpainting boards.

The prime enemy remains my wife. While she has not yet been caught poisoning any fish, she is very adept at changing the subject when I come home all excited about a guaranteed breeding pair of all-black veiltail Angels offered to me for only \$65.

She can listen enthralled for hours while I expound on the breeding habits of the Egyptian Mouthbreeder and then, without changing expression, ask, "Wasn't that a beautiful dress that Mrs. Beale had on at the dance last night?"

Recently, when I was trying to promote the idea of a new 10-gallon tank especially for breeding Neons, she said, "Couldn't you use that old plastic wastebasket that you used to breed Guppies in to feed to your other fish?" Two things surprised me about this suggestion: one, it just might work, and two, I did not know that she was aware of what I was doing with those Guppies. I kept it from her because of humane reasons, you understand. Billy knew about it. It is a terrible thing to realize that your own son may be an informer.

Of late, there have been signs that my enemy may be wavering in her convictions. Just last week she said, "If you are determined to keep those slimy old fish, why don't you pick out some of the pretty ones and set up a tank in the living room? No one but your fishy buddies ever sees them in the den." Now I ask you, was that a surrender or was that a surrender?

There have been other more subtle indications that my personal cold war may be thawing a bit. For example, I have been having Billy turn on my lights so that my tanks get the required eight to ten hours of light a day. When I got home from work yesterday, Billy told me that he had forgotten to turn on the lights. But when I went into the den, the tanks were lit up in all their glory. You may draw your own conclusions.

Then there was the phone call I overheard the other day. What I heard sounded like, ". . . two to three inches of fish with filtration and aeration." Pause. "That's right. If you crowd them, it will stunt their growth."

She saw me and continued, "If you hem it up two inches, it will be right in style. And you might add blue buttons for a color accent."

So, while I have not yet won any major battles, a few of the skirmishes seem to be going my way. I have high hopes that in another year perhaps I'll hear my expensive and beautiful tropicals called something other than "those slimy old fish."

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SOCIETY NEWS

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

Cincinnati, Ohio . . . The Greater Cincinnati Aquarium Society is holding this year's one-day Guppy show on October 18 at the Xavier University Armory (on the University campus), Dana Ave. and Victory Parkway, Cincinnati. Apart from the many Guppy entries, there will also be an Aquarium Beautiful display and entries of general interest to hobbyists. Interested parties can obtain additional details by contacting Art Hopkins, Show Chairman, 5705 Adelphi Ave., Cincinnati, Ohio 45227.

Pittsburgh, Pa. . . The Greater Pittsburgh Aquarium Society and the South Hills Aquarium Society are jointly holding three big shows combined into one between September 27 and October 11. The 18th annual tropical fish show (12 separate classes) will be held throughout the period mentioned; in addition, this show will include the 4th annual Guppy show (October 4) and the 1st Betta show (October 4). All are to be held

at the Buhl Planetarium, Federal and East Ohio Streets, Pittsburgh. Details of set-up dates and general show regulations can be obtained from Society President Mr. Henry Marzina, 122 Brunswick Ave., Carnegie, Pa. 15106, telephone 412-276-6036 or Mr. L. A. Woolfel, Show Chairman, 1136 South Side Ave., Pittsburgh, Pa. 15212, telephone 412-231-4630.

Fort Wayne, Indiana . . . The 6th annual show of the North-eastern Indiana Aquarium Society will be held November 14 and 15 at the West Creighton Avenue Christian Church, 845 West Creighton Ave., Fort Wayne. Anyone desiring entry blanks or additional information should contact Miss Sandra Dentzer, 1655 Third Street, Fort Wayne, Indiana.

Harbor City, California . . . The 10th annual aquarium show of the Harbor Aquarium Society will be held on October 9, 10, and 11 at the Cabrillo Beach Marine Museum in San Pedro. The Museum is open from 9:00 AM to 5:00 PM daily; admission free. For additional information, contact Bertha Hutchison, 26011 President Ave., Harbor City, California 90710.

Riverside, California . . . The Tri-City Aquarium Society's 3rd annual show will be held this year at Riverside Municipal

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Auditorium, October 16, 17, and 18. There will be all of the usual classes for junior and senior hobbyists, plus a Betta and Guppy division if the number of entries warrants. For further information contact show chairman George Donner, 4065 Dell Ave., Riverside, California.

Louisville, Kentucky . . . The Louisville Tropical Fish Fanatics are featuring a one-day Guppy show to be held in conjunction with their eighth-day tropical fish show to be held at The Mall, Shelbyville Road and Waterson Expressway, Louisville, Ky., from October 4 through October 11. The Guppy show is to be held and judged on October 4; other classes in the show will be judged the same day. For additional information, contact Mrs. Marion Hayley, 122 Dorchester Rd., Anchorage, Kentucky 40001.

Pomona, California . . . A new California society, the Pomona Valley Aquarium Society, has been organized and has adopted its constitution and by-laws and elected its first slate of officers. The society meets the second Tuesday of each month at 7:30 PM at the Washington Park Community Building, corner of Towne and Grand Avenues, Pomona. Everyone in the area is invited to attend the next scheduled meeting.

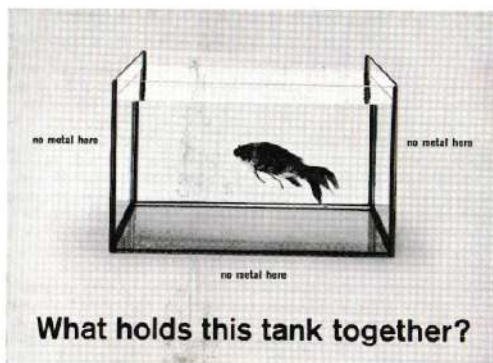
Kansas City, Kansas . . . This year's Heart of America Aquarium Society annual show (its 12th) is scheduled for October 17 through 25 at the Kansas City Museum, 3218 Gladstone Blvd., Kansas City 23, Mo. All aquarists are invited to compete; additional details can be obtained from Mr. John T. Reed, 5301 Virginia Ave., Kansas City, Mo. 64110.

Elgin, Illinois . . . The Elgin Aquarium Society holds its regular meetings at 7:30 PM on the second Wednesday of each month at the First Federal Savings Bank of Elgin; all are welcome to attend the interesting lectures and movies. The society maintains aquariums in local schools and in three hospitals; raffles are held. Present membership (about 75) is made up mostly of hobbyists residing in the Fox River Valley, west of Chicago.

READ IT NEXT MONTH IN TROPICAL FISH HOBBYIST

The Origin of Fishes

BY HARALD SCHULTZ



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Tubifex, Those Little Red Threads

BY DIANE SCHOFIELD

Not many people are worm lovers. There's something about those squirmy bits of living flesh that makes them plain unlovable. I have never heard of their being kept as regular members of a household, except by fish fanciers, who *must* keep them.

Maybe "must" is too strong a word. There are many long-time aquarists who never let so much as one lone Tubifex worm darken their doorways. They reason that the worms, which live in the vilest filth imaginable, are bound to infect their tropicals with the worms' constant companions, the worm parasites. And they're right: the worms definitely are a dirty lot. However, although newly hatched brine shrimp are always available, and microworms and white worms are good if not fed too often, there is always a problem of providing live food for a large fish that likes to eat vigorous live foods. Not everyone can obtain live Daphnia or adult brine shrimp, and some of the other major live foods are never offered for sale. Also, frozen foods are out for fishes which have a definite preference for foods that fight back a little. Therefore, dirty as they might be, Tubifex will continue to be an important live food.

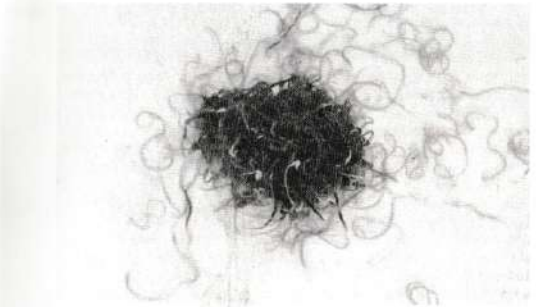
It's no pale myth that this one- to two-inch worm exists only in the vilest of situations. For instance they are found in most of the open sewage ditches which dot the landscape of much of the Orient. Here they are often found near city dumps and slaughterhouses. In short, they abound anywhere that boasts a goodly amount of organic debris. As such they are given the name "Sludge Worm" in some parts of the world.

A substantial percentage of the Tubifex supply in my area used to come from the water around a large duck farm. The duck farm fell victim to advancing progress in the form of a freeway. Although a great deal of care was taken to transplant these worms, all efforts failed. Obviously the new site was just too neat, clean and dainty for the little filth mongers.

Organic trash is life itself to Tubifex worms. They bury themselves down into it an inch or so, all the better to reach the goodies underneath the insoluble superficial layer of mineral deposit. Most hobbyists believe that the little wiggling Tubifex that they observe in their tanks are weaving with their little heads, much like a cobra. I know that it's rather disillusioning, but frankly what you're looking at is what would be the east end of the worm if he were traveling west at the time.

Tubifex build themselves a small tube out of body excretions down into the substance of whatever they happen to find themselves in at the time. A Tubifex worm breathes through his tail, since water is taken into his alimentary canal through this hindmost portion. After oxygen is removed

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These worms have tangled themselves together into a coil, with only a few separated from the main group. Photo by Dr. C. W. Emmett.

from the water, it exits in the same manner. Microscopic food is also taken on in this manner. This process is supplemented by more breathing done through the surface of the protruding worm. In order to get more oxygen, the worm weaves or waves around, encouraging the circulation of water and thus obtaining more oxygen.

It is by virtue of this tube building that Tubifex acquired its name. In truth it is related to the earthworm and that other bosom buddy of aquarists, the white worm. All three of these wiggly ones are Oligochaetes, or Scarce Bristled Ones.

This little tube also makes a dandy hiding place for him to escape into in time of danger. All he needs to do is to retract himself suddenly and not the slightest sign of a worm is visible! This reflex instinct isn't abandoned in the least when they have been caught, cleaned and reside in the refrigerator of some aquarist. Lacking their tube, each little worm tries desperately to burrow deeper and deeper into the pile of his buddies. When I had my hatchery, I frequently purchased them in two-pound lots. Now this is a heck of a lot of worms! I found that the best way to keep them was in a large flat plastic dish. This I kept on the bottom shelf of my refrigerator. Admittedly, they could have been kept where they would get a steady drip of water by an outside faucet, thereby giving them fresh changes of water, but then they would be exposed to danger in the form of my two boys, who would be likely at any time to turn on the water full force, thereby flushing away a

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considerable investment in worms. In the beginning, I didn't cover this dish. Anyone who is hep to the habits of Tubifex knows that they aren't about to go strolling in and around pastrami leftovers in the refrigerator. But I soon admitted defeat and had to put a very loose-fitting cover on top of this container. You see, whenever anybody opened the door of the refrigerator, the reflexes of this living red mat would cause the Tubifex to contract suddenly. In two pounds of worms, this is a spectacular sight! I just couldn't convince any of my baby sitters that these weren't getting ready to spring at their throats!

Since they are very sensitive to vibrations, the worms are easily warned of the approach of any enemy. Where a minute ago you swore that there were thousands of little worms undulating like a field of windblown red wheat, now there are none! Each little worm has retreated, all the better to live to fight another day. Catching and cleaning Tubifex is for the strong of stomach, since the mud in which they live is rather on the ripe side. Therefore it's often better to let the commercial worm gatherers do their gathering and then buy a tidy little portion which has already been cleaned by a dealer.

However, if one is the daring type and knows of a good hoard of worms, they can be collected by removing only about the top two to three inches of mud and worms. In other words, one has to get down below the anchored heads of the Tubifex. The problem of parting mud and worms can be accomplished in a number of ways. One of these is to hold them in a large net arrangement or wire screen and run water through them, thus washing away the dirt, but this often leaves a gooey little red ball of worm flesh. Another way is to utilize the same wire screening, this time placing it just on the surface of the water. The mud and worms are placed on top of this; soon the worms will try to seek the moisture and crawl down into the bucket or whatever container is holding the water. Yet another method is to place the worm-filled mud into containers having tightly fitting covers. These are placed where the temperature will come up to 80° or so. After an hour or so, the worms will emerge from the mud looking for oxygen. They can then be scraped off from the muddy surface.

Even after a separation of mud and worms is accomplished successfully, they still aren't safe to become fodder for your fish. Their insides are still full of bacteria-laden mud. To cleanse them of more filth, they should be washed for at least 48 hours in cold, slowly running water. During this time, they should be disturbed and turned over frequently so that the foreign matter can be washed away. They will cling together for dear life and as such can be separated from any unwanted material.

Worms should never be purchased willy-nilly. Before buying a flock of worms, you should examine them carefully. Are the little wiggly ones curled up tightly like little red springs when separated from the mass of their

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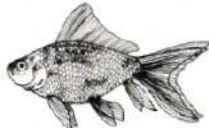
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relatives? Is the color a rich blood red, or is it a pale washed-out brick color, verging to a grayish hue in spots? When the container is jostled, does the ball of worms contract rapidly to a tight little group, or does it just lie there? Is the water in which they are kept clear, or is there some reddish pigment in it? When Tubifex die, the water becomes stained with dull red. If all conditions are met, it should be safe to obtain the worms to feed to your fish. If not, these particular worms are undoubtedly not long for this world and should not come within fin's reach of your fish. When Tubifex goes bad there are few odors to top it, believe me! Even a man who is suffering from a heavy head cold complicated by sinus trouble has absolutely no trouble in catching a whiff!

When it comes to methods of feeding Tubifex to your fish, you have several choices. These choices usually depend upon the habits of the fish fed and on the time that the feeder has at his disposal. Many people use the little plastic worm feeders, of which there are many types. Most types utilize some method of keeping them afloat, and they have a number of perforations through which the fish obtain the worms. These are fine for the aquarist in a hurry, but trouble results when too many worms are put into them. The fish become satiated and the remainder of the worms are allowed to drop down into the bottom of the tank, where they immediately make new homes. A feeding method that eliminates this problem is to lower a dish such as a custard dish or a small porcelain bird bath almost level with the sand. The worms can be put into this arrangement and are thus available at all times to a hungry horde of fish, yet they are prohibited from taking up residence in the sand. A disadvantage of this method is that top-feeders like Hatchets and Glass Cats will not usually go to the lower levels of the tank to pick up the worms. For these species, it is best to drop the worms a few at a time onto the surface of the water; the fish will then grab them as they sink.

If you are averse to getting your hands cuticle deep into worms, there is a dandy substitute. This substitute not only keeps one's hand out of the squirming coils of the worms but also breaks up the worm masses in the process. If there are many tanks to feed, it is a real time saver. Years ago I learned the prime value of using one of the large rubber bulbs that are often used to start filters. These resemble nothing more than a king-sized end of a medicine dropper. With this one can slurp up the worms and rapidly feed any number of tanks within a short time.

The worms should not be allowed to stake a claim on the bottom of the tank. First of all, they add nothing to the tank's aesthetic appeal. Even more important, they can cause a peck of trouble. Once these babies reach the bottom, they dig in, and it is hard to get them out again. Most of the time the fish don't even try to dig them out, either because they know that the worm will pull itself back into its tube as soon as it's approached or because they dislike the taste of worms that have made a home for themselves in the

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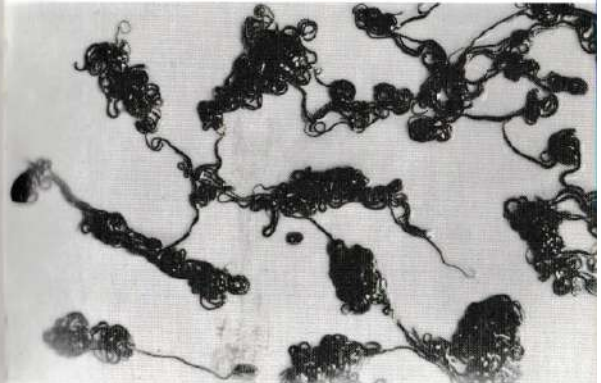
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These Tubifex worms have been separated from a large cluster to show approximate sizes of individual worms; left to their own devices, the worms will soon gather themselves into a tight ball once again. Photo by G. J. M. Timmerman.

gravel. Left alone, the worms do not proliferate, but they do die and pollute the water. Many *Corydoras* and species of Weatherfish will do a fair job of cleaning up entrenched worms, but they never seem to get all of them. All of this applies to a tank with gravel, but if you think that you can avoid the problem simply by keeping the tank bottom clear, you're wrong. The worms can find hiding places even in bare tanks. In such a tank they will establish themselves between the glass and the aquarium cement, there to continue their serpentine shimmies. An all-glass or all-plastic tank solves the problem, but practical considerations (expense being the biggest one) eliminate these from consideration.

Although Tubifex in the wild thrive under foul conditions, once caught they perversely demand the best. The mass of worms should be broken up and given fresh water at least twice a day. This is to remove dead worms and the excrement always present in their water. New water should be cold, as this slows down the worms' metabolism. If possible, it is best to provide running cold water, because this has the double advantage of both slowing the metabolic rate and changing the water. If it is not expedient for you to provide cold running water, the refrigerator will do.

Eradication of Piranha in Inland Waters

The following article and photos have been excerpted from *Commercial Fisheries Review* (March, 1963), a publication of the Bureau of Commercial Fisheries of the Fish and Wildlife Service of the United States Department of the Interior.

The success of the program outlined herein has greatly increased hopes for fulfilling the promise of Brazil's vast natural water resources.



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A small news item, "Piranhas a Problem in Brazil's Inland Waters" (*Commercial Fisheries Review*, January, 1962, p. 9), has prompted a Brazilian Government biologist to write the following article in clarification of the piranha problem in Brazil.

The results of the Brazilian Government's fight against the piranha (*Serrasalmus*) are tangible and compensating, and the cost relatively low.

At the request of the Service de Piscicultura (Pisciculture Service) of the National Department of Works Against the Droughts ("Departamento Nacional de Obras Contra as Secas"), from 1957 to 1961, with the cooperation of the biologists of our agency, we intensified the fight against the piranha and succeeded in exterminating that harmful species in 10 dams, with a total hydrographic basin area of 18,532.8 square miles in the northeastern region of Brazil known as the "Drought Polygon."

In the state of Ceara alone, its two largest hydrographic basins are infested with piranhas: Jaguaribe River (28,957.5 square miles) and Acaraú River (15,354.7 square miles). In those areas, great losses are inflicted upon cattle and men, particularly those who fish for a living. Small scars, but also mutilations and even loss of lives are traceable to the awesome piranha.

The above rivers flow only in the rainy season, but the small lagoons remaining in their beds for the dry season present a serious danger for



Determining the content of rosenone in a sample of timbo powder by the colorimetric-photometric process.

the livestock, as they are teeming with piranhas.

The dams constructed in these hydrographic basins become real piranha ponds, precluding people from taking advantage of them as a fishing source. Extensive damage is caused to fishing gear by the fish, and fishing is avoided because of its dangers.

The biologists of the Pisciculture Service carried out tests with "timbo" powder and found that piranha is the regional species most sensitive to the action of the rosenone it contains (6 percent).

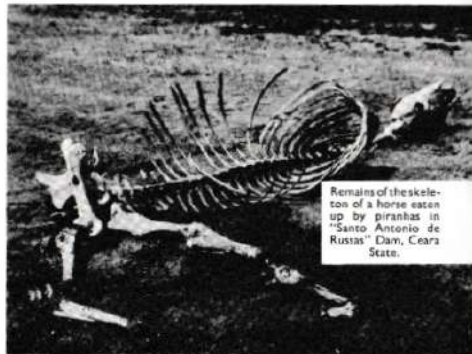
The powder is obtained in the Amazon by grinding the roots of certain plants of the families Sapindaceae, Leguminosae, and Euphorbiaceae popularly known as "timbo."

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The tests with the powder were made by applying it to the water at the rate of 3 parts per million (p.p.m.). It eliminated the piranha (egg, larvae, young, and adult) within 11 to 15 minutes, with little damage to the young, fingerlings, and adults of all the other regional species.

State of Ceara, and can impound 141,262,400,000 cubic feet of water, absolutely free from piranhas.

Upstream from the "Oros" Dam, in the Jaguaribe River, an already existing dam called "Varzea do Boi" (1,833,232,796 cubic feet) was "poisoned." For economy's sake, and also for increased efficiency, its



Remains of the skeleton of a horse eaten up by piranhas in "Santo Antonio de Russas" Dam, Ceara State.

Work plans were made and carried out in the dry season. While the engineers were building the dams, the biologists were searching the upstream hydrographic basin, "poisoning" ("tinguijando") all the bodies of water, making a real selective eradication of the piranha. "Oros" Dam is the largest basin where this work has been done. Its area totals 9,652.5 square miles. The "Oros" Dam was built on the Jaguaribe River, in the

volume was reduced to 42,378,720 cubic feet before the operation began. In that reservoir 3.5 metric tons of "timbo" powder were used, and 150 men and 40 boats employed to apply the ichthyotoxic substance.

Thousands of piranhas died in the three days the work was carried out. After 72 hours, 60 dynamite charges were blasted off in many places of the dam. Specimens of seven different species were collected belonging to the Cichlidae,

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Loricariidae, Characidae, Pimelodidae, and Poeciliidae families, which shows the selective character of the process used to eradicate piranhas. A larger volume of water than the above, the largest ever successfully "poisoned," was the "Foco da Cruz" Dam, in the State of Pernambuco, in the Moxoto River

cubic feet) in the Acaraú River, a complete eradication program was carried out in its basin, an area of 1,351.3 square miles. While the engineers were building the dam, our biologists were working.

The work was done in 113 days (October 27, 1957, to February 2, 1958). The expedition traveled



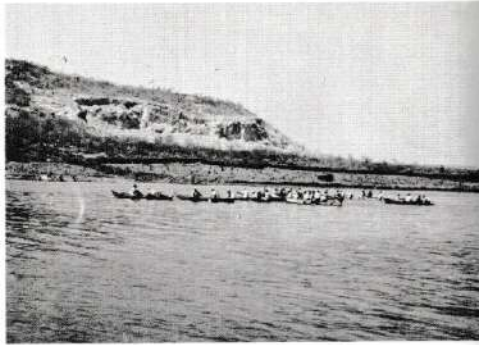
Workers handling timbo powder are protected by face masks.

basin of the São Francisco River, soon after its completion, when 60,044,000 cubic feet of water were impounded. Four metric tons of "timbo" powder were applied there in October 1957. The dam now holds 17,660,000,000 cubic feet, and not a single specimen of piranha has been reported so far, despite intensive fishing, which is proof of the efficacy of the poison.

To avoid the piranha plague in the "Araras" Dam (35,315,600,000

621.4 miles along the bed of 3 rivers and 67 creeks. "Poisoning" was done on 758 "pocos" (depressions in the bed of the river where water remains most of the dry season), 46 drinking places, 3 dams, and 1 lagoon; test blasts with dynamite were made on 34 "pocos," 129 dams, 13 drinking places, and 6 lagoons; piranhas were found and eradicated in 48 "pocos" and 1 lagoon. A total of 4.5 metric tons of "timbo" powder was used.

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Workers in canoes spray limbo powder in deep waters.

In deeper places, limbo paste is being applied with the aid of a fennel to which a rubber tube is attached.



The total cost of the work was Cr. \$1,531,255 (U.S. \$9,754), including personnel and supplies for the complete eradication of the "Araras" Dam and its whole hydrographic basin.

In fishing licenses alone, from January 1961 to May 1962, in the "Araras" Dam, the Federal Government collected from fishermen Cr. \$4,625,548 (\$29,465). Accurate statistics for the same period show a production of 3,323 metric tons of fish, worth Cr. \$80,855,051 (\$515,047). Such work can never be deemed as costly, especially considering that the "Estevam Maranhão" Dam, formerly "Curema" (48,029,216,000 cubic feet, therefore larger than the "Araras") collected in the same period only Cr. \$2,018,788 (\$12,860) in fishing licenses and yielded only 1,366 tons of fish worth Cr. \$45,273,525 (\$288,392) because fishing was severely curtailed by the presence of piranha.

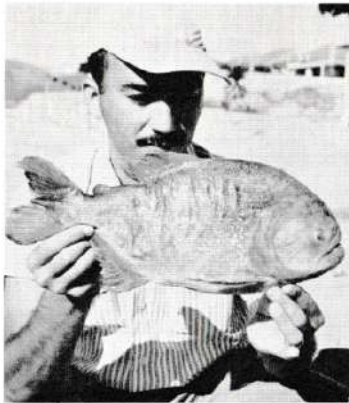
Even if the economic results obtained from fishing were not so high, the sole advantage of freeing the livestock and the people of the region from the carnivorous piranha would justify the cost of the work.

As the piranha does not leap or jump, and to prevent downstream specimens from returning to already "cleared" dams, a special barrier, regionally called "Escama Peixe," is built in the spillway. Ceara is the northeastern state which benefited most from the piranha eradication work, as that species has been ex-

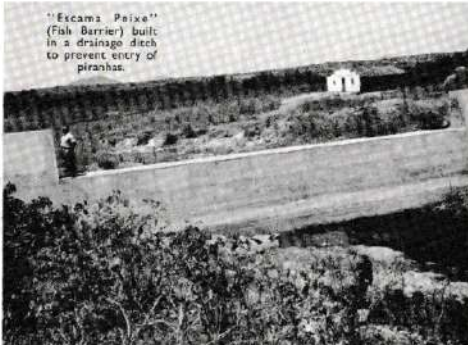


The wound inflicted on a 16-year-old boy attacked by a piranha in the "Riacho do Cavaico" Dam, Paraíba State. The photo was taken five minutes after the accident.

Fisherman in the "Riacho do Sangue" Dam, Ceara State, shows a mutilated little finger caused by a piranha attack.



Specimen of a piranha killed by limbo powder.



"Escama Peixe" (Fish Barrier) built in a drainage ditch to prevent entry of piranhas.



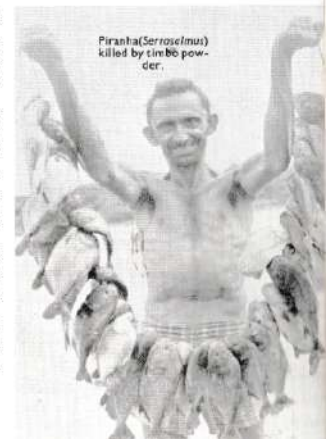
terminated in the basins of the Jaguaribe and Acaraú Rivers, an area of 16,861,913.6 square miles, which amounts to 29.6 percent of the total state area.

In view of the remarkable results achieved, the Pisciculture Service intends to resume the piranha eradication work in the inland waters of the "Drought Polygon" of Northeastern Brazil.

Two fishermen with a 200 x 3 meter nylon net caught 102 kilograms (224 pounds) of fish during a night's fishing in "Araras" Dam, Ceara State, thanks to the extermination of piranhas formerly contained in that dam.

REFERENCES

IMAGA, R. A.
1961. Erradicação de piranhas no açude público "Pocó da Cruz" (Itaipá, Pernambuco). Desenvolvimento da bacia hidrográfica. *Bol. Mus. Nac., Nova Série. Zoologia*, no. 6 (May), 32 pp.
FONTENELLE, O.
1960. A erradicação da piranha nos açudes do Nordeste. *Bol. Dept. Naz. Obras Contra Secas, Rio de Janeiro*, vol. 21, no. 6 (December), pp. 299-304 (Also Separate No. 222, Serie I, C).
1959. Há uma guerra contra as piranhas nos rios do Nordeste. *Diário de Pernambuco, Recife*, ed. 26.3.1959.
1960. "Relatório dos Serviços executados em 1959 pelo Serviço de Piscicultura do Dept. Naz. Obras Contra as Secas." *Fortaleza*, no. 219, série II-M, 132 pp.
1961. "Relatório dos Serviços executados em 1960 pelo Serviço de Piscicultura do Dept. Naz. Obras Contra as Secas." *Fortaleza*, No. 235, série II-M, 158 pp.



Piranha (*Serrasalmus*) killed by limbo powder.

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1. With a cupful of salt in the water it could probably support a real shark. If this is what your shark is, he will lose no time eating the others, then you can throw your fat little shark back into the ocean and go in for water-buck collecting.
2. For the same reason that you would if you pulled a plastic bag over your head. He smothered!
3. Paste a picture of a beautiful male Guppy on one side of the tank.

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The ones that keep swimming to the side of the tank and cuddling up to the picture are definitely females!

4. Sounds like a very talented Molly if she made you believe that she did this. Probably the strain killed her.

5. If you want to put her out of her misery quickly, I suggest you put her in the 10-gallon tank you mentioned in your first question.

6. There are some who might take them as a gift, but give a book with them and no free advice.

Long, narrow-leaved plant.

Q. Could you tell me the name of the long, narrow-leaved plant which is pictured as part of the cover photos on the June and August '63

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issues of TFH magazine? I have one such plant from which a second smaller plant has grown, and I would like to purchase some more. This plant also appears on the August '64 issue.

Thomas W. Swatkowski, Chicago, Ill.



Acorus gramineus

A. This is a species of Acorus, probably A. gramineus.

Honey Gourami

Q. I. I would appreciate any information you could give me on the Honey Dwarf Gourami, *Colisa channa*, particularly the breeding pro-

cedure, as I have just purchased a pair from my dealer and can find no reference beyond a color picture in your *Encyclopedia of Tropical Fishes*.

2. What country are Honey Dwarf Gouramis native to?
 3. Will they cross with the Dwarf Gourami (*Colisa lalia*)?
 4. At what size do they mature?
- I enjoy reading *Tropical Fish Hobbyist* very much and think it is the best magazine dealing with the subject on the market but find that many of the fish dealt with in it are not available as yet in England. I would like to hear from hobbyists in other countries who are also interested in tropical fishes.
- Geoffrey Dallas Kitt, 38 Devonshire Rd. Hazel Grove, Stockport, Cheshire, England.

- A. 1. *Colisa channa* spawns like the Dwarf Gourami, but the fry are extremely small and are difficult to feed for the first few days.
 2. India.
 3. Only time will tell. As far as I have heard, it has not yet been tried.
 4. About 1 1/2 inches.
- Your complaint is fully justified, but when we get word about a new species we do not wait until it has become commonplace before reporting on it. Patience is the ticket; if a fish has the necessary qualities to make it commonplace, it becomes available in time.

Corydoras losing whiskers.

Q. I. I have had four *Corydoras* Catfish with this ailment; all had nice, long whiskers, but after I had them for awhile their whiskers became short and stubby and then the fish died. I haven't added any salt, so it couldn't have been that. I thought that it was either a disease or that the whiskers wore off from

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the gravel, which is not the glass type. Could you tell me what happened?

2. I have read that if you put shells you have found on the beach into your tank they would kill the fish. I have put shells in my tanks which haven't been conditioned and none of my fish died. I have a 15-

and a 5-gallon tank with shells in both of them, with filters, fishes, snails, and plants. Does my setup have anything to do with it?

Wendy Cochran, Fairless Hills, Pa. A. 1. *Corydoras Catfish* are often prone to this ailment. The barbels, or "whiskers," become highly irritated when the gravel is coarse or has sharp edges. They get bloody

Corydoras melanistius with normal healthy barbels.



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and eventually disappear or wear down to stumps, and the fish is a pretty sad-looking specimen. In the places where *Corydoras* occur in South America, the gravel is usually fine; if there are any pebbles, they are well rounded. Try using a finer gravel.

2. Shells found on the beach sometimes have some of the original inhabitants in them, which would cause quick fading. Another thing is that shells have a great calcium content which would eventually get into the water and make it hard. The third objection is purely aest-

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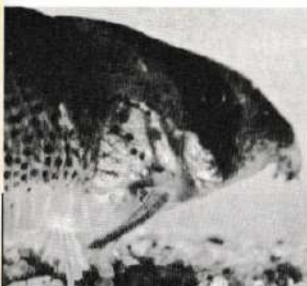
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Corydoras melanistius showing the effect of abrasion of barbels.

thetic: what would sea shells be doing along with fishes which come from far inland, hundreds of miles from the sea? You want your tank to look natural, don't you?

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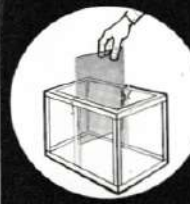
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Guppy Corner



By Paul Hahnel

Female with a mark.

Q. I have a female Guppy and I see she is black on one side, by the head. What is wrong with her?
 2. My female Guppy just had babies. Now there are only two left. Did the mother eat them, or did the other female Guppy eat them?

Joanna Welch, Santa Rosa, Calif.
 A. 1. If your fish is otherwise normal, there is nothing wrong. With Guppies we always look for an unusual specimen and are not at all surprised when we find one.

2. Probably both females helped themselves to a nice tender morsel. A female about to have babies should have a small tank to herself with plenty of floating plants for the babies to hide in.

Spinal curvature.

Q. I have been attempting to raise some veiltail Guppies for a year now, but with very little success. My

main trouble seems to be a deformity in the spines of the young. This appears at from one month to maturity and shows up in the form of a "U" or "S" shaped backbone. As this does not appear until they are about a month old, it does not appear to be a birth deformity. I have described this condition to several petshop owners and have received such answers as:

Too close inbreeding. Water problems. Consumption (they do not resemble in any way the photographs that I have seen of this disease in the magazines).

To aid you in your diagnosis I have listed below the conditions I have tried to maintain in my 10-gallon tanks:

Temperature 75-80°; pH 6.8 to 7.6; aerated and filtered water; Water Sprite growing; Two Cutfish and one Algae Eater in the tanks; medium light on about sixteen hours a day; food:

- a. frozen baby brine shrimp 3 times a day.
- b. fine-grained dry food.
- c. frozen daphnia about every other day.

Thomas A. Cooper, So. Hamilton, Mass.

A. Spinal deformity has many causes. It could be a form of rickets, which is a disturbance of the clear-

istry in the fish. One of the main causes of this deficiency is the lack of Vitamin D.

The maintenance of your tanks seems O.K., except that the food is not varied enough. Try adding some live food, and I do not suggest the use of very fine food as the fish sometimes have trouble finding it, and then it pollutes the water.

Vitamin D is stored close under the skin. Light causes a chemical reaction which changes the Vitamin D to a form which the body can utilize. A stronger light will help, and it is also advisable to add concentrated cod liver oil, phosphorus, and calcium in small quantities to the food.

Showing Guppies.

Q. Two friends and I have been contemplating entering some Guppies in the Los Angeles County Fair. We would appreciate it very much if you would answer the following questions:

- 1. What color background and gravel would you suggest for an orange veiltail, a green one, a blue one, purple one?
- 2. Would you suggest putting different color types in the same tank for show purposes?
- 3. If there are 3 to 5 males shown, how many females (if any) should be with them?

Gregory McCoy, Claremont, Calif.

A. 1. If you want a background for your tank, a piece of black cardboard will do, fastened to the outside of the tank. Show tanks always have natural gravel and plenty of plants.

- 2. Fish of different colors should prove interesting.
- 3. Fifteen to twenty fish, all males, would make a very effective display. If you do not have that many, I suggest that you use an even amount of males and females. Bet-

ter check your show rules before-land.

Q. Some of my male Guppies are developing bottom swords. None of their forefathers has shown these traits. I have consulted all printed material available and have not as yet come up with an answer to these swordtail traits. Some of these Guppies have no color of any kind in their tail except for a very thin streak of black on the bottom edge. Is there any way to obtain color in the tail of the male and still maintain the bottom sword?

Bill Jones, Glendale, Calif.

A. Some 15 years ago I found an occasional swordtail among my veiltail strains. This kept occurring for a few years, without my ever introducing any swordtails to my fish. I was told that in nature you will always find a few swordtails. As I was not interested in raising swordtail Guppies, I decided then and there they appeared. By the way, the female of this type has a completely clear dorsal and tail. If you are interested in getting more colorful fish, it is best to let only the most colorful fish breed.

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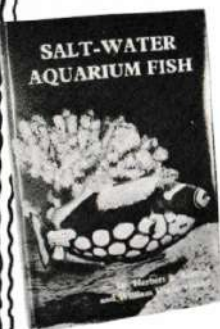
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By Alfred A. Schultz

Q. I have been told that the Sea Horse and Pipe Fish belong to the same family of fishes. I find this hard to believe, because both types look so completely different. Is it true that the Pipe Fish and Sea Horse are so closely related? If they are both in the same family, please tell me the name of the family.

Henry Foster,
 Pawtucket, R. I.



Sea Horse



Pipe Fish

A. Yes, the Sea Horse and Pipe Fish both are grouped in the same family, the family Syngnathidae. The difference in body shape between the two is of little importance in classifying them; more important is the fact that both lack true scales and are instead covered by bony plates. There are other striking physical resemblances that show that the two fish are closely related.

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Q. I have been told that invertebrate animals are very difficult to maintain in the salt water aquarium, but I feel that because they are so interesting I should try to keep at least one type when I set up my marine aquarium. Which invertebrate do you recommend as being the easiest for a beginning marine hobbyist to keep?

Tom Hansman,
Cranberry Lake, N. J.

A. Personally, I do not feel that the beginning marine hobbyist should bite off more than he can chew, and for this reason I recommend that beginners should begin with the hardier marine fish species alone. However, if you take care not to overstock your tank and are careful, you can get away with one or two; among the easiest to keep

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(and cheapest) of the marine invertebrates are hermit crabs. If you're determined to have an invertebrate in your first tank, I advise starting with one small hermit crab.

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A male Golden Convict Cichlid, of the new strain developed by Ross Socolof at Gulf Fish Farm. Photo by Dr. Herbert R. Axelrod.

Gulf's Golden Convict Cichlid

BY DR. HERBERT R. AXELROD

A few months ago, TFH decided that it was time to go into the tropical fish business in an attempt to develop new strains of fishes, to make available to other fish farmers more colorful and hardier livebearers, and to raise the quality of fishes being shipped from Florida.

While studying various farms which were offered to us, several things became very clear. Not only did we need a large farm, but we needed one which was run by an exceptional man . . . because we wanted him to perform an exceptional job. We selected Gulf Fish Farm of Palmetto, Florida . . . and the man to run it was Ross Socolof, co-author of "Exotic Tropical Fishes" and one of the most brilliant men in the fish business.

One of Ross' talents is in finding sports and raising them to maturity so they can be inbred and new varieties developed. Besides his very famous strain



William Biese with his daughter Narda and Lili and Laci Albert from Budapest.

Laci Albert inspects one of Gulf's 800-odd pools. He was fascinated by the aeration well which is merely a long pipe 800 feet into the ground with a valve on top to control the flow.



Ross Socolof, developer of the Golden Convict Cichlid and the All-white Ghost Angelfish, at work in his laboratory at Gulf Fish Farm.

of All-white Ghost Angelfish (Ross sent this magazine the first albino Angelfish ever to be photographed. It came from the hatchery of Bud Goddard), Ross uncovered a fabulous strain of Convict cichlids. Unfortunately, I doubt that they are true Convicts; according to most books the scientific name of the Convict cichlid is *Cichlasoma nigrofasciatum*. This fish more closely approximates *Cichlasoma facelon*.

But, whatever the forefathers of this magnificent new fish are, it is one which will be firmly established in the aquarium world forever! Why? Because cichlids are probably the most fascinating of all fishes from a hobbyist's point of view. They are hardy, colorful, easy to feed, easy to breed, are usually not shy and retiring, and they become tame enough to be called "pets" in the true sense of the term. I have had these Golden Convicts from Gulf Fish Farm for nearly a year now and they are magnificently colorful. Both males and females are golden yellow . . . even white. Their bellies, when they are mature, turn reddish blue and it seems that the female is as colorful as the male . . .



This is a young female of the new Golden Convict Cichlid. The slight rufous flush on the abdominal region is highly intensified at spawning time. Photo by Dr. Herbert R. Axelrod.

or even more so . . . during breeding time. The Gulf Golden or All-white cichlid is simple to breed . . . all you need is an inverted flowerpot. Chop a hole in the pot large enough for the fish to swim into it . . . and a pair can almost be guaranteed to spawn if they are fed properly.

Feeding the Gulf Golden cichlid is not a problem. I fed mine frozen brine shrimp, dry food and some beef heart, now and then. They grew very quickly to about three inches . . . that's as large as I have ever seen them . . . and quickly paired off. Dan DiCocco, who received a trio from me, has been spawning them regularly, without any difficulty. As a matter of fact, he gets a spawn every week, rotating the males between the two females. Their average spawn is 100 fry, and you should be able to raise 50-75 to maturity. These fish are now available at your local petshop.

This is not the only fish which will soon be available from Gulf Fish Farm. Ross is also working on a stock of albino hiin platies. He already has a good supply of albino marigold platies and albino platy variatus. These will probably be on the market in the spring of 1965 . . . or perhaps as late as the fall of 1965. Other fishes, collected on various TFH expeditions, will also be available from Gulf Fish Farm . . . and if you have a new variety of tropical fish, Gulf Fish Farm would be interested in making you an offer to breed it so it will be available to all hobbyists all over the world. Write to Ross Socolof, Gulf Fish Farm, P.O. Box 102, Palmetto, Florida.

A few weeks ago, when I visited Gulf to see what progress had been made on the new rare plant laboratory we are building, I was accompanied by Mr.



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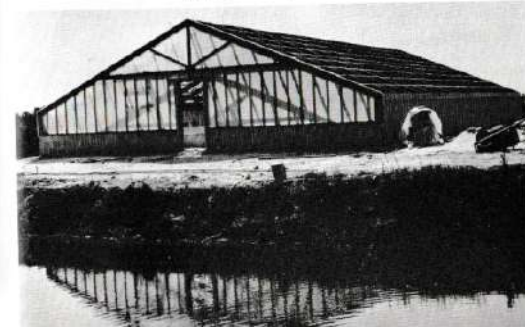
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The inside of Gulf's new plant research building which will be under the supervision of Heiko Bleher. This building will feature huge concrete vats for cultivating new and rare aquarium plants as well as for growing many common varieties. The pools are made of 4"-concrete blocks which are slotted with cement to bond them together. The pools are of various heights to control the growth of the plants more uniformly.

A side view of Gulf's new plant research building to show the construction. The floor is 6" of poured concrete with a shell base. The side walls are 2 feet high, and the end walls are 2 feet high. The roof is to be 72" clear rigid vinyl plastic which will permit light to enter; the ends are 100% clear vinyl plastic sheets. This is a square building about 50 feet wide and a little longer. The building will be heated by hot air that will draw its water from an open pool in the foreground so that only soft, aged water is utilized. This will make the plants more easily acclimated in the tanks of the petshops who buy them. Gulf sells only to petshops.





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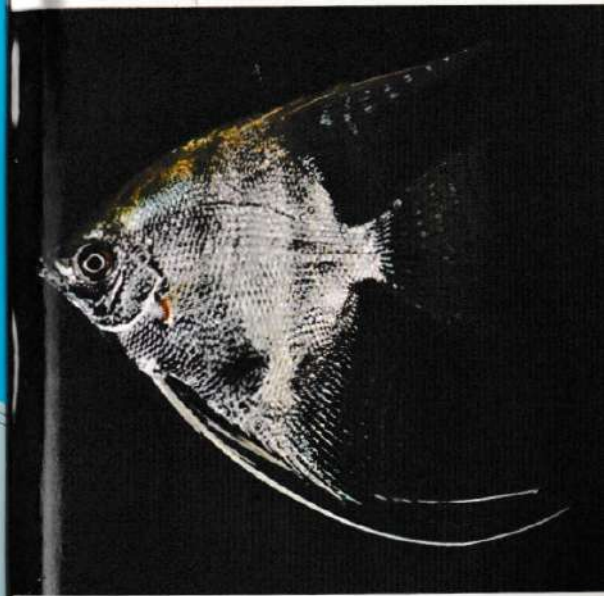
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Everywhere!



The All-white Glosi Angelfish, another new variety developed at Gulf Fish Farm, shows only the faintest trace of the vertical black body bars present on other Angels. Photo by Dr. Herbert E. Axelrod.

and Mrs. Laszlo Albert from Budapest, Hungary. They had a great surprise when they met Tibor Flachman, a brilliant Hungarian aquarist, now working at Gulf. The man in charge of the new plant laboratory is Heiko Bleher. Heiko's grand-father was the first aquatic plant breeder in Germany. His mother has a huge plant farm in Brazil. Gulf will be the depository for rare and beautiful aquarium plants and will make them available to everyone.