

TROPICAL FISH

HOBBYIST

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

DECEMBER, 1965

DOMESTIC 35¢

BRITISH ISLES 2/6



TROPICAL FISH HOBBYIST

Dr. Herbert R. Axelrod, President
William Vorderwinkler, Publisher
Mike Reed, Editor
Dr. Leonard P. Schultz, Advisory Editor
Dr. Aaron Axelrod, Business Manager
Harold Schultz, Expedition Chief
Fred Buoni, Art Director
Ronald Crenshaw, Art Assistant



Keeping Sea Horses, by Robert P. L. Straughan. 75c from your dealer or direct from TFH.

Robert P. L. Straughan is a well-known authority not only on the keeping of marine aquarium specimens of all kinds but also on their collection. As a collector of marine fishes, he spends a great deal of time each day on the bottom of the sea around Florida and knows not only what occurs there, but how the fishes and other marine creatures can be adapted to a life in the aquarium, how they may best be fed, and all the other things that a marine aquarist would need to know about them.

In **KEEPING SEA HORSES** Mr. Straughan tells us about Sea Horses' living habits, their highly unusual method of reproduction, the care and feeding of both adult and young specimens, and just about everything else that anyone who would be interested in keeping them would need to know, all told in simple, understandable language. This attractive booklet is profusely illustrated with many photographs and contains a great deal more information than anyone would expect for the small price of 75 cents.

Beginning marine enthusiasts will derive special benefit from the section of the booklet which lists and describes appropriate tankmates for Sea Horses.

Contents	
Vol. XIV, Dec., 1965 (#116) No. 4	
Season's Greetings	5
Think Small	6
The 1965 IOTAS Convention and the Houston A. S. Show	17
A Pygidial Catfish That Can Suck Blood From Goldfish	24
The Mynahwart—Singles of Males	23
The Green Blotch of Tele	41
Spawning the Thick-Lipped Gourami, <i>Catfish lobatus</i>	73
A New Alkaline Catfish	84
FEATURES	
Alal Cat! p. 57, Guppy Comes p. 65, Salt From The Seven Seas p. 71.	
COVER	
A talented artist, hobbyist friend of mine sent us a painting recently and asked if we could use it. We liked it so much that we decided it would be an excellent idea to make it our cover for this holiday issue. And speaking of excellent ideas... how about giving experts, fish, and equipment to someone? The best people to give these to are those who aren't hobbyists yet. You can help them start right, and you may be introducing them to a lifetime of pleasure. By the way, we listed the cover painting so much that we decided it would make a good something to do for readers. So we made the cover, signed it, and set it on page 5. Painting by Lee O'Brien.	
EXOTIC TROPICAL FISHES SUPPLEMENTS	
Pages 22 to 24, 53 to 54. These pages are reprinted for easy removal and attached to it into the beautiful Edition of EXOTIC TROPICAL FISHES.	

RATES: 25c per copy in the U.S., 35c per copy in Canada or foreign; \$3.50 for 12 issue subscription in U.S., Add 60c per year for foreign subscription. All back issues available at 25c per copy. Index available in every 12th issue.

Canadian Tropical Fish Hobbyist magazine and in Canada Tropical Fish Hobbyist magazine and in Canada Aquarium Supply Co., 1125 Inhofe Street, St. Thomas, Ontario. All subscriptions and orders from Canadians should be directed to them.

In England and the western European area Tropical Fish Hobbyist magazine and T.F.H. Books are distributed exclusively through T.F.H. Publications (London) Ltd., 12 Pinner Lane, Pinner, Middlesex, England. All subscriptions and inquiries should be sent directly to them.

©1965 T.F.H. Publications, Inc.
Second Class Postage Paid at Jersey City, New Jersey. Published monthly by T.F.H. Publications, Inc., at 245 Commercial Avenue, Jersey City, N.J. 07310. Printed in U.S.A.

December, 1965

EDITORIALLY...

I expect that there will be much mail coming to me as a result of this, calling me forty-eight kinds of a liar. Many of our successful breeders are telling us that things must be done as they say, or otherwise whatever you are doing is all wrong. Many of us take great pains to provide our fishes with similar water conditions to those which they have in their native waters. A hobbyist whose fishes are in slightly alkaline water (to which they have become accustomed) figures that in order to spawn his *Aphyosemion* or *Epiplatys* species he must give them acid conditions or he is wasting his time. He fixes up a tank of acid water, fishes out a pair, and puts them in this water. What happens? The fish decide not to put up with this nonsense and die after giving all signs of extreme distress. What killed them? Not the acid water, but the sudden change. Even if fishes can survive this change, they will spawn more successfully in water similar to that in which they have been kept for some time. This means that most of the time you can forget the conditions which records say exist where the fishes are found. The important thing about the water is that it be clean and have an adequate oxygen content. For those purists among us who insist that fishes native to acid waters (or, perchance, those from alkaline waters) must have the same type of water before they will do us the honor of spawning for us, let me advise that any great changes in existing conditions should be made gradually!

William Vorderwinkler

3

Tropical Fish Hobbyist

Think Small

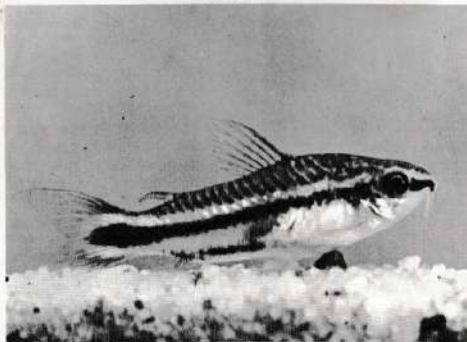
BY FREDERICK J. KERR

Are you an underprivileged aquarist with feelings of inferiority because your only aquarium is a 5-gallon and your neighbor considers anything less than a 20-gallon a goldfish bowl? Cheer up! Your aquarium can be the envy of your snooty neighbor and knowledgeable hobbyists as well.

The first step is to convince yourself that a 5-gallon aquarium is not inferior to any other aquarium no matter how large it may be. Such convincing is relatively easy once you become aware of the advantages a small tank offers. Most aquarists regard small aquariums as quarantine or hospital tanks or something to be used by beginners. Miniature aquariums are all these things, but they are also excellent show tanks under certain conditions.

For one thing, small aquaria display many species of fish much more successfully than is possible in large aquariums, and if you are at all concerned with money, you will appreciate the fact that fishes cost less initially and, because of small volume, are less expensive and troublesome when special water conditions are to be provided. If space is your problem, fishes can be set up where there is no room for larger aquaria. Where space is more lavish, several fishes can be set up. Also, if you happen to be one of those unfortunates

Their natures make most *Ceryderas* catfish suitable for the small aquarium. However, *C. hastatus*, the dwarf or pygmy catfish, is ideal because of its small size. Photo by G. J. M. Timmerman.



6

December, 1965

You've Read about it

Now You Can Own It!



THE NEW
MIRACLE
HiPOWER
UNDERGRAVEL
FILTER

Designed by Dr. Herbert R. Axelrod

In an article in the November, 1965 issue of *Tropical Fish Hobbyist* magazine, Dr. Herbert R. Axelrod, President of TFH, a huge business complex dealing in tropical fish and related products, announced a giant-step in aquarium filter technology. If you didn't read the article, you missed the complete story on the unique new Miracle HiPower Undergravel Filter. Here are just a few of the features offered by this aquarium filter and no other—undergravel, outside or inside:

1. It slopes to allow a number of aquascaping arrangements, and its natural contours hold the gravel in whatever arrangement you choose!
2. Its exclusive high-pitched terrace design has 60% more filtering surface than any flat filter of the same size. This means 60% more filtering with the same amount of air!
3. And for the first time, it's true... This filter is 60% effective that

You Never Need To Change Water Again!

Available at your local dealer.



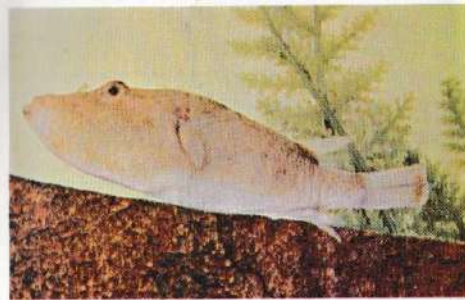
MIRACLE PLASTICS CORP.

P. O. BOX 9128 • LONG BEACH, CALIFORNIA 90810 • PHONE: 313 • 436-7203

7



Fancy guppies are particularly well suited to the small aquarium. Their small size makes them at home where other fishes would be cramped, and their delicate finnage is less likely to be damaged in a single-species tank. Photos by Dr. Herbert R. Axelrod.



The puffers are ideal for the small aquarium because they are best kept alone due to their aggressive dispositions. Above—The Congo puffer, *Tetraodon lineatus*. Below—*T. schoutedeni*. Photos by Dr. Herbert R. Axelrod.



don't
be
fooled
by
imitations

AQUA-BIOTICS™

the only complete medication containing a two-shot cure—

- 1 A powerful medication to kill the parasite or fungus.
- 2 An antibiotic to heal the wound left by the disease.



AQUA-BIOTICS medications cure fresh or salt water velvet (neolamprolum or cydnocharles), flukes (gyrodactylus), skin slime (cyclospore damigera), red spot disease, gill disorders, ick (Ichthyophthirius), mouth fungus, eye fungus, fin and tail rot, salmonella disease, ulcers, open sores, and lost scales.

AQUARIUM PHARMACEUTICALS
BOX 588 (DEPT. FM) DRESHER, PENNSYLVANIA 19028

who lives in a house without steel-reinforced concrete floors, you will appreciate the fact that a five is less likely to take an unexpected journey downstairs than a 50 is.

The miniature aquarium is also an ideal tank for fishes that require special conditions, for fishes that cannot compete with other species of fishes, for fishes that tend to get lost in large aquaria, and for fishes that quarrel with their tankmates. When kept under improper conditions, these fishes are frequently troublesome to the aquarist, and he does not get the enjoyment he deserves from them. When placed alone in a miniature aquarium their objectionable traits tend to disappear; fishes that were never seen in the large aquarium are where they can be observed and their coloration admired. Those fishes which wasted away in competition with larger fish, thrive and grow in the small aquarium. Fishes which were quarrelsome in large tanks are frequently good citizens when placed in a small tank by themselves or with others of their own kind. Special conditions, such as salty, soft, acid, or colored water, which may be impractical to provide in a large community aquarium, can be reasonably furnished in a small aquarium.

Of course miniature aquaria also have disadvantages. Because they are small, they are more easily fouled and chilled than are large tanks. They are also more easily overcrowded and overheated. And, of course, miniature tanks are useless for large fish, especially for display purposes.

The equipment required for the miniature aquarium is the same as is required for its larger counterparts. The reflector should have low-wattage bulbs, not more than 25 watts, to prevent overheating. A heater-thermostat is needed to prevent chilling. A small, but efficient filter should be used. Aeration is an aid to prevent oxygen depletion due to overcrowding.

The principles of aquascaping the miniature aquarium are identical to those used in decorating large aquaria. The background, sand, driftwood, and stones should be black or some other dark color to show off the contrasting colors of the fish. Some aquarists like to paint the side panels of the aquarium black to avoid their mirrorlike quality. Whether or not to use plants is largely up to the individual aquarist, but they are useful for imparting a natural appearance to the tank.

It is an academic question as to which fishes should be placed in small aquaria. Obviously, any fish not physically discomforted in a small tank is a potential inhabitant; it would seem logical to assume that small fish are best suited to small aquaria. Because 5-gallon aquaria are among the smallest tanks, we might then reason that the smallest fish are the most suitable for this particular size.

Any size limit is arbitrary, but 1½ inches in length is a workable upper limit for most fish. However, fishes up to 2 inches long can be used if they are of an elongate body form. The temperament of some larger fishes, such as the *Corydoras*, also suit them to the 5-gallon aquarium. In the interest of visual



It is easier to provide special conditions in a small tank. Thus soft, acid, peaty water could be provided for such fishes as those shown here. Above—an unidentified Aphysanemion species. Photo by J. J. Scheel. Below—Rachow's nothobranch, *Nothobranchius ranieri* sp. nov. Photo by Dr. Herbert R. Axelrod.



Fish species that are very small at adulthood are "naturals" for small aquaria. Two such fishes are shown here. Above—the pygmy gourami, *Ctenopoma pumilus*. Photo by C. J. M. Timmerman. Below—*Botia sidhimaneki*. Photo by Dr. Herbert R. Axelrod.



harmony, however, it is probably best if the largest fish is not more than two and a half times the size of the smallest inhabitant.

Naturally, young fishes of all species pass through this size range. When they are small, they are useful in the miniature aquarium, but, if they become large, they should be removed. Many ordinarily large species do not grow large in small tanks. I've seen rams (*Apistogramma ramirezi*) mature and breed in a 5-gallon tank at only 1 inch in length.

Most families of fishes have natural dwarf species that are ideally suited to the miniature aquarium. The characins are particularly rich in small species; among the smallest are the calypso tetra (*Aphyocharax axelrodi*), the black neon (*Hyphessobrycon herbertaxelrodi*), and the dwarf pencilfish (*Nannostomus marginatus*).

In the catfish group, many of the *Corydoras* are useful, but the dwarf corydoras (*Corydoras hastatus*) is the smallest and best-suited to a small tank. Several members of the sucker catfish genus, *Otocinclus*, are useful in the small aquarium.

Among the cyprinids, the beautiful butterfly barb (*Capoeta hulstaerti*), the sickle barb (*Puntius wöhleri*), and the dadio (*Labeo dadijburjori*) are adaptable to the miniature aquarium. The microrasboras, *Rasbora maculata* and *R. tripartita*, are well suited to the small aquarium as is the slightly larger fire barb (*R. vaterifloris*).

The loach family has two distinct body forms, eel-like, or long-bodied, and short-bodied. Among those loaches with eel-like bodies, the half-banded loach (*Acanthopthalmus semicinctus*) is useful in the 5-gallon aquarium. The dwarf loach (*Botia sidhimaneki*) is the only representative of the short-bodied form that matures at a small size, but most other botias can be used in small tanks when young.

Among the killifish are many genera that are well adapted to small aquaria. Members of the genera *Aphanius*, *Aphyosemion*, *Nothobranchius*, and *Oryzias* are nearly all acceptable. Myers' lampeye (*Aplochelichthys myersi*) and the yellow-finned lampeye (*A. flavipinnis*) are the smallest of the group.

Although the livebearers are known for their small sizes, the guppy (*Lebistes reticulatus*), the merry widow (*Phalloichthys unatzi*), and the mosquito fish (*Gambusia affinis holbrooki*) are most suitable to the 5-gallon aquarium.

In the group which ichthyologists call the perch-like fishes are a few excellent species for the small aquarium. Among the cichlids there are none which really fill the requirements for size outlined above, but *Apistogramma cacatuoides*, *A. coronata*, *A. klausswitzi*, *A. portuense*, and *A. reizei* do well in 5-gallon aquariums if not crowded. The only bubble-nest builders of use, with respect to size, are the dwarf gourami (*Cotia lalia*) and the beautiful pygmy gourami (*Ctenopoma pumilus*). In the sunfish family, the dwarf sunfish (*Epiplatys evergladesi*) is an excellent species. Among the gobies, the aquarist is most likely to be interested in the bumblebees (*Brachyogobius* species), which do well



WHEN YOU BUY A
BADER AQUARIUM
We don't promise you the world
WE DO PROMISE YOU
**THE WORLD'S BEST
MADE AQUARIUM!**

We even put it in writing . . . "Guaranteed not to leak for two years from date of purchase." How can we do this when no other aquarium manufacturer has ever dared give a written guarantee against leakage for even a day? The answer is simple. No other manufacturer has ever produced an aquarium equal in quality to the Bader.

When you want an aquarium, be sure to look for these points . . . points you'll find only on a Bader . . .

First, look for the red Bader guarantee sticker.
Next you'll want to see the date of manufacture. If you know this date, you know you're not getting a rebuilt tank or one that's so old that it has dried out. Bader tanks show the manufacture date on their undersides in numbers such as 865 for August 1965. The letters that follow the numbers indicate the plant that produced the tank, allowing us to keep an accurate check on quality control.

Now look for a tapered non-magnetic stainless steel frame. Bader uses this type of frame because it gives added strength to the bottom of the tank where strength really counts. Added to this extra strength is Bader's own special-formula aquarium cement. Other aquariums are made with cements made by factories specializing in cements for floor tiles. Bader cement is specially made to remain adhesive, flexible, and watertight for years of aquarium use. A Bader aquarium has a slate bottom too!

And here's something you won't see, but you should know. Bader is a wholly owned subsidiary of T.F.H. Publications, Inc., the world's largest publisher of pet books and magazines. The T.F.H. reputation is unmatched in the industry, and this reputation rides on every Bader tank.



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



Dwarf cichlids like this one, *Apistogramma caeruleoides*, do quite well in small aquaria, because they do not grow very large. Photo by Dr. Herbert R. Axelrod.

in small aquariums with the addition of salt to their water and live food to their bellies.

The aquarist who is interested in more than a random collection of these fishes might wish to make a collection of the very smallest fishes. The calypso tetra, Greim's tetra, dwarf pencilfish, butterfly barb, dadio, microrasboras, Myer's lampeye, mosquito fish, pygmy gourami, and dwarf sunfish are all candidates for this aquarium.

Another goal would be to collect fishes from one geographical area. A very interesting collection could be made of fishes from the southeastern states. The Florida bluefin (*Chiropeops goodii*), the dwarf sunfish, the swamp killifish (*Leptocaulis ommata*), and the mosquito fish would all be at home in such a tank. An African aquarium might include the butterfly barb, *Neolebias* species, lampeyes, and aphyoseiions. The microrasboras, dwarf loach, and rice fish (*Oryzias* species) all would be at home in the Asian display. The South American collection would have a wide range of species including dwarf cichlids, dwarf pencilfish, dwarf corydoras, and a host of small tetras.

Whatever goal you select, you will enjoy your miniature aquarium, because it allows you to keep fish that your friend with the 50-gallon aquarium could not handle successfully and because you will discover a new, compact aspect of the aquarium hobby.



Left to right: the author, Betty Schank, and Jim Malney, all judges at the FOTAS show. At the extreme right is Larry Chapman, who gave Marie McCann and me in his car to Kansas to judge there.

Aquarium Societies (FOTAS). I was overwhelmed. In my reply to this second group, I mentioned that it was a good thing that my other invitation was for the following weekend. Then came a burst of generosity, for which the South is famous. I was told: "Don't go back

Marie McCann, of Dallas, who shared judging honors with me in Kansas.



Two outstanding shows . . .

The 1965 FOTAS Convention and the Hutchinson A.S. Show

BY WILLIAM VORDERWINKLER

A fellow in my position sometimes finds himself in a spot where he is asked to be a speaker at some function. Frequently his duties include acting as judge in a fish show held in conjunction with the activities. Many societies hesitate to use "local talent" for such a job, fearing that the person chosen would in many cases show, or at least be accused of showing, partiality to entries he recognized as having been made by friends.

This year I was highly gratified with an invitation to act as judge in a show given by the Hutchinson Aquarium Society in Hutchinson, Kansas. A short time later, an invitation came in from the Tropical Fish Hobbyists of Dallas, asking me to come to Dallas, Texas and do the honors at the annual convention of the Federation of Texas

Some of the beautifully set up tanks at the FOTAS convention. The one on the left with the flowers was made to represent "Lovers' Lane." The fish, of course, were kissing gouramis.



**Quality-Built
for Superior
Performance!**

Supreme® AIR PUMPS



SUPREME DYNAMASTER
—Available in one and two cylinder models. Each cylinder delivers 200 cu. in. air/minute. Oil impregnated tank has galvane teeth to prevent slippage. Quiet, smooth operation. 1/750 HP continuous-duty motor. Instantaneously finished.

**From Beginner to
Hobbyist, there's a
Supreme Pump
for Every Need!**

Quality-built by the foremost manufacturer of aquarium products, this is the one line of air pumps that will give superior performance year after year! Supreme materials and workmanship are guaranteed against defects for one year from date of purchase! All cylinders are permanently aligned . . . never need adjustment!



SUPREME AIRMASTER MODEL 100—1 1/2" cylinder delivers approx. 250 cu. in. air/minute. 1/750 HP continuous-duty motor. Operates from 5 to 15 aquariums. No-seam, oil resistant Neoprene belt.



SUPREME CHALLENGER—Economic, compact pump requiring a minimum of service or attention. Delivers approx. 120 cu. in. air/minute. No belt to replace or adjust.



SUPREME SPECIAL—Low cost unit for the beginner who wants trouble-free service at the lowest possible cost. Delivers approx. 90 cu. in. air/minute. Operates up to 4 tanks.



NEW!
Supreme Oil specifically made for all Supreme pumps and small motors!

(NOT SHOWN) **SUPREME AIRMASTER MODEL 75**—Quiet, trouble-free. 3/4" cylinder. Delivers 120 cu. in. air/minute. Operates up to 5 tanks.

EUGENE G. DANNER MFG. INC.

560 Summerfield Street
Brooklyn 27, New York

SERVICE AND REPLACEMENT PARTS ON ALL SUPREME PUMPS ALWAYS AVAILABLE!



The awards banquet in Dallas, with A. E. Hodges of the speaker's table.

to New Jersey when you're finished in Dallas! Stay the week, and we'll drive you up to Kansas when the time comes! Who could refuse an invitation like that, especially when it came from a charmer like Marie McCann in Dallas? My answer was quick and in the affirmative, and I arranged for a week of my vacation to fall in that time.

I was met by Marie McCann, Larry Chapman, James Daft, and Raymond Head. The show was held in a large motor hotel in the beautiful city of Dallas, and it was quite a job to pick winners. Betty Schank and Jim Matney were my able co-judges. There were some very interesting entries in the "Novelty" class, such as a tank of kissing gouramis set up to represent "Lover's Lane" and another that looked like the inside of a church and showing cardinal tetras. At the banquet following the show, Alice Nunley took many trophies for her exhibits.

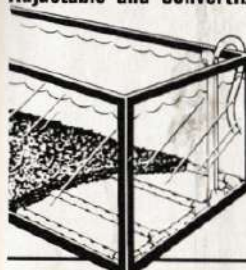
During the drive to Hutchinson, Kansas we narrowly missed a tornado that hit part of Wichita. Marie McCann judged this show with me, and there were many interesting and excellent entries. Coming back to Dallas we had to plow through another storm, and it was daylight before we arrived. Larry Chapman (who drove the car), Marie McCann, and I were dog tired, but we wouldn't have missed the trip for anything; we had made many new and interesting friends and had enjoyed the show thoroughly.



World's Finest GRAVEL FILTER... **EUREKA AQUARIUM PURIFIER**

Completely Sectional, Adjustable and Convertible

FITS ANY TANK



3.49 For Tanks up to 16" x 8" Retail

TANK SIZE	RETAIL
up to 20" x 14"	3.99
up to 24" x 14"	4.49
up to 30" x 14"	4.99

SUPERIOR TO PLATE-TYPE FILTER
Eureka Purifier continuously circulates aerated water THROUGH THE GRAVEL, so there's no space below for decayed materials or gases to collect. Weeks' years without cleaning, install without removing fish or gravel.



MOIST PACK
WORLD'S FINEST FISH FOOD "Moist Pack" is especially...
TROPICAL FISH FOOD

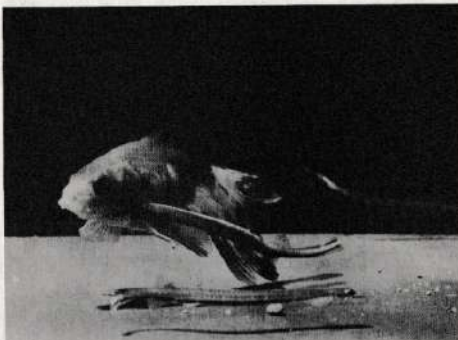


LIVER PROTEIN
LIVER PROTEIN is...
HEALTH BAR



REMEDY and TONIC
REMEDY and TONIC...
TONES UP FISH...
TROPIC'S FITS

manufactured by **EUREKA PRODUCTS CO.** 4 Brom St., Newark, N.J.
WORLD'S FINEST AQUARIUM PRODUCTS
IF YOUR SOURCE IS UNABLE TO SUPPLY YOU, WRITE FOR INFORMATION



Candiru, *Vandellia* sp., about to feed on a goldfish at the Cleveland Aquarium. Usually the belly of the candiru faces the side of the goldfish, but here it is turned slightly upward. Two other candirus may be seen. Photo by Richard M. Segedi.

A Pygidiid Catfish That Can Suck Blood from Goldfish*

Although the unusual feeding habits of the blood-eating pygidiid catfishes and their relatives have been discussed at length, few observations of them actually feeding have ever been made. Some works have reviewed early literature in which there are accounts of how the candirus, small South American fishes, were strongly attracted by raw turtle meat, fed on hooked fish and dead mammals left in the water, or attacked the legs of human waders and the bodies of bathers. Others report that *Pseudostegophilus scarificator* attacked the anal region, gills, and fins of dead, dying, or disabled fishes and became attached to the submerged legs of children. Two *Vandellia* were caught by using a bloody cow's lung for bait. A specimen of *Cetopsis* was captured as it attempted to rasp the skin on its collector's leg!

According to Eigenmann, Reinhardt was the first to discover that pygidiids sometimes occur in the gill cavities of larger fish, and in 1858 he described the

*This is a partially edited version of an article which appeared in *COPELIA*, 1964, No. 4 under the same title by William F. Kelley and Dr. James W. Atz.

NEW! from the creators of the



and the



A complete line of **ACTION** aerator ornaments, featuring:



Fiery Volcano
REALISTIC FLAMING ERUPTIONS!

Yawning Clam
SO REAL IT'S ALMOST ALIVE!



Neptune's Castle
WITH THE HAUNTED RAISING DRAWBRIDGE!



Charley...Tuna
HE LAUGHS! HE SMOKES A CIGAR!

Each packed in an individual, sparkling plastic jewel-box.



ALSO! the new **TANK-PAD**... a soft, plastic cushion that protects your furniture and your tank.



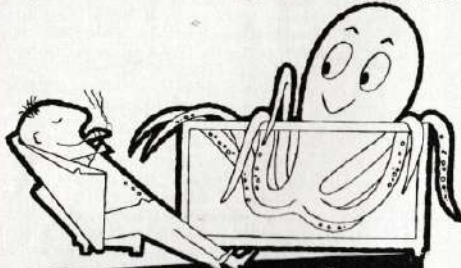
ON SALE AT QUALITY PET OUTLETS EVERYWHERE.



© 1965 PENN-PLAX PLASTICS, INC. BROOKLYN, NEW YORK

An Octopus in Your Aquarium?

... Keep him happy with a MIRACLE FILTER


NEW
Miracle Filter
FOR AQUARIUMS

39 Standard Sizes
Are Now Available
For Immediate Delivery

Would one of the
following fit your
aquarium?

20 x 9	36	x 18
24 x 6	36	x 20
24 x 8	29	x 14
24 x 10	51	x 22½
30 x 10	63	x 22½
36 x 10	72	x 18
36 x 17	72½	x 22½

Longer tubes available for
sleep tanks at no extra charge.

IF YOU DID HAVE AN OCTOPUS IN YOUR
AQUARIUM YOU WOULD NEED A MIRACLE
FILTER TO KEEP HIM CLEAN AND HAPPY.

Now Custom Made—For Custom Tanks—with
our new "modular" molds we are able to make
a Miracle Filter to fit any size Custom Tank.

For a FREE quotation on a Custom Miracle Fil-
ter to fit your tank, just send us the inside
dimensions of your tank. You'll be glad you
did! (And so will your octopus!)

For Marine Aquariums, too—do as the pro-
fessionals do. Marineland of the Pacific, Palos
Verdes and Sea World, San Diego, California
use many Custom Miracle Filters in their Jewel
Tanks.

LOOK FOR THE RED AND YELLOW BOX!

MIRACLE PLASTICS CORP.

P.O. Box 9128 Long Beach, California 90810
Phone: Area Code 213 — 436-7293



At better pet shops, or write
for free brochure.

26

species he had found there as *Stegophilus insidiosus*. Sixty years later, Eigenmann described *Branchioida bertonii* from three specimens collected in the gills of a large characin, and another investigator later described *Vandellia hemiophaga* from six specimens similarly obtained. In 1939, *Parabranchioida jaguiei* was described on the basis of eight specimens, seven attached to the gills of a species of characin and one to those of a catfish. There were also reported three specimens of *Homonidictus maculatus* that were attached to the back or side of another kind of catfish. In 1942, it was reported that the type specimen of *Urinophilus diabolicus* was found halfway inside the belly of a larger catfish with its own belly distended with blood. During the collector's trip, he was shown how easy it was to catch *Hemictoposis candiru* with chunks of raw fish on a string in places where butchering and fish drying were practiced. The specimens he collected were turgid with blood and offal.

In the first part of the *Catálogo dos Peixes do Museu Nacional* (Rio de Janeiro), which is devoted to the Pygidiiidae, there are listed three specimens of *Parastegophilus maculatus* collected from a characin, one *Paravandellia exyptera* from under the scales of another characin, one *Paravandellia* sp. from an electric eel, and three *Vandellia plazani* from the wound of a crocodile! In 1960, *Schultzichthys gracilis* was described from a specimen that dropped off a large catfish, presumably from under the operculum, as it was being hauled from the water. The author of this description permitted a specimen of *Vandellia plazani*, which had just been caught in a cast net, to fasten onto his hand for a short while during which time "it succeeded in drawing blood, apparently using its mouth as a sucking apparatus and rasping with the long teeth in the middle part of its upper jaw. It seemed to be utterly avid for a meal of blood and had to be forcibly removed."

It was generally believed that the pygidiiids use their teeth to penetrate the skin or membranes of their prey, but at least one author thought that *Homonidictus* inflicts wounds with the erectile spines on its opercula.

Most of the author's observations were made on four candirus, 49 to 60 mm long, that were maintained for about 6 months at the Cleveland Aquarium during 1959. These fish have been identified as belonging to the genus *Vandellia* and have been deposited in the collections of the American Museum of Natural History. Two specimens apparently of the same species, were also observed at the New York Aquarium in 1955. When the candirus arrived in Cleveland, attempts were made to feed them frozen brine shrimp (*Artemia*), living white worms (enchytraeids), chopped earthworms, or raw smelt (*Osmerus mordax*), minced gills from smelt or freshly killed goldfish (*Carassius auratus*), and goldfish blood, administered by means of an eyedropper with an extension of plastic tubing to enable the material to be presented with minimum disturbance. None of these elicited any positive response. Three days after the arrival of the fish, a live half-pound goldfish of the black moor type was put into their aquarium. The candirus at once began what seemed to

27

be searching movements directed mostly toward the front end of the goldfish, and three of them soon fed on blood extracted from its gills. Whenever a goldfish was introduced into the candirus' aquarium, they swam rapidly around its head, touching, or nearly touching, it with their own. Frequently the candirus swam parallel to the side of the goldfish, and they usually entered the gill chamber from this position. They did not appear to force an entry, but may have taken advantage of the periodic opening of the operculum during respiration. Almost immediately after the anterior part of a candiru had disappeared under the gill cover, its belly would begin to swell with blood. In some cases, the whole feeding procedure lasted only about half a minute, but the candiru might remain in the feeding position for as long as 3 or 4 minutes after its belly appeared completely full. After leaving its prey, the candiru usually dropped to the bottom and lay there quietly. When not feeding, the candirus rested on the bottom, swam more or less at random about the tank, or engaged in vigorous, eel-like swimming motions while remaining in the same place, which often was a corner, the fish maintaining a vertical, head-up position.

The goldfish exhibited little or no reaction to the preliminary attentions paid them by the candirus, nor did they try to avoid the smaller fish. Immediately after the entry of a candiru into one of its gill chambers, a goldfish usually would flex its body once or twice, and smaller ones often settled quietly to the bottom. None was ever observed to attempt to dislodge its attacker after blood letting commenced. That damage was done to the gills was apparent because bits of tissue were commonly observed streaming from under the operculum during the feeding. On one occasion, a large goldfish ate a little of its own gill tissue while being fed upon by a candiru. Although large goldfish survived candiru attacks and, in fact, were repeatedly used to supply food, small ones sometimes died immediately or soon after a single attack.

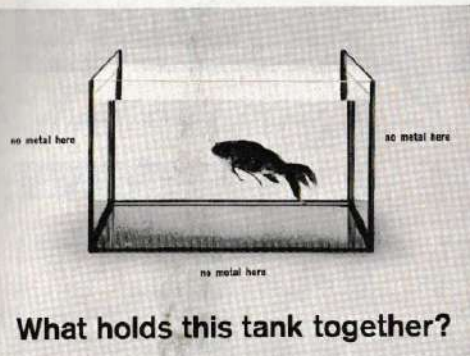
Please Mention T. F. H. When Writing to Advertisers

DEALERS - We have a special wholesale list of 150 varieties of tropical fish. A large wholesale supply catalog, OVER 300 illustrations. We have a special plant list. Write us for pick-up service.

Color Chart showing 90 fish in color 19" x 28" - \$3.00 Postpaid
BELDT'S AQUARIUM, Inc. - Hazelwood 21, Mo. Since 1920

FANCIERS - We have a special list of rare collection items such as special fancy Delta-tail guppy - Hi-fin Moons - Variatus - Black mollies - Swords - Etc., Etc.

30



SILASTIC® brand Aquarium Sealant—so tough it can actually be used to build a 10-gal. tank without supports!



You can actually build up to a 10-gallon aquarium—using new Silastic® brand Aquarium Sealant to support the sides. This new sealant forms a tight, tough seal of silicone rubber that is permanently elastic. Used in your present aquarium it stops leaks, reduces the hazard of shifting or moving your tank, and protects your investment.

For simple directions on how to construct an aquarium using 1/2" plate glass and Aquarium Caulk, write to Dow Corning Corporation, Box 7038, Greensboro, North Carolina.

Silastic® brand Aquarium Caulk can be obtained almost anywhere pet supplies are sold. Or send \$1.95 (check or money order) to the address above.

Also available in Canada

from Dow Corning

31

No Fuss!! No Muss!! No Bother....



When you feed your valuable aquarium fish Wardley's unique food treat

TUBIFLEX™

LOOKS LIKE... ACTS LIKE...
REAL LIVE WORMS!!!

Actually an exclusive, homogenized formula containing dried tubifex worms, desiccated brine shrimp powder and other nutritious ingredients formulated in such a manner that it simulates the appearance of live worms.

**NO REFRIGERATION REQUIRED.
WON'T CLOUD AQUARIUM WATER!!**

Retails for only **59¢**

WHO KILLED TOMMY THE TURTLE???

AN OLD-FASHIONED TURTLE TANK—THAT'S WHO!



WARDLEY'S PUTS THE LID—a plastic lid, that is—on its new TURTLE TANK PAC—makes your turtle's home an ESCAPE-PROOF, TEMPERATURE CONTROLLED, PLEASURE PALACE FOR YOUR PET TURTLE.

AND LOOK WHAT'S INSIDE—

- 1 Wardley's Turtle Food
- 2 Wardley's Sturdier Shell Conditioner
- 3 Wardley's Turtle Mineral Block—purifies as it deodorizes.
- 4 Turtle Care Booklet

ALL YOU ADD IS THE TURTLE!!!!

All for only **98¢**

Prices slightly higher in Canada. Litho in USA



The green discus, like others in its genus, is one of the most highly prized aquarium fishes. Note the beautifully marked most and body on this specimen. Photo by Schmidt.



The Green Discus of Tefe

BY JACK WATTLEY

One of the reasons for my trip to the Amazon Valley was to visit Lake Tefe, 300 miles up the Amazon River from Manaus, Brazil. It is here that the true green discus (*Symphysodon aequifasciata aequifasciata*) is supposed to be.

The trip from Manaus to Tefe takes but a few hours by Panair do Brasil on one of their ancient Catalina airplanes, where instead of the usual complimentary hard candy or gum handed out at flight time, you are given cotton to stuff in your ears. The rumbling Catalinas with their overhead motors are quite noisy, to say the least! The landing is made directly on Lake Tefe, whose waters are dark brown but clear, not at all like the waters of the muddy Amazon River.

Tropical Fish Hobbyist

I was told that the stream where the discus had been caught was 2 hours from the dwelling. "Muito longe," very far, they said as they shook their heads. I wasn't about to be deterred at this point, plus the fact that they were to be paid 300 cruzeiros—all of 18 cents—for each fish, so off we went again into the thick jungle.

Most of the time the jungle growth was so dense and tall that the sun was completely shut out and no wildlife of any kind could be seen, only many small biting insects. Infrequently, when there was a break in the thick vegetation, I was rewarded with views of giant butterflies with iridescent blue wings and many tiny green parrots which were high up in the trees. The shallow streams we passed were filled in many places with a species of *Echinodorus* plants, and we seined for small tetras, which were all quite drab.

The brown discus, *Symphysodon aequifasciata axelrodi*, although not as beautiful as the green discus, is still quite attractive and very much in demand. Photo by Dr. Herbert E. Axelrod.



AQUATIC FISHERIES HAS THE MOST MODERN WHOLESALE FISH FACILITIES IN THE WORLD / AQUATIC FISHERIES GUARANTEES YOU A FULL LINE OF IMPORTED AND DOMESTICALLY RAISED TROPICALS AT THE LOWEST POSSIBLE PRICES FOR QUALITY FISH / BEAUTIFUL LIVEBEARERS OUR SPECIALTY! IMPORTS ARE OUR BREAD & BUTTER!



WE CARRY THE MOST COMPLETE LINE OF APITOENIDORS IN THE WORLD!



Aquatic Fisheries

P.O. Box 11, Vero Beach, Florida 32910, Phone: (305) 587-0227

Import-Export - WHOLESALE ONLY - Exotic Tropical Fish - Cable Address "Aquatfish"

Tropical Fish Hobbyist

Finally, the shallow, winding stream of the green discus! The three Brazilians at once cut down small saplings with machetes. The cut saplings were to be used to poke into caves under the banks of the stream, where the discus were supposed to be hiding. I was then instructed to string a small-meshed drop-net across the stream about 40 feet downstream from the fishermen. The depth of the stream was no more than 2 feet and the water was clear and quite fast-moving. The pH was 5.6.

Jabbing and poking into the caves brought no results during the first hour; no fish were even seen! At last from under one bank a large school of discus quickly swam out and, with the fishermen prodding them on, they dashed directly into the submerged drop net. Looks of satisfaction were on the faces of all of us.

While the net completely covered every discus in the school, plastic bags were filled quickly with water and put inside loosely woven straw baskets. Then we all proceeded to remove the fish gently from the net, one by one. The first dozen or so discus were browns, much to my disappointment. Finally a bright green discus, then more browns. The final result was about 20 greens, or part greens. The 60 that remained were all browns. As I had no need for the brown discus they were quickly claimed by the fishermen and tossed up on the bank of the stream. They would eventually be eaten. All of the discus caught had fin and body fungus and many had abscesses on their eyes. This condition was probably brought about by the fact that the water temperature was but 72° F. The sun never had a chance to warm up the water in the stream because of the thick jungle growth.

I took one of the large brown discus that was destined for the frying pan and opened up its stomach and intestines to see, if possible, what kind of food the fish had been eating. Not a trace of any food was found. All of the discus were well filled out in the upper part of their bodies above the lateral line, but their stomachs looked a bit pinched. Joao informed me that their diet consisted of *lima*, which I found out later is a form of algae. But I am sure the food the discus of Tefe eat is small worms or shrimp, not *lima*.

The following day I was able to depart on the same Catalina plane I had arrived on. An hour before the flight left Tefe, I had sorted out the best 12 discus, which were chosen for color rather than for general condition since all the fish had been covered with fungus. All 12 arrived safely in Manaus, but seven died there before I left for Miami. The five remaining green discus are now in a 120 gallon aquarium; the fungus condition was completely cured with Terramycin and Sulfadiazine. But unfortunately, of the five remaining fish, only one is full grown. The other four are of equal size and about half grown. That means, speaking optimistically, that I will now have to wait a year or so before being able to spawn them.

Don't Fish Around With Inexperience... Call on Us!

Roberts Fish Farm, Inc.
 PLANTS FRESHWATER & MARINE
 TROPICAL FISHES
 P. O. BOX 427, Dept. H
 Cable Address: ROBFISH
 MIAMI 56, FLORIDA
 Phone: 271-1441

World's largest fish wholesaler. Write for free price list on your business letterhead. We ship anything, anywhere, anytime... at your convenience!

Fish are conditioned in this laboratory.

Our fishermen in Peru looking for new species to raise domestic fish.

THE Danske
by BADER ... of course

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

MAIL CALL

By William Vorderwinkler

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 Cornelison Avenue, Jersey City, N. J. 07302.

Dehumidifiers
Q. Recently we purchased a dehumidifier. It was suggested that I add the water left in our drip pan to my tanks. This water came from the air and was free of the chemicals normally found in drinking water, as well as being of a pH of 7.0. I carefully brought the temperature of this water to my tank temperature and added 2 quarts to the 10 gallons in my 12-gallon tank. I also added about a cupful to my 3-gallon tank, then holding 2 1/2 gallons. When I added the water, the fish were healthy and appeared so later that day, but when I checked them the next day, every fish was dead. Have you any ideas on what might have killed them?
Katherine Ely, Saginaw, Mich.
A. Theoretically, water you add should be absolutely pure, like distilled water, but let us be practical. This dehumidifier water is drawn from the air, and air is frequently contaminated. The large amount of air handled to get out the relatively small amount of water causes a concentration of all the noxious gases and airborne chemical fumes, etc. to build up in this water. Then too, most dehumidifiers pass the air to be treated so that it condenses on a copper coil and drips off, carrying with it some of the poisonous substances from the copper. This goes not only for dehumidifiers, but also for the water that condenses and is discharged from an air conditioner or the ice that accumulates in the freezer sections of many refrigerators.

Clown loaches
Q. I recently purchased a pair of clown loaches, *Botia macracantha*. My dealer was sure that they were a pair, because they stayed together in one corner of the tank, and when they did come out, it was together. I know that these fish have never been spawned in captivity, but I

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. 07666



A down loach.

would like to try. Could you answer these questions?

1. At what size do these fish reach maturity?
2. What is the best food for them?
3. What size tank do you recommend?
4. What type of bottom do you think would be best (heavy plantings, rocky, or bare)?

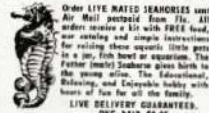
Diak Engelhardt, Pittsford, N.Y.

- A. 1. It's hard to say. My guess would be about 4 inches.
2. All the usual living, or as a second choice, frozen foods.

3. Give them a good-sized one, at least 15 gallons.
4. Medium plants, with some rocks for hiding.

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

LIVE SEAHORSES



Order LIVE MATED SEAHORSES via Air Mail postpaid from T.F.H. All orders receive a kit with FREE food, care and simple instructions for raising these aquatic little gems in a 500 fish bowl or aquarium. The Father (male) Seahorse gives birth to the young alone. The Tubenose, Blowing, and Scorpion hobby with hours of fun for all the family.
LIVE DELIVERY GUARANTEED.
ONE PAIR \$1.25
THREE PAIR SPECIAL - \$4.00 - Order TWO PAIR and receive (4) ONE PAIR FREE (One address please)
F. F. MARINE LIFE
P. O. BOX 636-77-44 DANIA, FLA. 33004

WE BUY TROPICAL FISH

Gulf Fish Farms

... independent fish farm Gulf Fish Farms, the largest in the world, is constantly looking for sources of tank-bred fish of all species... especially the rare varieties. If you can supply quantities of any fish, please write, giving number of fish available and their price and size, to:

P. O. BOX 817
PALMETTO, FLA. 33561

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

Featuring:

Extra Fancy Guppies by: Emile Faro
Hifi and Lyretail 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

This is a 10-gallon aquarium. In it I keep 21 different fish. There are an even number of all varieties, and of the kinds that are easy to distinguish, a male and female of each. I also have a 5-gallon aquarium. It contains small fish. Both tanks have a pH of 7.2 and a temperature of 76-78°F. They both have enough air, light (some natural, some artificial), plants, scavengers, and a few snails. Could you please answer these questions?

1. In the 10-gallon tank I use a bird gravel. It is a natural color. The plants grow quite well, and the fish are fine. Is there any harm in using this gravel?
2. In my tanks I usually get lint in the water. It does no harm, but as it gives the tanks an exceedingly cloudy appearance, I usually change the water every 5 to 9 weeks. Could you please tell me why I get so much lint in the water and how to prevent it?
3. How long and how fast should the filter be on each day?

Wendy Max, Summit, N.J.

A. 1. Wendy, I was never a mathematical wizard, but how you come up with 21 different fish, an even number of all varieties, I cannot figure. Bird gravel is just as clean as aquarium gravel, but has

the disadvantage that it is very fine. Such gravel would tend to pack too closely and choke the roots of some plants.
2. You are sharing on very thin ice; what you call "lint" is really fungus, which has

POSITION AVAILABLE in Jersey City, N. J. with T.F.H. PUBLICATIONS, Inc.

Duties include animal photography, editing, writing, equipment testing, animal care, correspondence.
Competence with camera and typewriter desirable. Background in natural sciences and pets, especially fish, is required.
This is a white-collar position for a person who doesn't mind getting his (or her) hands wet.
College training or equivalent, salary commensurate. Write in confidence to—
M. F. ROBERTS
T.F.H. PUBLICATIONS, INC.
Box 33, Jersey City, New Jersey 07303

HAVING TROUBLES? Then feed fish LIVE food Grow Your Own

- Wingless fruitflies (\$1.75) Thousands each month.
- Whiteworms (\$1.50) Small, prolific worms.
- Microworms (\$1.25) 1,000's overnight.
- Shrimp-impz (\$1.25) These Hyalella azteca grow in the aquarium. Constantly feed fish!

Beautiful Nets SIX ft. by THIRTY ft. Small mesh. Red, white, blue, green, yellow, orange, pink. \$3.75 each, two for \$7.00. "How to Grow Live Fishfood" folder, 16c free with orders. We pay postage. But each unit of fishfood is 30c airmail. Special delivery to your door for any total order is 30c.

AQUA ENGINEERS
BOX 1, ORTONVILLE, MICH.
BOX 97, ST. BASILE LE GRAND, QUEBEC

gathered on unclean food. You are over-feeding, and, worse of all, you are over-feeding in a crowded tank. 21 fish in a 10-gallon tank is a lot; feed them only what they can clean up in 10 minutes at the most.

3. A filter and pump designed for only one tank use very little electricity, and it would be of great advantage if you kept it running day and night. As for speed, keep it going at a steady, moderately fast rate.

Breeding catfish
Q. After trying to breed a pair of catfish in favorable conditions, I can't. Could it be they weren't together long enough?

Chris Walters, Miami, Fla.
A. You don't say what species of catfish, nor do you say how long they were together, but I am going to assume that they were a Corydoras species, and that you had them together for about a week. There could be a number of things wrong: your pair could be too young or too old for spawning. They might not be a pair,

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

Conde leads in Quality Air Pumps!

NEW!
Model O DRI-AIR PUMP for the hobbyist and small pet shops.



- Delivers clean oil-free air
- Long Life • Quiet Operation
- No diaphragms • No pistons
- Precision made—interior surfaces ground to low micro finish.
- Easily serviced—anyone can replace any renewable part with screwdriver in 2 min.
- Cushion mounted • No vibrations
- Beautiful sea-rose green finish

The Best pump costs less per month to own!

See your aquarium supply dealer or write for literature.



For Bigger Installations, 3 larger size rotary De-Air pumps available for larger installations of 50 to 500 tanks (70 gal size) All have interior surfaces ground to low micro finish.

PUMP DIVISION
Conde-Milking Machine Co., Inc.
Dept. 78 Danville, N. V. 24541
Phone (Area 336) 283-1950

ONLY EUREKA
VIBRATOR AQUARIUM PUMPS HAVE STAINLESS STEEL DIAPHRAGMS
NEVER NEEDS CHANGING
GUARANTEED FOR 2 YEARS
H=O
(HEAVY DUTY)
VIBRATOR PUMP
RUNS 5 FILTERS! QUIET! LONG LIFE! NEW DESIGN!
\$7.95
SUGGESTED RETAIL

POWERHOUSE VIBRATOR PUMP
RUNS 10 OUTLETS! HIGH POWER!
\$11.95
SUGGESTED RETAIL

EUREKA
PRODUCTS CO., 4 Bruen St., Newark, N.J.
"WORLD'S FINEST AQUARIUM PRODUCTS"

If your local source is unable to supply, write us for information.

Find out from...
EVERGLADES

WHAT FINE TROPICAL FISH AND AQUARIUM PLANTS ARE

PET SHOPS AND AQUARIUMS

Write for our Special Lists issued regularly. Your name will then be placed on our Mailing List.

WHOLESALE ONLY!

"Everglades"
Aquatic Nurseries, Inc.
P. O. Box 517, Tampa, Fla. 33601

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

but two males or two females. You describe your conditions as "favorable". Your water should be close to the 80°F.

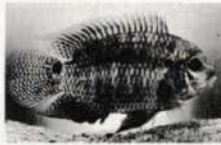
mark. Favorable conditions should also include good feeding with generous amounts of living food.

Oscars

Q. 1. I have a pair of oscars (*Astro notus ocellatus*) and a pair of ports (*Aequidens portalgrenis*) in a well aerated 30-gallon tank. The oscars are



Above—an oscar. Below—a port.



about 8 inches long, and I'd like to know at what size they can breed. If they are big enough to spawn should I

SMITHSONIAN INSTITUTION
Washington, D.C. 20560

The Smithsonian Institution is pleased to announce the publication of a reprint of "The Fresh-Water Fishes of Siam or Thailand," by Hugh M. Smith, U.S. National Museum Bulletin #188 (622 pages clothbound). This historical work has been out of print for many years; therefore, the reprint will be very valuable to libraries and to scientists in the field of ichthyology. Orders for the book, accompanied by remittance (price \$2.00 postpaid) should be addressed to:

Publications Distribution Section
Editorial and Publications Division
Smithsonian Institution
Washington, D.C. 20560

put the ports in another tank?

2. In a previous issue of TTT you had a case of one oscar killing its three tank-mates (also oscars). My two oscars have lived together for about 2 years, since they were about an inch in length. Might they attack each other? Also, if they spawn, will I need a piece of slate? Right now, I have a chunk of petrified wood.

3. Do oscars eat their young?

Bruce Garges, Burbank, Calif.

A. 1. Your oscars are certainly big enough to spawn, if you have a pair. If by this time they have not shown signs of taking up housekeeping, you probably have two fish of the same sex. If at any time they seem to take possession of part

of the tank, take the ports out.

2. There is always the chance that one of your oscars might go "berserk." This is however an unusual condition which is not at all normal. No, a piece of slate is not by any means a "must." Commercial breeders use it because it makes the eggs easy to remove to another tank where they can be hatched under artificial conditions. Your fish, if they are ready to spawn, will use whatever they like best; often you may fix up what looks to you like a perfect spot for spawning only to have the female lay her eggs on one of the aquarium sides or a heater tube.

3. It is not normal for parent fish to eat their young. They will usually do so only when driven by hunger or in panic following a fright. A fish guarding its young, of

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

"We killed fish hatchery has used WISA exclusively for the past 3 years. I recommend WISA as the greatest air pump and the best buy on the market today."
John L. Gonzalez, 640 Pine St., Philadelphia, Pa.

MODEL 200

"... I have had three jumps for 10 years... they are so good."
L.E. Chicago, Ill.

SOLD BY QUALITY DEALERS... TO DISCRIMINATING CUSTOMERS!

See our complete line of quality dealers everywhere. If there is no Scattergood dealer near you, write for free catalog and booklet "Getting the Most Out of Your Filter!"

Scattergood Filters Co.
ESTABLISHED 1947 - MILLER 7, MISSOURI

course, is a fairly nervous proposition and may be punished every so often.

Large tank

Q. I am very interested in buying a large fish tank, preferably 20 to 55 gallons, but my parents won't let me. They say that it would be too hard to keep up and clean. I feel differently. I think that my fish would do better in a larger tank. How do you feel about it?

Mike Lindemann, Springfield, Va.

A. The important thing is not so much the size of the aquarium, but the number and size of fish you intend to keep in it. Truth is that an unenclosed 50-gallon aquarium needs much less attention than an unenclosed 10-gallon one. The more water you have, the less it is likely to foul. But don't get the idea that the larger tank requires no attention at all. An efficient

filter is important in any tank that has a fairly good-sized fish population. Another advantage that a large, well-planted aquarium has over a small one is that a fish which is being pursued can much more readily find a place to hide and protect himself from bodily harm.

Copper pipes

Q. Next month I am moving into a brand new house with copper water pipes. Is there any way to remove the copper ions so that the water won't harm my fish?

Tim Ferriole, Napa, Calif.

A. There is a trend nowadays among plumbers to install copper or bronze water pipes instead of the old-fashioned iron ones. These will leave a very small residue in the water, but not enough to do any amount of harm if you take the precaution

of not taking water from your aquaria from the pipes after it has been standing in them all night. Draw your water after it has been used for awhile for other purposes in the house. I do not know of any preparation which will clear your water of copper ions.

Marble hatchetfish

Q. 1. Why do marble hatchetfish lose their black markings and sometimes attain a pinkish hue at night?

2. Do you know anything about breeding marble hatchetfish?

3. Are albino Siamese fighting fish very common yet?

4. Why do fish swim up and down the glass sides of an aquarium with their mouths on it?

Sara Kline, Carmichael, Calif.

A. 1. Many fishes lose their markings when there is no light.

2. They are seldom bred successfully, perhaps because they do not get a diet similar to the one they get in nature. When they do breed, it is among floating plants in a tank with a large surface.

3. No.

4. To graze on the tiny growths of algae, as a rule.

Shells and rocks in the aquarium

Q. I would like to know what should be done to clean and cure shells and rocks before adding them to an aquarium. I have heard they can give off a harmful poison when added to an aquarium. I am setting up a large new aquarium and wanted some for decoration.

Mrs. Charles E. Giles, Sublette, Kansas

A. I do not recommend shells in a freshwater aquarium. They slowly add alkaline substances to your water and make it very

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

RECOMMENDED FOR ALL TYPES OF MARINE FISH

Wonder of the Sea Marine Aquarium Mix

SPECIAL OFFER
Marine Kit
Hydromaster, Ph Test Kit, 1.5 Oz. Buffer and 5# Wonder of the Sea Salt.
\$9.95 (Prepaid)

Developed, manufactured, and used by one of the largest importers of marine fish in the country.

5 lb. Bag \$4.50 Prepaid anywhere in the United States. (Makes approx. 18 gal. Marine Water)

Send cashier check or money order:
ADAMS TROPICAL FISH
3420 E. PACIFIC COAST HWY.
LONG BEACH, CALIF. 90813

Dealers and wholesalers inquire on your letterheads please.

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

WAWIL

is the world's oldest dry food for aquarium fish (including salt water fish). And, in the highly competitive fish food market, this means something. Only a food that does its job gets a chance to stay around. The foods whose performances don't live up to their claims go where they deserve to go... off the market.

WAWIL's year in year out dependability since 1908 in creating actively healthy, fast-growing, colorful, productive fish means something, too. It means that you can rely on WAWIL to do a good job for you.

Remember: WAWIL IS THE OLDEST only because it's the BEST.

RICHARD HANAU GPO Box 314 New York, N. Y. 10001

Find your salt water fish problem here . . .

- | | |
|------------------|---|
| Due to Parasites | <input type="checkbox"/> Itch |
| | <input type="checkbox"/> Salt Water Itch |
| | <input type="checkbox"/> Blotchy Skin |
| | <input type="checkbox"/> Loss of Color or Appetite |
| Caused by Fungus | <input type="checkbox"/> Rapid Breathing |
| | <input type="checkbox"/> Fungus Growth on Mouth or Body |
| | <input type="checkbox"/> Fin or Tail Rot |
| | <input type="checkbox"/> Open Wounds or Sores |

Solve it with . . .



Marine Aqua Remedy
The only effective anti-parasite, used as directed, this fast acting liquid kills harmful parasites while it soothes raw, irritated skin tissue. Lab tested for use in Marine Aqua. 4 fluid oz. Remedy has proved safe and effective. **98c**



Sea Cure
The fungus remover that works. Fungus on your fish is harmful and contagious. Stop fungus and to keep your fish healthy and active, use Sea Cure. It goes to work instantly—gives fast help. **98c**

AQUARIUM STOCK COMPANY, INC.
27 MURRAY ST., NEW YORK, N. Y.
1001 BEVERLY BLVD., LOS ANGELES, CALIF.

hard. In a marine aquarium it is a different story; salt water is naturally hard and alkaline. Rocks may be used for decoration, but they must not contain any alkaline substances, and especially they must not have any metal ores. Before they are put into the aquarium, they may be scrubbed clean with water and a brush, but no detergents or soaps.

Egg-binding

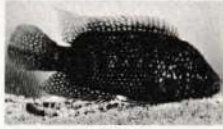
Q. 1. One writer says a 10-gallon tank should be used for breeding cherry barbs and another says a 5-gallon will



A cherry barb pair.

do. And one says a 20-gallon or 10-gallon tank should be used for bettas, as opposed to a 21-gallon tank which some breeders say will do. What is the smallest tank a small pair of blue gouramis can be bred in? I don't care about the babies. Is a 5-gallon all right?

2. How should a female betta, ready for breeding, react to the male as opposed to one who isn't ready?
3. Nothing much is ever said about "egg-bound" female anabantids. Do they always die? How do they react in a breeding situation?



A Jack Dempsey

4. Can Jack Dempsey eggs be hatched artificially?
5. My dwarf cichlids are tan with a

dark brown stripe running horizontally. If you can identify them from this, would you? At what size can they breed: mine are about 1 inch long.

Glenn Gilbert, South Gate, Mich.

A. 1. As long as you don't care about the babies, the 5-gallon tank is OK. Otherwise, never pick the smallest possible tank, but the largest you have available. This provides not only the greater amount of space for spawning and fry-growth, but also the greatest possible room for infusoria to feed the youngsters.

2. A female that is ready gets a great amount of attention from the male, but one that is not is treated as an intruder and driven away constantly.

3. Egg-binding in a female fish is usually caused by some of the eggs in her body becoming ruptured. Such fish usually react by trying to get the eggs out and failing. If an egg-bound female cannot splice her eggs she will die.

4. The Jack Dempsey, *Cichlasoma bi-*

AQUATOP



AQUARIUM COVER . . .
with small corner cutouts for heater and filter—fish stay in dirt stays out. Aquatop reduces evaporation and helps maintain a constant water temperature. Made of transparent heat-resistant plastic. No rust or corrosion. Ideal for marine tanks too.
Available in standard sizes at all quality dealers.

GENERAL ENTERPRISES
55 Macomber Avenue, Springfield, Mass.

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

HELP WANTED!

. . . Crack retail sales people by rapidly expanding pet store chain

If you have real sales ability plus solid experience in the retail pet field, this is the opportunity you've been looking for. We are a 47-year-old chain of pet shops with three locations grossing over \$1,000,000. By 1966, we'll open 4 more stores in South-Eastern Penna. Most of our sales people earn \$150 to \$125 weekly; some make in excess of \$15,000 a year—and we're not kidding! Write, giving your full background. We'll consider out-of-town as well as local applicants. IMMEDIATE PLACEMENT.

DOCKTOR'S PET SHOPS
Docktor's Laboratories, Inc.
1630 Market Street, Philadelphia, Pa.
19103 10 8-4906

cellatum, is a cichlid, and like most cichlids (except mouthbreeders) the eggs can be hatched in the usual method for hatching cichlid eggs artificially.
5. There are many dwarf cichlids that could fit your very rough description.

Readiness for spawning
Q. How can you tell if male and female corydoras are ready to spawn, such as dwarf gouramis, tiger barbs, and bettas?
Steve Sockwell, Sheffield, Alabama

A. With most egg-laying fishes the first tipoff is the unusual amount of interest the male shows for his mate. The female is usually well rounded in the belly at this time. Dwarf gouramis and bettas are characterized by the male building a bubble nest when he is ready. Tiger barbs get a heightened color and the females get heavier in the belly.

Guppy Corner



By Paul Hahnel

Saving fry, and getting good females

Q. There are about five of us in Arizona who really try to raise outstanding guppies. We have come along really well, or so we feel. We can use any information you would be willing to pass along. I guess maybe our big problems are 1. Saving baby fry 2. Getting good females.

R. E. "Ducky" Crandall, Phoenix, Arizona

A. If your fish are well fed, they will show little tendency to eat their babies; at least, that is what I have found. Also, a lot of floating plants are a big help, as they provide the babies with a place to hide if they are pursued. As for females, the best way to get what you want is to raise them yourself, continuously culling

out all but the healthiest and best looking ones.

Forced growth

Q. I am once again in the fancy guppy hobby. I have a large veiltail female and 74 of her young (34 from one batch—40 from another). The first batch are 3 weeks and 5 days old. At 3 weeks, they were fully developed sexually. The gonopodiums were completely developed. They had lots of color and huge (though not yet veil-shaped) tails. I've heard of forced growth, but this seems ridiculous. My guppies' rate of growth is the talk of the local club. Also,

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

FANCY GUPPIES

Our Guppies are winning blue ribbons for their dorsal swans everywhere. Letters tell us that more the best of friends aren't telling where they bought their Guppies. All of our Guppies are tank raised indoors. Most retail \$4.00 a pair, 2 fish for \$11.00, \$4.00 per fish. 2 fish for \$15.00. Write for descriptive brochures. Special stratum included. Containers, assure guaranteed live delivery by Air Mail. No C.O.D. please.

RAINBOW GUPPY AQUARIUM
P. O. Box 531 Leesburg, Florida

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 20 years of breeding exhibition guppies, Mr. Hartung now introduces his greatest achievement—the Bronze Delight with its large Veiltail breed true. They are a fine hybrid of golden and grey guppies. You may choose from Green, Hazzard, Blue, Variegated or Blue-green tails. \$24 per pair. \$35.00 same for Trix.

Other prize-winning varieties are your choice of Red, Blue, Black, Dark Blue, Variegated—only \$5.50 a pair. Alkane Veils, \$8 a pair. Beautiful Green Body and Veils, \$9 a pair. **GUARANTEED Live Delivery**—Patented. Same check or money order to WM. HARTUNG, P.O. Box 824 St. Woodhouse 21, N. Y. VI 7-2328.

the female had her second batch 22 days after the first batch. Isn't this kind of fast? I keep the temperature at 82 to 84°. The light is on 24 hours a day. The water is crystal clear. There are about 10 large watersprite plants in each tank plus a lot of floating spruce. The spruce is the best-looking for 50 miles around. I feed microworms to the small fish and adult brine shrimp to the larger ones. Also included in their diet is two feedings per week of tubifex and about 20 feedings per day of dry flake food. I watch the fish eat and feed them as much as they can eat (until I see that they completely stop eating) before I stop feeding them the food. Now, I may sound as if I'm bragging about my success; well, I am. I would like to know if this isn't a lot faster growth than usual. I know other people that claim to be force-growing guppies, but they take at least 5 weeks to bring their guppies to the stage mine reach at 3 weeks.

Bill Ward, Turlock, Calif.

A. Under the conditions you are imposing on your fish, it is only natural that they mature early. You are using some pretty standard methods to force growth. Normally, one has the light burning for 8 hours per day, a temperature around 78°

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

Teo Way Yang & 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

AQUARIUM PLANTS THRIVE

and so do fish . . . when you use **Plantabbs Aquarium Plant Foods**. Plantabbs Aquarium Plant Foods are full of vitamins, trace elements, and essential nutrients. They are easy to use. Just add 1 to 5 gallons of water every 10 days or 1 cupful of liquid to 10 gallons of water every 15 days. Guaranteed safe!

PLANTABBS
AQUARIUM PLANT FOODS
Pomona, Elmerston, Maryland

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

F., and feeds 3 to 4 times each day. Under the conditions you give them, however, the fish will not enjoy their full life span. Back in Germany, we used to prepare a goose for our Christmas meal by stuffing it with food for wethers. This is very similar to what you are doing.

A Betta with guppies
Q. In the past I have had veiltail guppies. Every time I have put a Betta or common guppies with them their tails get torn to shreds. Is this because the others are envious of the fancy fish's beautiful tails?

Terry Hesse, Toledo, Ohio

A. It is not a good idea to keep a Betta and guppies together in one tank. They may not be envious of each other, this is just in the nature of things. Bettas are known to rip fins.

Salts From The Seven Seas



By Alfred A. Schultz

A Brief Resumé in the Care and Raising of Sea Horses

By far the greatest volume of my mail is questions about the ever-popular sea horses. A few months ago I promised to devote one entire column to these fascinating little fellows. This is that column.

Before I enter into the discussion of sea horses, there are a few facts that should be understood. To start with, sea horses are creatures that are born and live in the sea of the world. As such, they must be kept in salt water in the home aquarium. There have been rumors of sea horses in fresh water, but I have never seen any proof of this.

The size of the aquarium should govern the size and number of sea horses that are kept therein. With dwarf sea horses, a species that never attains more than an inch and a half in size, even a gallon jug is sufficient for keeping two. With the larger types that may reach up to 5 inches in size, a much larger tank is needed. Two of the larger species of sea horses would require a tank of at least 5 gallons. Aeration is a must for the sea horse aquarium. It serves to supply oxygen to the water and also serves to move the food around so that it floats in front of the sea horses' mouths, also a must, if they are to eat properly.

Feeding dwarf sea horses is no problem. They can subsist entirely on newly hatched brine shrimp. You can raise these shrimp yourself just by obtaining a batch of brine shrimp eggs from your local dealer and hatching them in a container of salt water. This process takes 1 or 2 days. Use a fine net, and catch a small number, and put them into your tank. Keep a constant supply of food in your tank, and your sea horses will prosper.

The larger sea horses are somewhat more difficult to feed than the dwarfs. They will starve to death in a tank loaded with baby brine shrimp, but fully grown, adult brine shrimp are accepted eagerly. As it is very difficult to raise baby shrimp to adult size, adults should be purchased from your local Aquarium store. If they do not have the live shrimp, a good substitute

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

"NEPTUNE SALTS" KEEP SALT WATER FISH ALIVE FOR YEARS & YEARS!



World's #1 product for marine fish and sea horses. Tested, approved and used by experts of 15 public aquariums, over 80 universities, U. S. government agencies, industrial researchers, and hobbyists throughout the world. Get into salt water... It's so simple and longer by actual experience. "NEPTUNE SALTS" costs half as much as any other product ever developed since you buy it only once... do NOT have to change water every few weeks. Write for new salt-water catalogue, labels and dealers. No charge... Hobbyists, 25c.

WESTCHESTER AQUARIUM SUPPLY CO., INC.
454 Memoracook Avenue
White Plains, N. Y.
Tel.: 914 WH 8-0011



TFH Booklets Illustrated in Full Color

Here they are! Ten of TFH's newest instructive booklets on the most popular tropical fishes and their care and maintenance, with emphasis on the points that hobbyists are most interested in: feeding, treatment of disease, plants and planting, and BREEDING, with specific instructions.

Each booklet contains many beautiful full color pictures and much solid information designed to make raising fishes both easy and pleasant for the hobbyist. Learn to enjoy your fish the way they should be enjoyed.

Price per booklet 50c. Buy them at your dealer's or order them direct from TFH.



Tropical Fish Hobbyist

is the frozen type. Break off a part of the frozen shrimp block, and drop it into the water. As it melts, your aerator will move the individual shrimp around the tank, and they will be readily gobbled up. Feed them a lot, and feed them often.

Your tank should also contain a place for the sea horses to anchor themselves. They use their prehensile tails to attach themselves onto plants or coral or sea horse perches. Sea horses will often be found wrapped around each other, and without something to hold onto, will often be pushed around the aquarium by the current set up by the aerator. Filters are a must. It makes no difference if it is an inside filter, an outside filter, or an undergravel filter.

Water conditions are very important. When you make up your first batch of water using an artificial salt mix, your hydrometer reading should be at 1.025. Since salt itself does not evaporate, the only maintenance that will be needed is to replace the water that has evaporated with fresh water. Tap water can be used for this purpose if it has been aged for a few days.

Sea horses have been known to breed in the home aquarium, but in most cases when you purchase your pairs you will be buying a pregnant male. This does not mean that the male lays the eggs. What has happened is that the female

has deposited the eggs into a pouch in the male's body. The male sea horse carries the eggs in this sac until they hatch. They are then expelled from the sac into the water.

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 Pharmacy: National Distributor for Reef Salt and Reef Carbon. Lowest price on Salt and Filter Medium. Dealers wanted. Robert P. E. Stoughton, Marine Collector.

CORAL REEF EXHIBITS

P. O. BOX 99-2214
MIAMI 59 (JAN 52), FLA.
Ph. Miami 271-3331

Send for free price list "We deliver fish not promises!"

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

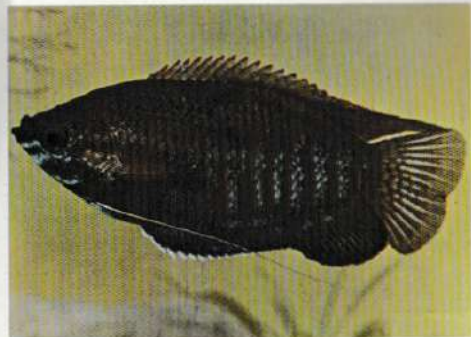


A FIRST IN THE SALT WATER HOBBY! RILA SALT WATER AQUARIUM KIT

- Complete kit contains every item needed to set up and maintain a beautiful marine aquarium.
- 3 page instruction booklet included.
- Contains the quality and time-tested RILA salt water line.

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

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



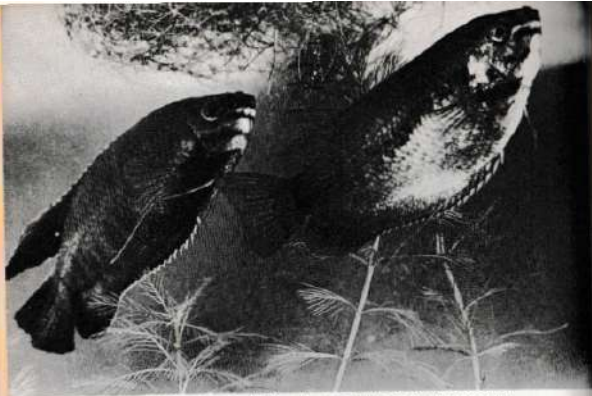
A male thick-lipped gourami.

Spawning The Thick-Lipped Gourami, *Colisa labiosa*

BY RUDOLF ZUKAL
Brno, Czechoslovakia
Photos by the author

The Southeastern Asiatic fishes of the family Anabantidae are very popular with Czechoslovakian aquarium hobbyists, because they are very pretty and with few exceptions, such as paradise fish, quite peaceful and easily kept. *C. labiosa* belongs to the peaceful group, despite the fact that it sometimes gets as large as 3½ inches. It is unfortunate that it is not kept by aquarium hobbyists to the same extent as are other anabantids such as *Colisa lalia* or *Betta splendens*.

The thick-lipped gourami is native to Indo China and Borneo. The genuine *Colisa labiosa* was not imported until a few years ago. The fish previously known by this name was usually actually *C. fasciata*. Even today, one still has a very difficult time finding the real *C. labiosa*. According to Pinter and, later, Stalknecht, *C. fasciata* has an elongated body form and a dorsal fin which is distinct from the caudal fin and red at the tip. The anal fin is pointed



A pair of thick-lipped gouramis. The male is at the left, the female at the right.

at the tip and has a metallic blue color with a red edge. On the other hand, *C. labiosa* has a compressed body with the dorsal fin always close to the caudal fin, frequently stretched out into a long flag, and brown to dull blue in color. The stiff ray is often continued to the end of the soft rays. The anal fin is softly rounded at the tip, dull blue in color, and the tips of the stiff rays are yellowish to porcelain white.

Nevertheless, *C. labiosa* is difficult to distinguish from *C. fasciata* and is commonly confused with it. The mouth is small with, as is implied by the common name, noticeably thick lips. The color is bluish green with irregular bands which are accentuated in the after portion of the fish's body. Throat and belly regions turn deep violet when the fish is excited, but are normally grayish white. The tips of the dorsal and anal fins are blood red. The tail fin is brown. The threadlike ventral fins of the male are red; the female's are colorless. There is an accessory breathing organ, the labyrinth.

The species is not only peaceful but also quite undemanding and omnivorous. Water composition is no great problem with them, and a temperature of 74 to 76°F. is sufficiently high for maintaining them, with 78 to 80°F. ideal for spawning them.

The pair I used for the accompanying illustrations was 2 years old and loaned to me by a hobbyist friend. Their tank, about 10 gallons in capacity, was planted with myriophyllum, and some floating plants were placed on the surface. After allowing everything to settle for 2 days, the male was introduced in the evening, and the female during the following morning. As soon as he

UNDER NEW MANAGEMENT !!

AQUATIC IMPORTS

is now prepared to offer the most complete line of domestic and imported tropical fish and aquatic plants.

Ideally located, just minutes from all airports, Aquatic Imports offers rapid and inexpensive shipping to any serviceable city in the world.

Dealers and jobbers please use business stationery when writing for current catalog.

Please use your business stationery in writing for current list.



Aquatic Imports, Inc.

1000 Pelham Parkway South
New York 61, New York

Cable Aquatfish

Phone: 212-892-6161

QUALITY — VARIETY — SERVICE



The male begins to build his bubble nest.

The male curves his body, and the female swims in.



A revolutionary new line of Fish Foods that virtually makes all others obsolete!

Now you can have **BIGGER, STRONGER, HEALTHIER** Fish through this better balanced, infinitely superior product.

Internationally acclaimed for its high concentrated protein and exceptional nutritional value, **SUROCA** promotes maximum health... actually fulfills every diet need... Vitamins... Minerals... Protein.

- 3 Formulas available:
- VEGE-TIEN for conditioning and health
 - GROW-TIEN for growth and development
 - BASIC for basic nutritional requirements

Features—

- Contains more protein, more nourishment than any live or frozen fish food.
- Eliminates diet deficiencies.
- Aids development and rapid growth.
- Brings out natural color.
- Will not cloud water.
- Highly concentrated — a little goes a long way.

Distributed by
SUROCA CORP.
2416 65th St., Brooklyn, N. Y. 11204
DE 6-1700

ACCLAIMED BY LEADING PROFESSIONAL BREEDERS, HATCHERIES, PET STORE OWNERS:

"Amazing, unbelievable results with our champion strains of guppies. No other fish food compares with it."
— FRED SAMUELSON
National & International Champion

"We spawn thousands of barbs, tetras, angels and scissor tails, etc., yearly and have found that **SUROCA Wonder Food** is far superior to any food that we have tried thus far."
— BOWEN'S HATCHERY

"I have been feeding **SUROCA Fish Food** to my guppies and **MHN swordtails** for many years. I highly recommend it for size, color and long life."
— GEORGE T. HEHNER
Champion Breeder of High Rio Swords

"Highly satisfactory for show use. Congratulations on a fine product."
— BARRETT AQUARIUM

"You'll say goodbye to diet deFISHencies when you say hello to SUROCA."

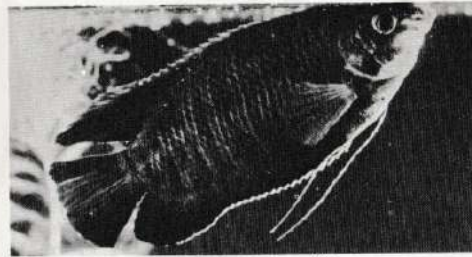


The first eggs stream from the female.

The female rights herself, and the male's stiffened body begins to fall toward bottom.



82



The male gathers the eggs carefully.

caught sight of the female, the male spread out his fins, and, to my amazement, underwent his color changes in a matter of seconds. He became darker and darker. The tip of his dorsal fin was redder and the yellow edge of the dorsal and anal fins began to gleam. Then he began to pursue the female. It was not until the female had concealed herself that he came up to the surface and began to build his bubbly nest. He did what was by no means a meticulous job; a few bubbles were blown and the female was pursued and rammed. I could never observe any fin-tearing or biting with this particular pair, although in previous cases the tail and anal fin were bitten and torn quite roughly. About 5 or 6 hours later the female gathered enough courage to approach the male and was no longer driven away. Shortly after a few false matings the first real attempt at spawning was made. The male curled up his body and almost completely embraced the female. Then he turned her over so that her belly was turned toward the water's surface. There was a slight tremor in the female and the first eggs were pushed out. The eggs, being lighter than water, rose upwards and were fertilized immediately by the male's sperm. Then the female slipped from the embrace of the male, and the male fell stiffly to the bottom. In a few seconds, however, he recovered and drove the female away from the nest. The eggs were then gathered carefully by the male and placed at one spot on the surface. The entire mating procedure was repeated several times over a period of almost 5 hours. Toward evening the male became unwilling to indulge in any further spawning activity and forced the female away from the nest by pushing against her throat with his mouth.

Hatching and raising the fry is similar to the same procedures for bettas or dwarf gouramis.

83



An albino specimen of the channel catfish, *Ictalurus lacustris*. This one is still a baby (about 3 inches long), and growth seems to be extremely slow. Photo by M. F. Roberts.

A native U.S. species.

A New Albino Catfish

By WILLIAM VORDERWINKLER

When we received this little catfish from Gulf Fish Farms in Florida, my first reaction was to call it just another specimen of albino *Clarias batrachus*, but closer inspection showed it to look like a *Pimeleodella* species from South America. But then again, it looked a little different. Finally, I was told it was a very young channel catfish. This rang a very loud bell: I recalled having seen channel cats twice the thickness and length of my arm in the old New York Aquarium about 30 years ago. This used to be an old "stamping ground" of mine when I worked in the financial district, and I spent many a lunch hour there, staring at the rows of big tanks while the sea lions bellowed in the large circular pools and occasionally splashed the spectators.

When I found the scientific name of the channel cat, *Ictalurus lacustris*, I dived into my reference works and came up with the following information: Our specimen is a veritable baby. The range given is the Saskatchewan River well up in Canada down to Florida, where our little fellow came from. Popular names include lake catfish, great

84

fork-tailed cat, Mississippi cat, Florida cat, mathemeg, channel cat, speckled cat, fiddler cat, white cat, and silver cat. There is even a record that they were known as land cod. A lot of names? Remember, the fish has a wide range. Maximum weight recorded is 150 pounds, length about 5 feet! But don't let that discourage you! The one pictured here is about the same size as shown. And he hasn't grown at all in at least a month! Speaking of the illustration, you may, after looking at it, say it isn't a true albino, or it would have red, but not black eyes. Truth of the matter is, the eyes gleam red at certain angles, but the camera caught it when the eye looked black. From what we could see of the one we have here, at this size it is very active and is possessed of an excellent appetite. Like the *Pimeleodella* species, it has a rather large mouth. This combination, a big mouth and a hungry disposition, should discourage keeping it with a school of baby fishes.



At first the author thought that the new albino cat was an albino *Clarias batrachus*, a more commonly seen albino fish. Photo by Dr. Herbert E. Axelrod.

It will be interesting to see how big these laddies will grow in the average aquarium. Probably some day we'll hear of some fellow growing them in his swimming pool and perhaps getting them to spawn there. Incidentally, I seem to remember reading somewhere that catfishes in this group are mouthbreeders.

All in all, the albino *Ictalurus lacustris* is an active, attractive, and interesting addition to almost any collection. It has recently been made available in quantities to dealers by Gulf Fish Farms in Palmetto, Florida.

85