

TROPICAL FISH

HOBBYIST

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

AUGUST, 1966

DOMESTIC 35¢

BRITISH ISLES 2/6





PIRANHAS, by Harold Schultz. 50c from your dealer or direct from TFH.

The many species of characid fishes making up the group popularly known as piranhas have a solid and devoted following within the aquarium hobby. Beginners and experts alike at some time or other determine to find out for themselves whether piranhas are the dangerous marauders legend has made them or whether they are merely suffering from the exaggerations of folklore.

Harold Schultz, famous Brazilian scientist-explorer, knows the truth about piranhas and tells it in his fascinating account of the life habits of these enduringly popular aquarium specimens. But part and parcel of the value of *Piranhas* is the book's masterful presentation of both text and photographs that enable hobbyists to tell the many piranha species apart, to separate the relatively dangerous fishes from the completely harmless ones. Vividly illustrated with 18 full-color natural photographs in addition to its many informative black and white illustrations, *Piranhas* gives a comprehensive view of the subfamily Serrasalminae from all angles of importance to hobbyists.

TROPICAL FISH HOBBYIST

Dr. Herbert R. Axelrod, President
William Vanderwinker, Publisher
Mike Reed, Editor
Dr. Leonard P. Schultz, Advisory Editor
Dr. Aaron Axelrod, Business Manager
Ronald Crenshaw, Art Director
Tony Liqueur, Art Assistant

Contents

Vol. XIV, Aug., 1966 (#126) No. 12	
The Fire Clownfish, <i>Amphiprion</i>	4
Observations of <i>Cichlasoma festuorum</i>	8
How to Become an Ichthyologist	20
Part 4	
<i>Melanosoma argenteum</i>	23
Spawning the Black Eel Barb, <i>Parrotia nigrofasciata</i>	25
<i>Melanosoma argenteum</i>	21
Can Aquarium Fishes Be Trained?	71
An Open Letter To All "Experts"	75

FEATURES
Notes from all over: p. 49, Mail Call: p. 52, Guppy Corner: p. 64, Salt From The Seawater: p. 67, Your Fishes' Health: p. 69.

COVER
Our cover this month features a pair of black ruby barbs, *Puntius nigrofasciatus*, the female at top, the male at bottom. This species has much resemblance to the closely related tiger barb, *Cantius infrenatus*. In shape and markings but does not sport so vivid coloration if kept in good condition. However, the black ruby color is quite attractive, particularly when ready to spawn. Although a bit skippy, the black ruby is not nearly so hard in this respect as is the tiger barb, and it is easy to keep in a party and start, feeding them is no problem at all. They thrive on dry food and appreciate (but do not absolutely require) occasional live or frozen food treats. For complete information on how to breed these fishes, read the story beginning on page 55. Photo by Rudolf Zaluski.

EXOTIC TROPICAL FISHES SUPPLEMENTS
Pages 33 and 34, 35 and 37. These pages are published for your enjoyment and provided to fit into the unusual Edition of EXOTIC TROPICAL FISHES.

RATES: 35c per copy in the U. S., 35c per copy in Canada or foreign, \$3.50 for 12 issue subscription in U. S., Add 40c per year for foreign subscriptions. All back issues available at 35c per copy. Index available in every 12th issue.
In Canada Tropical Fish Hobbyist magazine and books are sold exclusively through Canadian Aquarium Supply Co., 1123 Hurontario Street, St. Thomas, Ontario. All subscriptions and inquiries 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., 13 Mutton Lane, Basingstoke, Surrey, England. All subscriptions and inquiries should be sent directly to them.
©1966 T.F.H. Publications, Inc.
Second Class Postage Paid at Jersey City, New Jersey. Published monthly by T.F.H. Publications, Inc. at 243 Cornwall Avenue, Jersey City, N. J. 07307. Printed in U.S.A.

August, 1966

EDITORIALY . . .

Think a bad heater can get you in trouble? Here's what a good one did to me once. During World War II, I was using an old Edison aquarium heater in a 30-gallon tank, which was in my living room window. This heater was a thermostatically controlled job, with a knob on top and a socket that held a Christmas tree bulb that lit up whenever the heating element went on. This light going on and off all the time was quite a nuisance, so I would unscrew the bulb partly when I was sure the thermostat was adjusted properly.

Once, I had the heater properly connected and adjusted, but forgot to loosen the bulb and went to bed. Next day, I was visited by the police and told that I was accused of transmitting secret messages to the enemy forces, because someone had seen a small light blinking on and off and reported it. I had a tough time explaining why and how that light blinked, and I have a feeling that to this day whoever reported those "messages" still thinks he was really on to something. He undoubtedly has the soul-satisfying feeling that he contributed in no small way to winning the war. And where did this fantastic drama take place? Germany? Heck no! Right here in New Jersey!

William Vanderwinker

3

Tropical Fish Hobbyist



An *Amphiprion ephippium* shows itself boldly. It is protected by the stinging tentacles of the anemone which wrap around it. The clownfish itself is immune to the stings. Photo by Hansen.

The Fire Clownfish, *Amphiprion ephippium*

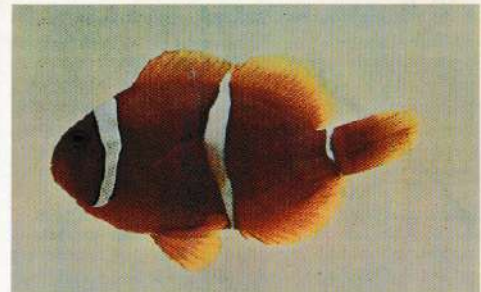
BY FRANK WILLIAMS

There are many beautiful varieties of exotic fishes to be found in the tropical waters of the South Pacific, extending down as far as 25 degrees south. However, there are few which attain the brilliance found in the fire, or tomato, clownfish, *Amphiprion ephippium*. Its fiery red facial region, jet black body adorned with orange fins, and bluish white stripe extending across the gillplates, make it a favorite for the marine aquarium. To these features, add its hardiness; aquarium lives of 1½ to 2 years are common for this fish.

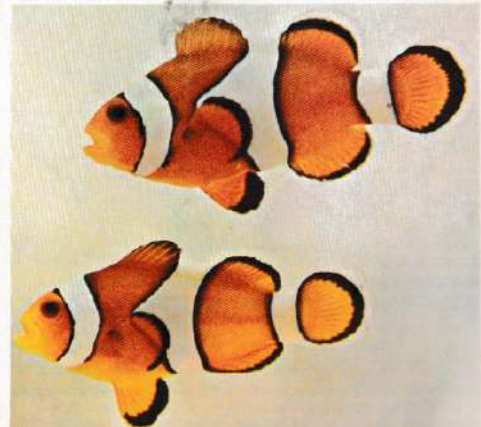
Amphiprion ephippium is found throughout Melanesia and in certain areas

4

August, 1966



Amphiprion tridactylus (above) can sometimes be seen sharing an anemone with the fire clownfish, *Amphiprion percula* (below) is the local know and most often kept of the clownfishes. Photos by Dr. Herbert R. Axelrod.



5

GET ACQUAINTED



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

Published by T. F. H. Publications, Inc.
245 Conlinton Avenue, Jersey City, N. J. 07302

of Micronesia, also occasionally being sighted on the upper reaches of the Great Barrier Reef. Its preference seems to be shallow waters. The author has observed thousands of these fish in a period of 9 months while collecting in various parts of Melanesia, and has supplied almost 200 specimens to Australian aquarists in this period. The variety I have described seems to differ somewhat in color from the tomato clown of other tropical areas. (Instead of being all bright red, only the facial area sports this color, the rest of the body being a deep black. This dark body gives a wonderful contrast against the white corals of the marine aquarium.) Size varies from as large as 6 inches to as small as $\frac{1}{2}$ inch long. It is common to find in smaller specimens, a second white stripe halfway along the body. This seems to disappear as the fish reaches 1 inch in length.

The only drawback to keeping this clown is its bullying tendencies. This, however, is confined mainly to smaller members of its own family, in particular *Amphiprion percula*. However, in large aquaria this problem is greatly reduced, and the fish's beauty more than compensates its misbehavior.

In its natural habitat *Amphiprion ephippium* can be found living in all anemones which house members of the clownfish family. Its preference seems to be a small brown-grey colored anemone, which seldom exceeds 6 inches in width. Clumped together in hundreds, these anemones provide an ideal home. They are usually found intertangled with staghorn coral around the outer reefs and islands. This coral would present a serious hazard in the collecting of any other fish, but *Amphiprion ephippium* has a surprising lack of fear, and often swims up to meet a diver, thus making its capture relatively easy. Occasions have arisen where a fish actually swam into a collecting net.

If three or four specimens of *A. ephippium* are placed together in a 2-foot aquarium with several small anemones, the largest fish takes over all of the anemones and refuses to allow the smaller fish to enter the tentacles. However, after a couple of hours dashing all over the tank from one anemone to another, he usually relents and retires to the largest to rest.

In the home aquarium, this fish will accept almost any food presented. It is particularly fond of finely chopped fresh shrimp and frozen brine shrimp and will accept almost every brand of dried food on the market.

On rare occasions, *Amphiprion trivinctus* can be seen living with *A. ephippium* in its smallish anemone, and although this fish is also a favorite, it does not compare with *ephippium* for aquarium display and hardiness. More often, *ephippium* is found with *Amphiprion sebae*, the yellow and white striped clown.



A young festive cichlid, *Cichlasoma festivum*. As it approaches maturity, its pelvic fins will become much more elongated. Photo by Wolfgang Bechtle.

Observations of *Cichlasoma festivum*

BY DONALD L. WOLBERG

First described by Heckel in 1840, *Cichlasoma festivum* is commonly found in the Plate, Amazon and Paraguay river systems. I gather from the literature that *C. festivum* is an inhabitant of slow-moving waters that are heavily supplied with aquatic vegetation and debris. It apparently is sympatric with *Pterophyllum*. In nature *C. festivum* may attain a length of six inches, but aquarium specimens are not likely to exceed five inches.

C. festivum, sometimes called the Flag Cichlid, has not attained the popularity of some other members of the family Cichlidae. The reasons for this

lack of popularity are, for me at least, difficult to understand. True, young specimens are inexpensive and inexpensive fish are generally frowned upon by "sophisticated" aquarists. But young specimens of other, much more popular, species are equally inexpensive.

Although not extravagantly colored, the colors and patterns of *C. festivum* are none the less distinctive if not impressive; it has none of the belligerent traits which prohibit the inclusion of so many other Cichlids in the community aquarium. While *C. festivum* is not the easiest species to get to spawn, any difficulty encountered in the process is more than compensated for by its interesting spawning habits and behavior patterns.

The body form of *C. festivum* is similar to that of other members of the genus *Cichlasoma*; except for certain deviations, it seems to me to most nearly approach the form of *C. severum*. The mouth of *C. festivum* is in a medial position in relation to the head and is relatively small. The head is comparatively large, as are the eyes. The back is strongly arched, while the underside is less so. Both dip sharply into the caudal peduncle. The dorsal fin, which begins slightly behind the pectorals, is large and pointed at its rear. The hard dorsal rays are only partially connected by a membrane. Their upper portions are unconnected and widely separated from each other. The male's dorsal point is longer. The caudal fin is large and fan-shaped. Pectorals and anal fin are also relatively large. Both anal and dorsal fins are broader posteriorly than anteriorly. The anal fin extends further back than the dorsal fin and is similarly pointed at the rear. Dorsal and anal points may extend beyond the caudal fin. The pelvic fins are an outstanding structural feature of *C. festivum*. Their second rays are elongated in a manner reminiscent of those of *Pterophyllum* and several Anabantids. When held close to the body these rays extend well into the anal fin. Interestingly enough, should a ray be lost it will, in a short time, grow back.

As is the case with other Cichlids, a description of the colors of *C. festivum* is most difficult to produce, for the fish has a marked propensity toward frequent changes in its colors and color patterns. It is well established that in the Cichlidae changes in coloration and patterning are influenced by internal as well as external factors. Among these factors are ripening of the gonads, defense reactions related to acquiring or holding a territory, temperature, light and chemical composition of the water, etc.

Basically the body of *C. festivum* is light brown with yellowish overtones. Adult specimens are yellower along the upper body surfaces than the lower ones. Young specimens are more inclined to be lighter overall and have less yellow. There are anywhere from six to eight, at times indistinct, vertical brown bands on the sides. The bands are transitory in nature and are apt to be more clearly differentiated in younger specimens. They seem to lose some of their distinctive character with age. A feature peculiar to *C. festivum* is of course the black band that extends diagonally from the mouth to the end of

to school and there were no indications that any given individual had acquired a territory of its own. But now the third specimen was relegated to a rear corner of the tank and any encroachment into the pair's territory was quickly rebuffed.

The behavior exhibited by the Flag Cichlid in defense of its territory is most interesting to observe. For instance, if the third fish swam towards or penetrated into the pair's territory the pair would immediately swim towards it and the color patterns of all three fish would undergo a dramatic change. The hitherto indistinct brown bands along the sides darkened considerably, and the black diagonal band broke up into three parts. The pair would lunge at the intruder with throats distended and jaws open in a frontal attack. The intruder would then beat a hasty retreat back into the corner and its colors immediately faded. The pair, after apparently exceeding their territorial boundaries, also retreated but their colors did not fade. On no occasion was any direct bodily contact made between the pair and the third fish. To avoid any possible damage to it the third specimen, which later proved to be a female, was removed and placed in another tank.

By this time it was not difficult to differentiate between the sexes. While the sexual dimorphism of *C. festivum* is not markedly pronounced it is nonetheless discernible. In the male the yellowish-green and bluish-green areas around the operculum are more intense than the corresponding areas in the female. The blue-green along his sides is similarly more intense, as is the orange coloration surrounding his pupil. Conclusive evidence can of course be obtained by observing the differently shaped genital papillae, which become visible shortly before spawning. The female's ovipositor is broader and more spherical than the male's sperm tube, which is pointed at its tip. Unlike the sperm tube, the ovipositor is curved slightly forwards.

I have observed that courtship in *C. festivum* involves little or none of the jaw-locking so characteristic of the Cichlidae. There is, however, a great deal of displaying and tail beating, especially by the male. A pair will swim towards each other with short jerking movements. When just short of making direct contact they momentarily stop and then the male will swim alongside the female, his head pointing towards her caudal fin. Then with gill covers extended, fins spread and throat distended, he will sway his body to and fro, always staying alongside the female.

In each of the eight spawnings I have seen the spawning site was always in the same general location. Also in each instance the eggs were deposited on a large flat piece of shale placed vertically in the gravel. Since the male later spawned with the second female I have been led to conclude that the male chooses the spawning site. The surfaces of the rock that are to hold the eggs are cleaned by both parents in the usual Cichlid fashion. Most of the cleaning is done by the male.

The spawning act begins with the pair moving to the rock, the female



YOU'LL BE GLAD WE CRIMPED OUR STYLE

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

Up 'till now, glass wool has been the best filtering material available, but in carefully controlled, comparative tests it has been proven that... MIRACLE DACRON® POLYESTER WOOL OUTPERFORMS GLASS WOOL 4 TO 1 — TRAPS TWICE THE DIRT IN HALF THE TIME! Ask for it at your petshop.

DEALERS-CONTACT
MIRACLE PLASTICS CORP., CHANGE BRIDGE ROAD, FINE BROOK, N. J.
® Du Pont's registered trademark.

Quality-Built for Superior Performance!

Supreme AIR PUMPS

SUPREME AIRMASTER MODEL 100—4" cylinder delivers approx. 200 cu. in. air/minute. 1/75 H.P. continuous-duty motor. Operates from 5 to 25 aquariums. No-oil, oil resistant Neoprene belt.



SUPREME AIRMASTER MODEL 100



SUPREME CHALLENGER

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. 80 cu. in. air/minute. Operates up to 4 tanks.



SUPREME SPECIAL

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 DYNAMASTER
—Available in one and two cylinder models. Each cylinder delivers 200 cu. in. air/minute. Oil impervious belt has gear-type teeth to prevent slippage. Quiet, smooth operation. 1/75 H.P. continuous-duty motor. Hand-assembly finished.



SUPREME DYNAMASTER

NEW!
Supreme Oil specifically made for all aquarium pumps and small motor!

(NOT SHOWN) SUPREME AIRMASTER MODEL 75—Quiet, trouble-free, 3 1/2" cylinder. Delivers 120 cu. in. air/minute. Operates up to 5 tanks.

EUGENE G. DANNER MFG. INC.
1660 Summerfield Street
Brooklyn 27, New York

SERVICE AND REPLACEMENT PARTS ON ALL SUPREME PUMPS ALWAYS AVAILABLE!

This method of transition is applicable to other eglayers besides *C. festivum*. It takes into account the fact that different fry in the same brood will grow at different rates. Those that grow more quickly will be able to manage larger foods earlier than the more slowly growing fry.

The fry exhibit a positive phototropic response, and if the aquarium is illuminated on one side they will congregate there. This can be put to good use by the aquarist, for he can introduce food in this side and not worry about whether fry and food will meet.

A question that is still likely to spark a great deal of controversy is: are Cichlids monogamous? Adherents to the view that they are, no doubt, be found, although the negative position is in the ascendancy. It appears to me that both views may be correct. It should be remembered that Cichlids show behavioral patterns markedly related to territory. When we speak of Cichlid behavior are we not actually speaking of acquisition of a territory, defending a territory, extending a territory, or spawning in a territory? In nature behavior related to territory would certainly tend to favor monogamy.

An intruding male or female would be prevented from encroaching upon a pair's territory by the defense reactions of the pair. It is almost axiomatic that in a struggle the proprietor of a territory will win over an intruder. We should not lose sight of the fact that the aquarium presents fish with an artificial environment. Therefore how can we expect Cichlids to react to stimuli in the aquarium exactly as they would in nature? There are numerous examples of pairs of Cichlids that did not follow monogamous habits in the aquarium. I can provide still another in the following. After several spawnings my female *C. festivum* went out of breeding condition. The male, however, still showed his brightest colors and was evidently still capable of spawning. The second female, which had previously been removed to another aquarium, was well rounded, so I placed her in the tank with the original pair. Within three days she and the male had spawned.

I think the only conclusions that can be drawn from the example cited above is that Cichlids may not follow monogamous habits in the aquarium. But I do not think we are on firm ground if we say that Cichlids don't do so in nature.

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



Although *Cichlasoma festivum* has much-elongated pelvic fins, they are not quite as elongated as those of the angelfish. In nature, both fishes must navigate among heavy stands of plants, and this fin modification may be an adaptation to such an environment. Photo by Muller.

For some time I have been struck by the remarkable similarity in the appearance of the greatly elongated pelvic rays of *C. festivum*, *Pterophyllum* and certain Anabantids. Quite possibly this similarity is due to a phenomenon known as convergence, or convergent evolution. Convergence is a term referring to the development in organisms, not very closely related, of structurally similar adaptations which enable them to better cope with similar environments. Here are two distinct families (the Cichlidae and the Anabantidae) in which species of two genera in the case of the former and at least four genera of the latter (*Ospromemus*, *Trichogaster*, *Cólia*, and *Sphaerichthys*) have, through the forces of evolution and pressures of environment, developed similarly elongated pelvic fins. Although *C. festivum* and *Pterophyllum* are from South America and the Anabantids mentioned from the Far East, both groups are faced with similar environments. The similarities are, namely, slow-moving waters that are heavily planted and filled with debris. The elongated pelvic fins, I feel, may be adaptations which enable the fish to move more freely through the vegetation and debris. The Anabantids have of course become further adapted to their environments by the development of the labyrinth organ which enables them to take atmospheric oxygen.

By way of postscript and as an example of the extreme complexity, as well as the marked individuality, of *C. festivum* I must add the following.

As this article was entering its final stages of preparation my fish spawned for the ninth time. (This time the male spawned with the original female.) I was intent upon following this spawning through to completion, even at the risk of having the eggs eaten. The second female was removed to another tank and the room was virtually sealed off in order to minimize disturbances.

This last spawning proceeded in the usual manner for *C. festivum*; all went well for two days, with both parents intermittently fanning and guarding the eggs. Then on the third day, as the eggs began to hatch, a major deviation from the general pattern became evident. The female assumed complete care of the fry, as is often found in the Dwarf Cichlids. She chased the male from the fry and became quite belligerent when he attempted to approach them. In fact the female repeatedly attacked the male to the point where his caudal fin was badly torn and areas of his body battered. Needless to say the male was removed. The female has (up to the time of writing) provided excellent parental care for the fry, which by now are free-swimming, and there are no indications that any of them have been eaten. The fry swarm all about the female; some even attach themselves, for a few moments, to her sides or fins. When she moves the whole school follows after her. Any fry that may stray from the school are almost immediately caught in the female's mouth and blown back into the group unhurt. The parental care that Cichlid parents (or parent) give to a brood is truly a pleasing and interesting sight that no serious aquarist should miss viewing.



ALL YOU ADD IS GLASS

For a homemade aquarium at 1/5 the usual cost

One tube of SILASTIC® brand Aquarium Sealant, some glass, a few strips of masking tape, and you're ready to make your own aquarium. Without metal. Without putty. Without leaks. Something this good is obviously the last word when it comes to fixing leaks in old aquariums. Ask the people at your pet shop.

DOW CORNING

CONSUMER PRODUCTS DIVISION, GREENSBORO, NORTH CAROLINA

How to Become an Ichthyologist

Part 4*

BY DR. GEORGE S. MYERS
Professor of Zoology
Stanford University

I had intended to finish this series with Part 3, but the letters I have been getting from young people interested in fishes show that some additional advice is needed.

The most important point of all is this: with the enormous growth of population, our colleges and universities are becoming increasingly crowded. The result is a natural one. The colleges and universities are raising entrance requirements (in the way of a high-school grade record) higher and higher. The same thing is happening in regard to admission to graduate school—to work for an advanced degree beyond the 4-year B.A. In increasing numbers, students with generally poor records are finding it impossible to get into a college or university, to meet the greater competition and stay there if they do get in, and to be accepted as graduate students if their undergraduate records are not high. Today, the high-school student with a poor record in almost everything has little chance to get into or stay in any university or college. And the student who gets a B.A. and does not have what averages up to a "B" in college will usually not be accepted as a graduate student in a rather large number of the more selective universities.

This does not mean that the student with a few "D's" in his record is automatically excluded. But it does mean that unless he has enough "B's" and "A's" to bring his average up to a "B," he has little chance of making the grade to the necessary doctorate degree.

It is remarkable how few high-school or even college graduates today—even good ones—know how to choose a college or university which specializes in the precise type of education and training in which the student is interested. For this reason, in Part 3, I gave a list of educational institutions which specialize in ichthyology of one sort or another. My list was not complete but contains most of the better-known university ichthyological centers. Perhaps I should have included, in the south, Alabama and South Florida (Tampa), and in the east, Boston University. However, to make sure that the place you select specializes in exactly what you want, write to the Registrars of several and request their catalogs giving staff and courses, and

*This is the last article in a series. Parts 1, 2, and 3 appeared in April, May, and June respectively.

read them carefully. Even that does not tell the story in enough detail in some regards, especially for graduate work. Try to find out—if possible by visiting some ichthyologist as closely located as possible—the specialties of the men in the schools you think might be best for you. (Be sure to get an appointment with the man you wish to see.) However, make an effort yourself to find out all you can first, in order to make best use of your interview.

I should also have listed those places which maintain large research collections of preserved fish specimens for studies on the systematics (classification), anatomy, and evolution of fishes. Some of these are not universities, but each has at least one ichthyologist in charge who would be glad to give advice to a prospective ichthyologist.

First I will list the principal non-university institutions (museums) in the United States which maintain such collections. In those to the name of which I add an asterisk (*), there are arrangements with one or more local colleges or universities by which a graduate student may work for an advanced degree jointly at the museum and at the university. The list is alphabetically arranged by cities: *Chicago*: Field Museum of Natural History*. *Gainesville*: Florida State Museum*. *Honolulu*: Bishop Museum*. *Los Angeles*: Los Angeles County Museum*. *New York*: American Museum of Natural History*. *Philadelphia*: Academy of Natural Sciences. *San Francisco*: California Academy of Sciences*. *Washington, D. C.*: Smithsonian Institution (U.S. National Museum)*. Address the Curator of Fishes at any of these for more information.

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

SMITHSONIAN INSTITUTION

Washington, D. C. 20560

The Smithsonian Institution and T.F.H. Publications, Inc. are pleased to announce the publication of a reprint, including the color plates, of the Philippine Bureau of Science's three Monographs on Philippine fishes: No. 1, Jordan and Richardson's Checklist, 1909; No. 23, A. W. Herre's Gobies, 1927; and No. 24, Montalban's Pomacentridae, 1927. These rare historical works are available in a clothbound volume for \$5.50.

Two earlier numbers in this reprint series are: Jordan and Evermann's "The Fishes of North and Middle America," U. S. Nat. Mus. Bull. 47, Vols. 1-4, 1896-1900, \$25.00; and Smith's "The Freshwater Fishes of Siam or Thailand," U. S. Nat. Mus. Bull. 188, 1945, \$2.00.

Order for these books, accompanied by remittance (postpaid) should be addressed to:

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

Second, I will list (also alphabetically) the more important universities which themselves maintain large research collections of fishes. However, the collections at three of these are of such world-wide importance and scope that they rank with the great museum collections at Washington, Chicago, and Philadelphia. I list first the "Big Three": Harvard University, University of Michigan, Stanford University. Other universities which themselves maintain fish collections of considerable size are: Cornell University, University of Hawaii, University of Kansas, University of Miami, Scripps Institution of Oceanography (part of University of California, La Jolla, California), University of Texas, Tulane University, University of California at Los Angeles, University of Washington, Yale University.

Unfortunately, in many of the larger public aquariums in the country, there is comparatively little opportunity for a student to use the aquarium facilities in connection with this graduate study. In a few, this is decidedly not true, but it must always be remembered that public aquariums are built and operated for public show and exhibition, and these functions necessarily take priority. A talk with the director or curator of one of these institutions may, however, be fruitful.

Please remember that I am talking about professional scientists and their work, and not about the commercial possibilities of the aquarium trade. Nor am I talking about the sport of skin-diving, which finds a place here and there in ichthyology—especially in studies of fish behavior—but in no sense forms a scientific field in which one can often gain professional employment. The student who wants to do nothing but dabble with aquarium fishes, or skin-dive, or merely be "employed in the out-of-doods," is rarely a good prospect for scientific ichthyology of any recognized type.

Finally, the young prospective ichthyologist of the present day had best heed the advice given in this series *in all points*. There is no way to avoid the serious problems he has to face in his schooling. The competition is rough and daily growing rougher. Do not write to me to ask if there is some other road to professional status in the fish world. I have advised several generations of prospective students in ichthyology, and I have increasingly been unable to see any way around the obstacles.

The principal thing for the student who gets interested in fishes before he finishes high school to remember is this: For the remainder of your high-school years, and for the 4 years of your undergraduate college work, you will have little time to give to fishes. By all means keep one small aquarium or keep your interest alive in some other way. But do not expect to be able to give more time to fishes than that one small aquarium requires. If you cannot temporarily curb your interest in fishes to that extent, better give up the idea of ichthyology entirely!



Larry König reports . . .
"Feed RUT-KING
For FISH You NEVER DREAMED POSSIBLE!"

Take A Feeding Tip From Internationally Known Breeders. Exhibitors. See Big Improvement In Your Fish.

Yes, you can now bring breathtaking beauty to your tropicals the easy, fool-proof way . . . with Rut-King fish foods. Developed by Dr. John Rutkowski and Larry König, eminent breeders, authors, lecturers, Rut-King foods give you more balanced nutrition than any other prepared food. And Rut-King is actually more economical because it's all food; contains no "fillers". *Once for a once, Rut-King is the most nutritious dry food you can buy!*

WORKS LIKE MAGIC! Yet only the results are magic. The real key is in the method of feeding these three Rut-King foods. And you'll find the Rut-King feeding method fully explained in the manual given FREE with every purchase.

3 FOODS FOR ALL DIET NEEDS: PRO*

For all sizes, species. Used by professional breeders.
1 1/4 oz. 60c 6 oz. \$2.39

BOOSTER*
The most nearly perfect conditioning food and diet supplement.
1 1/4 oz. 75c 6 oz. \$3.25

GUPPY FOOD
All purpose guppy food and nutritious food for fry. Use wherever a "micro" grind is needed.
1 1/4 oz. 60c 6 oz. \$2.39

GET RUT-KING AT YOUR DEALER'S. If he can't supply, order direct. Postpaid on \$2.00 or more. Send cash, check, money order. NO COD. FREE with order: Rutkowski-König "Feeding Manual!"

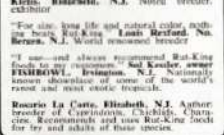
RUT-KING
Bioquatics
BOX 111-T
GARWOOD, N.J.
Dealer, rubber legacies invited

ALL THESE SHOW WINNERS USE AND RECOMMEND RUT-KING FOODS

WARREN YOUNG, Little Falls, N. J. '61 ACA Eastern Show, First Place Goldfish. "Only dry food I ever use is Rut-King."
EMILE PARO, Aquarium, Mass. '61 ACA Eastern Show, 2nd Place; Soft-bodied 2-let Piece; Regular Class, Committed winner. "I feed Rut-King and live food to district champions."
ARNOLD SWEENEY, No. Bergen, N.J. '61 ACA Eastern Show, 2nd Place; Goldfish Winner in outdoor U.S. show. "You'll always find Rut-King in my fish room. It's the only dry food I feed!"

REPORTS LIKE THESE PROVE RUT-KING FOODS ARE BEST FOR YOUR FISH . . .

"Most of the credit for my prize winners goes to Rut-King food and according to recommendations in Rutkowski-König's 'FEEDING' manual." Ed Harris, Louisiana Falls, O. International Guppy Champion.
"Wherever I send a "select" food, I find Rut-King Guppy Food best of all." Ronald R. Rabin, Hibernia, N.J. National exhibitor.
"Few show long life and natural color, nothing beats Rut-King." Louis Stiefel, No. Bergen, N.J. World renowned breeder.
"I use—and always recommend Rut-King foods to my customers." Bud Kessler, owner EXHIBITWEL, Irvington, N.J. Nationally known showman of one of the world's finest and most exotic tropicals.
Rudolfo La Torre, Elizabeth, N.J. Author breeder of Cypripetridae, Cichlids, Characins, Serrasalminids and uses Rut-King foods for fry and adults of these species.



When in spawning condition, the male black ruby barb becomes dusky gray with a glowing red nose and face area. Also, the black in his fins becomes very dark. Photo by Rudolf Zsukl.

Spawning the Black Ruby Barb, *Puntius nigrofasciatus*

BY RUDOLFO ZSUKL
BRNO, CZECHOSLOVAKIA

Again and again we admire the beauty or marvel at the interesting life habits of a certain fish and rave about it. This is not right, preferring one fish to another. Why? Because each fish has a beauty all its own. The black ruby barb is a good example. This really beautiful fish is not only peaceful, but, in its manner and habits, it is not at all touchy.

Puntius nigrofasciatus, of the family Cyprinidae, was imported to Europe from southern Ceylon in the year 1935. The body of the fish is high in build and laterally compressed. The head is pointed in front. The color is yellowish

**SUBSCRIBE
TO
ICHTHYOLOGICA,
The Aquarium Journal**

Whether you are an ichthyologist, professional breeder or scientifically oriented hobbyist, if you are interested in keeping abreast of the latest scientific developments in aquarium fishes and their care, you can do so in only one magazine in the entire world — **Ichthyologica, the Aquarium Journal**. Fill in the form below, and if you are a student, be sure to check the proper box and get your subscription at half price.

Please print. Detach and send to:

T.F.H. PUBLICATIONS, INC.
245 Cornelison Avenue, Jersey City, N. J. 07302

Gentlemen:

I am interested in subscribing to **Ichthyologica, the Aquarium Journal**. Enclosed please find check, money order or cash for:

- Sample copy — \$1.00
- 12 issues — \$10.00
- 12 issues at special student price — \$5.00

School Attending _____

Name _____

Street _____

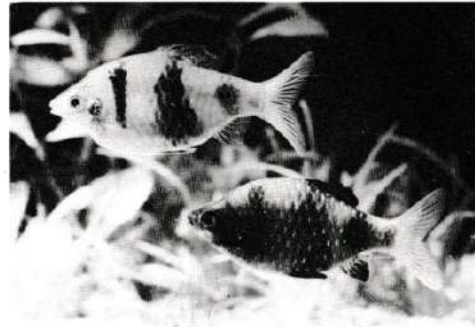
City _____

State _____

Zip _____

36

August, 1966



A pair of black ruby barbs. The male below. Note the fullness of the female's belly, which indicates a copious supply of ripe eggs. Photo by Rudolf Zukal.

gray with three to four pale, reddish, wedge-shaped bands. The head is purple in color. The mouth is reddish and without barbels. At spawning time the male's bands become a deep black. The silvery edges of the scales form horizontal rows of dots on the body. The dorsal fin is deep black, and

A wild pre-spawning chase takes the pair all over the aquarium. The male rarely harms the female during these chases. Photo by Rudolph Zukal.



37

Tropical Fish Hobbyist

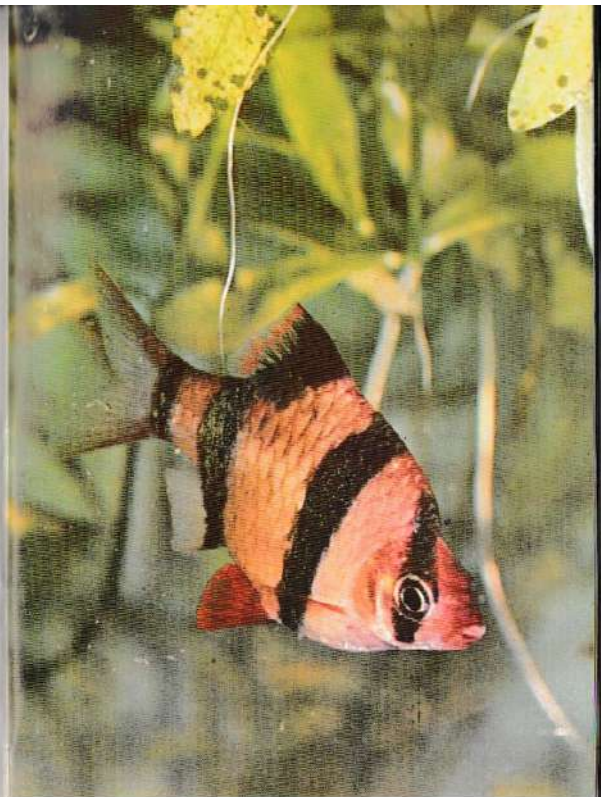
the tail is a pronounced gray. The ventral fins are black. Also at spawning time, or when the fish is excited, the fore part of the body becomes a distinct purple. The female is somewhat smaller than the male, and her bands are indistinct. Her unpaired fins are only black in part.

A medium-sized tank is sufficiently large for these fish. It should be well-planted and with a layer of floating plants at the surface. Normally clear, aged tap-water of about 75° F. in temperature is about right. These fish

When in spawning condition, the female black ruby barb does not get even nearly as colorful as the male. The most noticeable change is considerable darkening of her black bars. Photo by Rudolf Zukal.



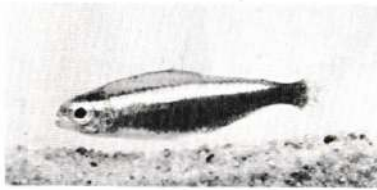
38



The tiger barb, *Capeete tetrazona*, resembles the black ruby barb in many ways; the body form of the two fishes is almost identical, both have barred bodies; both reach a length of from 2½ to 3 inches; both are very active and keep their fins well spread. Photo by Hansen.

39

AQUATIC FISHERIES HAS THE MOST
 MODERN WHOLESALE FISH FACIL-
 ITIES IN THE WORLD / AQUATIC
 FISHERIES GUARANTEES YOU A
 FULL LINE OF IMPORTED AND DO-
 MESTICALLY RAISED TROPICALS
 AT THE LOWEST POSSIBLE PRICES
 FOR QUALITY FISH / BEAUTIFUL
 LIVEBEARERS OUR SPECIALTY! IM-
 PORTS ARE OUR BREAD & BUTTER!



Aquatic Fisheries

P.O. Box 11, Vero Beach, Florida 32980, Phone: (305) 561-5277

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

August, 1966



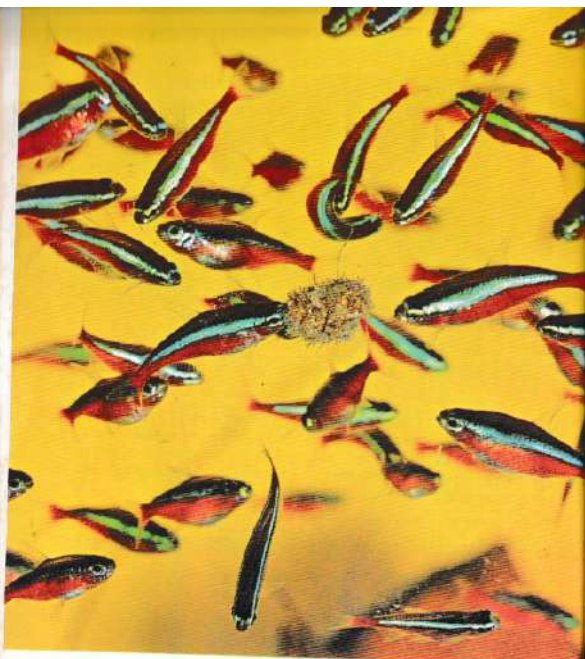
The male edges the female toward the plants. Photo by Rudolf Zuko.

with the tiger barb, *Coptodon tetrazona*. I breed them in a small tank of about 5-gallons that is planted with *Hygrophila polysperma* and *Sagittaria* species. In hard water they spawn well, but the eggs do not develop, so soft to moderately hard water is best. They are quite prolific; a spawning can result in as many as 500 eggs.

Finally the female is ready. She slows down and allows the male to come alongside her. Photo by Rudolf Zuko.



45

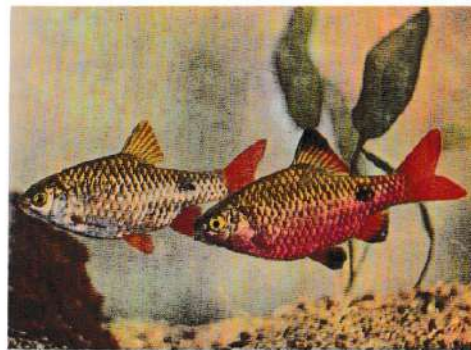


NEW MIRACLE TUBIFEX WORMS

This is an actual photograph of aquarium fishes attacking a piece of the new Miracle Freeze-dried Tubifex worms which has been pressed against the aquarium glass. Not only do the worms stick to the glass, but as they loosen, they float and the fishes go after them as quickly as if they were alive. Our salesmen made 50 test calls to demonstrate this amazing new food. In every case the aquarium shops bought them. At last we have a food that is more eagerly eaten than any other dry food, will bring fishes from hiding so they can be seen when you want them out in full view, is highly nutritious (60% protein); is sterile and does not carry disease organisms; is eagerly eaten from your fingers once the fishes develop a taste for it; and costs only 80c per plastic can. Available soon. Petchaps write for samples on your letterhead.

MIRACLE PLASTICS CORP., Box 33, Jersey City, New Jersey 07302

August, 1966



The rosy barb, *Puntius conchaniensis* is one of the most popular of the barbs. As with black ruby barbs, the male (right) colors up a great deal more when ready to spawn than does the female. Photo by G. J. M. Timmerman.

The day following their introduction to the breeding tank, the pair shown in my photos began to exhibit spawning behavior. The male began to chase after the female. This went on for 2 days as the temperature was raised slowly to about 80° F. The male repeatedly tried to ram the female in the belly with his mouth. He pranced with stiffly spread fins and swam swiftly about the female, trying to get into a position alongside of her. His mad chase was interrupted only by occasional pauses and to pick up a few tubifex worms.

Not until the third day did I notice that the pair had quieted down somewhat. The flirtatious prancing of the male was interrupted with longer and longer pauses, and, with lightning-fast turns, he tried to press against the female. Then, swimming close beside her, he tried to crowd her down into the plants. Some eggs were laid as he pressed her close to the bottom. Others were released during lightning fast chases about the tank.

The best spawning, when the eggs are most thoroughly fertilized, takes place when the male gets his anal opening close to that of the female. The male tries to get into this ideal position while prancing. At this stage, he rams her in the belly region and then gets to her side and lifts his tail to enfold her. In this position, eggs are released so that they can be fertilized at once by the male. The fish part at once after this, and the sudden action

47

4. I have a community tank with 10 small angelfish in it. Is there a good chance that I will get one mated pair out of this group, and how old (or how large) will they have to be before they spawn?

Robb Bennett, Cambridge, Ohio

A. 1. Properly used, no. Last summer I saw some of the tanks serviced by a friend of mine in Dallas. She uses undergravel filters in all of the tanks she has going all over town, and the plants, mostly water-sprite and ambulia, grow so prolifically that she has to keep thinning them out.

2. About 4 to 5 weeks, like the regular moridall strains. The only thing to do is to guard against bright light, because it hurts their extra-sensitive eyes.

3. They have been spawned in captivity, but the act has seldom been witnessed. I have read accounts of them whirling head to tail in a circle over bushy plants near the bottom, dropping and fertilizing eggs as they do so. Then of course there is the account we ran a long time ago about their building a bubbler. Their correct name is *Acanthopthalmus kuhlii*.

4. Yes, there is a very good chance. When they are about the size of half-dollars, observe them and watch for signs

AQUARIUM PLANTS THRIVE



PLANTABBS

AQUARIUM PLANT FOODS

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

of spawning activity. When you see a pair become very interested in each other and taking possession of a section of the tank, it is time to remove them to a tank of their own.

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



Fish Photo: J&R, Loring Road, P.O. Box 9, Singapore 19

(WHOLESALE ONLY)

IMPORT DIRECT FROM SOUTH EAST ASIA

Exotic Malayan Fish, Coral Marine Fish, Oriental Goldfish, and all types of Aquatic Plants

TROPICAL FISH AQUARISTS
P. O. Box Geylang 51, Singapore 14
Cable Address: "TROPICFISH" - Tel.: 81487

Strange, if true

I have been keeping guppies in with some red platies. I have noticed the male guppies, some of which are of a fancy strain, chasing the large female platy. I have no fully grown male platies; they died a while back. I see swimming about a male fish which has the characteristics of both guppy and platy. Is it possible this fish is a cross between a guppy and a platy? If so, is this a rare occurrence or a common one? If rare, do you have any advice on what I should do with the fish? He has the hind quarters of a guppy, but the front looks more like a platy. The color is a sort of golden orange. On the tail is a bright yellow spot. On the body is an orange line. The dorsal fin is yellow

orange with some blue in it; it is very pretty.

R. L. Menzella, Cliffside Park, N.J.

A. I have long stopped saying things are impossible, because that is the easiest way to get "impossible" things thrown in your face. If what you have is a genuine hybrid between a guppy and platy, you have something I've never seen in these many years. If your hybrid is fertile, you have something that is really unique; try mating him to his sister, even back to his mother. In any case, keep a close eye on any subsequent broods your female platy might have; there is always the possibility that there will be more fish like the one you describe. An intergeneric hybridization such as this one is a very rare thing.

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

You'll never again buy an air pump! The only pump with these features: TOTAL SILENCE, NO MAINTENANCE, INDEPENDENT POWER. Model 300 60 watts with over 300 c.p.m. (for 1 to 50 aquariums) backed by powerful precision - Model 200 approximately 1/2 as much. PRECISION BUILT. Built by new patented developments of the vibrator circuit. EVER LASTING performance - yet Model 300 runs only 5 watts. Model 200 4 watts. 1-year guarantee.



MODEL 200

"My Kribfish hatching has used WISA exclusively for the last 6 years. I recommend WISA as the greatest air pump and the best buy on the market today."
John J. Gonzalez, 640 Pine St., Philadelphia, Pa.

"...I have had these pumps for 16 years... they were great."
L.L. 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 Fish."

Scattergood Filters Co.

ESTABLISHED 1947 - MILLER 7, MISSOURI



By Paul Hahnel

Hawaiian Guppy Society Show
Out there in the Hawaiian Islands, our friends are working hard to repeat their success with their annual Guppy Show. I hope this announcement will inspire many hobbyists on the mainland to participate. The Ninth Annual Guppy Show of the Hawaiian Guppy Society will be held on July 29, 30, and 31, 1966, in conjunction with the 20th Annual Wardward Fair, sponsored by the H. H. Gibson Chapter of the Young Farmer's Association of Hawaii, at the Castle High School Grounds, Kaneohe.

Show Chairman: Alfred Suficiencia.
Vice Show Chairman: Robert Kiyabu.

For further information and entry blanks, write to the President of the Hawaiian Guppy Society, James Izumi, 1405 Mamala St., Honolulu, Hawaii, 96817.

Fair price
Q. In the past I have had many kinds of fish. Now I would like to try to raise a strain of guppies. I am only 13 and cannot afford much equipment. I am trying to purchase another tank soon. I have my own room where I can keep about five tanks (10-gallon size) comfortably. I would like to know:
1. Would tanks of the 10-gallon size be sufficient to raise guppies? If so, how many would I need?
2. What would you suggest to be a fair price for a pair of fancy guppies?
3. Do you know of any breeders in my area who would sell me some of their strain?

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

FANCY GUPPIES

Our Guppies are winning blue ribbons at their great owners everywhere. Letters tell us that even the best of breeders aren't willing to buy them. We have the best. All of our Guppies are 100% raised indoors. Most colors available. \$8.00 a pair, 2 pair for \$15.00, \$3.00 per fish. 2 fish for \$15.00. Write for descriptive brochure. Special attention in selected containers assure guaranteed live delivery by Air Mail. No C.O.D. please.

RAINBOW GUPPY AQUARIUM
P. O. Box 535, Loxbury, Florida

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

FIRST PRIZE WINNER AT THE INTERNATIONAL 1966 GUPPY SHOW, BERLIN, GERMANY

THE BRONZE DELIGHT

After more than 30 years of breeding exhibition guppies, Mr. Hartung now introduces his greatest achievement - the Bronze Delight with its large Vail head, broad tail, tiny fins, and golden and gray guppies. You may choose from: Green, Leopard, Blue, Vail, white or Blue-green Vails. \$14 per pair, \$55.00 each for Trips.

HARTUNG GUPPY SPECIALIST
Other prize-winning varieties and your choice of Red, Blue, Black, Dark Blue, Vail-regined - only \$8.50 a pair. Albino Vails, \$6 a pair. Beautiful Green Baby and Vails \$9 a pair. GUARANTEED Live Delivery - Free Postage. Send check or money order to Wm. HARTUNG, 71-34 88th St., Woodhaven 21, N. Y. - V. 7-2526.

THE DEGAULLE GUPPY

(Flag of France)

The most unusual breed of this era. A large, blue hybrid with light face, jet black body, flaring red tail, and white dorsal fin. Traffic females are olive color with black cast. They breed true. \$12.50 per pair, \$34.50 each for fish.

Other varieties include Albino Vails, Red Peacocks, Lavender Green, Leopard. \$7.50 per pair, \$21.50 each for fish.

MANHATTAN AQUARIUM SERVICE
224 21st St., Manhattan Beach, Calif. 90264
Phone: FR 2-6621

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

4. Do you know of any guppy clubs in my area?
5. Could you name some plants other

than water sprite which would be useful in the guppy tank?

6. Should the guppy tank be planted loosely or heavily?

Alan Kieta, Union, N.J.

A. 1. A 10-gallon tank is a nice size, but larger tanks are still better. I have 16 tanks in varied sizes of 10, 15, and 25 gallons.

2. Outstanding fish are sold for 10 to 25 dollars per pair.

3. Write a letter to Mr. Louis Rosford, 304-73rd St., North Bergen, N.J. He might know a breeder in your area.

4. Write to Roy Melillo, 15 Belmont Ave., Bloomfield, N.J. for further information about a guppy club.

5. Any tropical aquarium plants will do in a guppy tank.

6. Do not plant your tank too heavily.

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

FROZEN ASSETS



Now the world's most nutritionally valuable fish food is available in fresh-frozen, easy to use packets. Longlife Frozen Baby Brine Shrimp by Sanders develops natural color brilliance, strength, activity, and fertility in tropicals and goldfish of all sizes (especially the young). It's the fish food of professional breeders. Available at fine pet shops and department stores... everywhere.

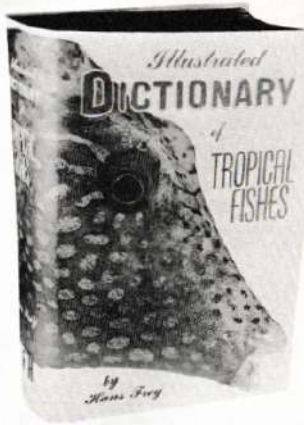


LONGLIFE FISH FOOD PRODUCTS
DIVISION OF STERNO INDUSTRIES, INC., 50 COOPER SQUARE, NEW YORK, N.Y. 10003

Hans Frey's
**ILLUSTRATED
DICTIONARY OF
TROPICAL FISH**
\$7.95

Never before in the English language has a dictionary of tropical fish appeared. This huge volume, translated from the German by Dr. A.

Viggo W. Schultz, brother of Harald Schultz, covers every fish, plant and snail that has ever reached any popularity in the last 50 years! It is illustrated with more than 1,000 photographs and drawings in color and black and white. There is no book like it that compares in size, scope, or completeness. In German it sold 18,000 copies in less than two years, making it a national best-seller. This book is a *must* for every beginner and advanced hobbyist alike who wants to identify a rare fish, plant or snail, and who needs information on any aquatic subject. Besides the subjects already mentioned, there are entries on breeding, water, infusoria, diseases, heaters, filters, pumps, feeding, live foods, fish collecting, marine fish, goldfish, cold water fish and terrarium life. Available now at your petshop. Add 50c. for postage and handling if ordered from the publisher. Send cash, check or money order to



Published by T.F.H. PUBLICATIONS, INC.
245 Cornelison Avenue Jersey City, N. J. 07302

*Salts From
The Seven Seas*



By Alfred A. Schultz

- Q. 1. How would you treat a 10-gallon stainless steel aquarium so that it can be used for salt water?
- 2. How many 4-inch or 5-inch seahorses can be kept in a filtered 10-gallon aquarium? An unfiltered one?
- 3. How would you breed seahorses?
- 4. How would you feed seahorses?
- 5. In a local petshop there are golden seahorses. Would you keep them the same as regular seahorses?

Robert D'Addasio, Middletown, N.J.

A. 1. Rinse it thoroughly three times with fresh water.

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

Too Way Yong & Sons

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

1063, Yio Chu Keng Road
Singapore 19

Cable Address:
"CATFISH" SINGAPORE

2. You can keep as many as six in a filtered aquarium. On the other hand, never try keeping a marine aquarium without filtering it.

3. It has not been done successfully as yet. These seahorses which delivered living young in captivity so far have mated in the wild state.

4. The larger species of seahorses should be fed adult brine shrimp. The dwarf seahorses get newly hatched brine shrimp.

5. These are probably a tropical species; install a heater, and do not let the temperature fall below 75° F.

Q. 1. I read in a well-known book that it is harmful to use a slate-bottomed tank for saltwater fish, as the salt water attacks the slate. Is this true? If it is, is there something I can use to coat the slate and the metal rim of the tank so that they will be harmless?

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 18 public aquariums, over 50 universities, U. S. government agencies, industrial researchers, and hobbyists throughout the world. Just mix with tap water... it's so simple on that. Crystal clear water lasts 4 to 7 weeks and longer by actual experience. "NEPTUNE SALTS" costs far less per year than any other product ever developed since you buy it any once... do NOT have to change water every few weeks. Write for new saltwater catalogue, jobbers and dealers, no charge... manufacturers, etc.

**WESTCHESTER AQUARIUM
SUPPLY CO., INC.**
184 Monmouth Avenue
White Plains, N. Y. 10601
Tel. 914 WH 8-0011

Tropical Fish Hobbyist

- 2. The tank has been used for fresh water for about a year, and I have taken it down, cleaned it out, and coated it with "liquid glass" at the seams. Can it now be used?
- 3. Is the blue devil the same as the blue reef fish?
- 4. Have you ever heard of the Queensland grouper? This is the name that my local dealer has given to a gorgeous gold fish with blotches of black on the body. It is a small grouper. Do such small groupers get along with one-inch aquarium fishes?
- 5. How do you bleach coral?
- 6. Can you give me the name of a retail mail-order dealer who carries Pacific fish, or an Atlantic dealer who might supply them?

David Clive, River Edge, N.J.

A. 1. I have been using slate-bottomed tanks in salt water for many years, and have never had this trouble. If you doubt my word and still want to pane it with something, I suggest you use a good aquarium sealer.

2. Yes.

3. Yes.

4. No; the name is unfamiliar to me.

5. Soak in a good household bleach for 24 hours, and soak thoroughly in 5 changes of fresh water afterward. Repeat until you get your desired results.

6. Aquarium Stock Company, 31 Warren Street, New York 7, N.Y.

**"JOBBER
WANTED"**

"Royal Grammas" are our specialty — any number. Also other marine tropicals from the Caribbean. Fast and free delivery guaranteed the year around. For price list write to:
MARINE COLLECTORS CO.
P.O. Box 2659
SAN JUAN, PUERTO RICO 00903

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

Q. I have received a power filter as a gift. I am now using it in a freshwater tank, but I would like to use it in my saltwater tank. However, I have one problem; there are four metal screws in the lower part of the filter box which are constantly in contact with the water. Will use in a saltwater tank affect the screws or the water adversely?

Don Deacon, Westfield, N.J.

A. The four metal screws you ask about are made of stainless steel, and just the head and nut contact the water. I suggest that you coat the exposed metal parts with a good aquarium sealer.

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



WHY RILA MARINE MIX?

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

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

Contains the 19 major trace elements of natural sea water. Provides the ideal media for all marine life.

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

RILA PRODUCTS • Box 114, Teaneck, N. J. 07666

YOUR FISHES' HEALTH

BY MIKE REED

That Old Devil Ich

Ich (the word comes from *Ichthyophthirius multifiliis*, the protozoan, or microscopic animal, that causes the disease) is by far the most common and best known disease of aquarium fishes. Nearly every hobbyist has seen the disease, but for those who haven't, it looks as though the infected fishes have been sprinkled with salt. For this reason, the disease is often referred to as "white spot." The tiny spots are easiest to observe on black coloration, particularly such smooth, velvety black coloration as that of the retailed black shark. They are also quite obvious on clear fins, where more often than not they first appear. Most advanced hobbyists check their fishes once a day and notice the disease when only one or two fishes show a few spots. Careless aquarists notice it only after many of their fishes have begun scratching themselves against the gravel, rocks, ornaments, etc., in an effort to rid themselves of the bothersome parasites. By this time, practically every fish in the tank is heavily infected and some are dying.

I have never met a hobbyist who has not had at least one outbreak of ich, or ick, in his tanks. Most of us who have kept fishes for years have found that this disease pops up now and again no matter what condition we keep our fishes in. Some scientists claim that the causative organism of the disease is present in all water, although usually it is in a dormant state. Whether this is true or not, I do not know, but I have seen ich develop in tanks set up with tap water in which good strong fishes have been living healthily for months. No new fishes were added to these tanks nor was any live food or water other than tap water. This proves at least one thing to me: the disease organisms can be present in a dormant form for extended periods of time without making themselves known by attacking the fishes. This means that we should always assume that our fishes are threatened by ich.

I won't go into the life cycle of the disease organism here. All we need keep in mind is that it reproduces quickly and in great numbers. Thus, in their active form, the disease organisms can wipe out a tank in a matter of a few weeks and severely infect its inhabitants in a few days. The introduction of an infected fish to a healthy tank is probably the greatest single cause of the disease. Low water



Clown loaches, *Betta macrocarina*, are very susceptible to ich. If you suspect your clown to have it, look for the salt-like spots on their fins and on their black bars. Photo by Klaus Payson.

temperatures, particularly sudden chills, often bring on the disease, probably because they weaken the fish. I have also heard of sudden heat causing ich and, therefore, conclude that any condition that temporarily weakens fishes can get the disease started.

Happily, ich is now relatively easy to cure. In the old days, standard treatment was to raise the water temperature gradually to anywhere from 86 to 90°F. (depending on how heat resistant a strain of ich was present) and holding that temperature for a week to 10 days. This is a terrific strain on the fishes, for their metabolic rate is determined largely by the temperature of their water. Invariably some fishes were lost due to the heat, but most of them were cured. A few years ago, a strain of ich became widespread that was not easily cured even by temperatures in excess of 90°F. At about the same time, aquarists began using a number of drugs along with the heat treatment. These drugs included methylene blue, quinine, and sulfa compounds. In recent years, malachite green, a copper compound, has appeared on the scene under a variety of brand names. This drug offers the advantage that it can be used without raising the water temperature and causing the resultant strain on the fishes. In addition, it effects the cure in a day or two when used properly. I have never heard of a case of ich that this drug did not cure, and scientific tests which will be reported in *TFH* in a later issue support the outstanding results claimed for this compound.

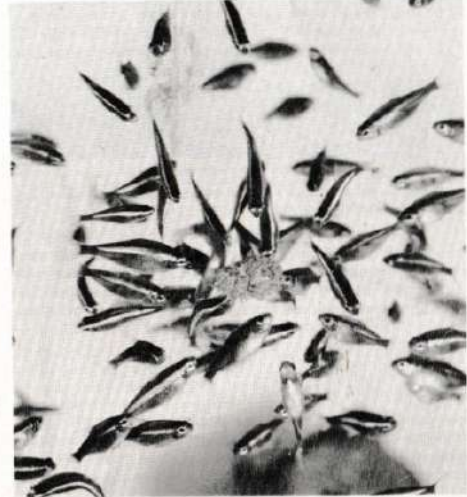
Can Aquarium Fishes Be Trained?

BY DR. HERBERT R. AXELROD

In 1953 I wrote a booklet entitled *TROPICAL FISH AS PETS*. Several of my associates challenged the wisdom of this title since fishes are not really "pets" in the sense that a horse, dog, or cat are actually "pettable." Though I couldn't convince them that you can handle fishes in one way or another, it didn't make me change the title of the booklet. Since that time I have been very sensitive about training fishes; but, until now, I haven't had much luck.

Now the story changes. A few years ago a Chinese from

The new food described in this article is relished by virtually every species of tropical fish. Here we see cardinal tetras learning greedily into some of the food which has been stuck to the front glass of an aquarium. Photo by Dr. Herbert R. Axelrod.



Formosa (Taiwan) sent me samples of dried tubifex. Within 3 weeks I had samples on my desk of five different types of dried tubifex worms, all coming from Formosa or Japan. The fishes ignored most of them.

Laughingly, Bernie Duke, who runs Gulf Fish Farms in Palmetto, Florida, said, "Herb, you need catnip for your fish food." He laughed. I laughed. I started thinking.

Scientifically, we know that certain substances increase fishes' appetites and attract them to investigate certain "odors" which might be food. I worked with a few of them and finally found my "fish nip." It is similar to the "taste odor" in the German fish food known as "TetraMin," but is distinctive in that it is an all-meat product, very high in protein.

Once fishes discover it in an aquarium, they tear it apart with such vigor that you would think that they hadn't eaten for a month. After almost a year of testing, I discovered that I could raise angelfish, bettas, *Corydoras*, all the livebearers, most of the tetras, and even African water frogs, solely on a diet of these freeze-dried tubifex worms. The food was great!

Further refinements in the processing made possible the following characteristics:

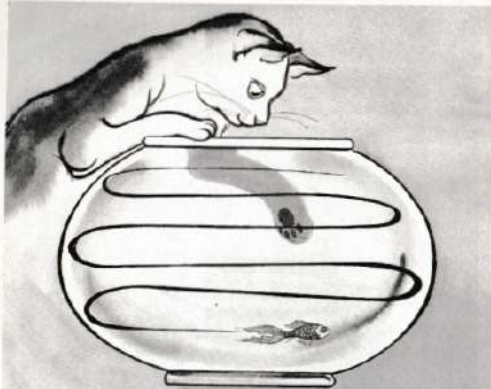
1. If allowed to soak in a glass of clear water, the worms will float for days and will not cloud or discolor the water. The food is also odorless.
2. As the worms pick up moisture, they expand and look exactly like live tubifex worms.
3. When pressed against the inside glass of an aquarium, they adhere, and the fishes can be fed so that every bit they eat can be observed. This prevents overfeeding since you can easily remove any uneaten bits of worms. Overfeeding is the single greatest "disaster" that can foul the tank (and enthusiasm) of any beginner.
4. It is so nutritious, that it can bring almost every known aquarium fish into breeding condition. This food and brine shrimp are perfect diets for all fishes . . . bar none.
5. The fishes enjoy eating it so much, as evidenced by their voracious attacks on it, that they become tame and will eagerly pick at it from between your fingers. I have proven this with nocturnal catfish, mollies, gouramis, angelfish, cardinal tetras, and most cichlids.



Fishes that have been fed the freeze-dried worms zero in on it from all directions the moment it is put in the tank. Amateur fish photographers need only focus on the glass where they will put the food to be assured of perfect shots. There wasn't be a fish in the tank that doesn't swim into range! Photo by Dr. Herbert R. Axelrod.

Here is the proper method to train your fishes. For the first 3 days, merely affix a small piece of dried tubifex worms to the center of your aquarium glass (or just drop it into the aquarium if you don't want to get your hands wet). Let your fishes develop a taste for it. It may take them 5 or 10 minutes to actually attack it since the food emits powerful "odors" and they may be "suspicious." Once they have acclimated themselves to the worms, don't feed them for one day. The next day they will almost surely eat the freeze-dried tubifex from between your fingers.

The accompanying photographs graphically illustrate the point! Freeze-dried tubifex worms are available now. If they aren't everything this article says about them, you can get a full cash refund by sending the unused portion to Miracle Plastics Corp., Box 33, Jersey City, N. J. 07302.



GIVE HIM GO POWER

Give him adult live Bay Brand brine shrimp.

Brine shrimp are the most nutritious, cleanest, most disease-free food known for tropicals — the diet nature intended. Fish fed Bay Brand live adult brine shrimp will live longer, grow larger, be more fertile, have better finnage, greater intensity of color, and be stronger and more active.

Only San Francisco Fish Farms bring you adult live brine shrimp from San Francisco Bay. There, and only there, can brine shrimp be raised to the rich, succulent quality demanded by discriminating aquarists.

Live adult brine shrimp are easy to keep, will live for a week or longer with only nominal care. Visit your pet store today and order a week's supply of adult live Bay Brand brine shrimp. Or write to us for pamphlets, names of dealers nearest you.

San Francisco Fish Farms, Inc.
711 Hamilton Avenue
Merilo Park, Calif. 94025



Coming Soon: San Francisco Bay Brand frozen live brine shrimp.

An Open Letter To All 'Experts'

BY STELLA SWAIN RICO

How can I best express my enormous anger and resentment at yet another case of being compelled to conform? Who on earth was it, in the beginning, that selfishly decided that you were not a serious tropical fish hobbyist if you had the audacity to utilize colored gravel, ceramics, and/or a non-metallic aquarium frame? I'd like to know so I could punch him squarely in the nose!

I am most definitely a serious hobbyist and a **full time** one too! I have to be if I want my fish to live disease free, happy, and healthy. (What makes an expert an expert anyway?) Yet, horror of horrors, I use colored gravel exclusively, and I sneakily possess marbled aquarium frames. I do not use ceramics, but if I wanted to I would not allow any all-knowing "experts" to deter me! The **only** aquarium-decorating point on which I agree with you "experts" is that we should not get too liberal with ceramics, for this creates a cluttered appearance.

At any rate, I would like to discuss my side of the question with you, one thing at a time . . .

Now—you "experts" believe we should not use any aquarium with a fancy frame (i.e. marble, mosaic tile, wood, etc.). You claim that it detracts from the fish. Well, I believe that our fish's homes should be as beautiful as possible. As far as being natural, who are you kidding? To keep fish living in an aquarium certainly is not natural! *Your* idea is to be natural, **unless** it is too messy, or implausible to be so. How on earth can we be half natural and half unnatural?

Many non-hobbyists will pause and really look at a beautifully framed aquarium, but they might not even glance at a conventional tank. And I'm sure that the fish don't object to a daring frame. Isn't this what you want? To interest even more people in the joys of keeping tropicals? And I am sure that your unpliant attitude frightens and discourages many potential hobbyists.

Now let's look at us humans for a moment. Our homes are status symbols, whether we admit it or not. As people accumulate extra cash, they entertain thoughts of buying a home. Do they desire the simplest possible home so as not to detract from themselves? You bet your boots they don't! The more lavish and rich-appearing (to enhance themselves) the better. So—there's your answer! Why shouldn't we attempt to make our fish's homes more beautiful? After all, the people that see our aquariums look at the entire picture.

If you are truly a serious aquarist, desiring to entice one and all into the hobby, then you **should** concern yourself with the beautifying of **everything**

connected with it. And don't be afraid to utilize **anything** that will make your fish or their home even more beautiful!

If, as some of you "experts" claim, your **only** interest is the fish, then why not just keep them in bare tanks, or old refrigerator linings, or discarded bathtubs? And if your main interest is in being natural then why not keep them in containers with mud bottoms, for many of our fish come from rivers and streams with very muddy bottoms indeed.

You won't do any of these things because you want your tanks to look beautiful (unless you are fortunate enough to have a separate fish room where you can leave a tank of muddy water, or a bare tank, for only other "experts" to see). Remember, most hobbyists use their living rooms as fish rooms, and must do everything they can to make the fish and the tank as attractive as possible to both themselves and others.

I want to be allowed to make **my** aquarium look beautiful **my** way without the echo of snickering from you awe-inspiring experts!

Now—let's tackle ceramics. You experts claim that they are not natural. Are you kidding? Most of us have seen photos or movies of the watery reaches of our mighty oceans and rivers. What do we see there, besides fish and plants? You're right! Sunken ships. Hundreds of them. And the fish and plant life love them and happily adapt them to their own wet needs. There are also many octopuses in the ocean, and treasure chests! And yes, even skeletons! Look at the men that make their livings seeking sunken treasure, ancient statues, urns, etc. The Aswan Dam was recently constructed in Egypt. Have you "experts" seen the temples, the enormous idols, and the glorious tombs that will soon be enveloped by the yellow waters of the magnificent Nile? And what of the legendary Atlantis? I could go on and on, but I'm sure that you get the general idea. Those things are down there all right!

So, our fish **can** come from waters that contain temples, sunken ships, treasure, octopuses, etc. Can you dispute that? And if nature can put up with it, why can't you? Naturally we can't have a real sunken ship, etc. in our aquariums, so we amateurs do the next best thing. We use a realistic ceramic one! So there! Do you still claim that it's not natural, even though such things are found abundantly in nature?

Now—colored gravel. Let any man tell me that colored gravel is not more beautiful than natural gravel, and I can honestly say that man is blind or, at least, color blind. Many annual aquarium shows do not allow colored gravel. I know you know why. Because many fish are rendered more striking or beautiful by the addition of the right colored gravel. So there you are! It **does** make the fish, and the aquarium, more outstanding! Which does an albino fish appear more beautiful with, natural or soft-red gravel? Do you honestly believe that a ruby scot appears more striking on natural gravel than on yellow gravel? Do the brilliantly colored fish in the ocean look more gorgeous against the vivid coral or against the dull sand bottom? See what I mean?

Eating this your fish grow healthy



Remember the name: **San Francisco Frozen Brine Shrimp**. It's rich in protein and chock-full of nourishing diet values that your fish thrive on. Feed it to improve color tones, for healthy activity, for more fertility. Packed in Premium Breeder Quality only. The finest food your fish can eat, the finest you can buy. At pet stores everywhere.

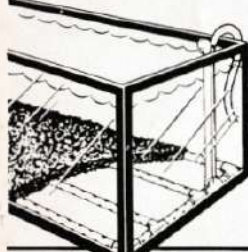
BRINE SHRIMP SALES CO., INC., Hayward, California 94545

EUREKA
Assures More Healthful Aquariums!

World's Finest
GRAVEL FILTER...

**EUREKA
AQUARIUM
PURIFIER**

Completely Sectional,
Adjustable and Convertible



3.49 For Tanks
up to
16" x 8"
**FITS
ANY
TANK**

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. Works years without cleaning, installs without removing fish or gravel.

**POWERHOUSE
VIBRATOR PUMP**

STAINLESS STEEL DIAPHRAGM
NEVER NEEDS CHANGING

QUIET! LONG LIFE!
HIGH POWER!
RUNS 10 OUTLETS!

\$11.95
SUGGESTED RETAIL

2 YEAR GUARANTEE



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



OR



If our water is clean and at the proper pH, temperature, and composition and if the fish are happy, healthy, and well fed, who gets hurt if we use ceramics, colored gravel, etc.? So you "experts," what really are your objections? Do you honestly know? I hate to be rude, but, since you have been extremely rude to us so very many times by poking crude fun at us, it appears to me that "experts" do as they are told, automatically, like a herd of sheep, because someone, long ago, decided that their way was **THE ONLY WAY!** Don't you guys have minds of your own?