DELTA TALE

September 1989

Fall Workshop and Auction November 11-12!

Official Publication of the
Potomac Valley Aquarium Society

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Printed by TOP CAT Printing, 164 Colburn Drive, Manassas Park, VA

El Presidente:

By the time this issue of the Delta Tale reaches you, Labor Day weekend will have passed, and the Summer of 1989 will be over. Although I myself seem to spend as much time with my tanks during the summer months as any other time of year, for many people the advent of cooler weather causes a renewal of interest in the fishkeeping hobby. Our club is working hard to stimulate those increased interests in the hobby, either generally or in some new species or piece of hardware. Our August program by Ken Muller on bettas was outstanding, and the September program by John Mangan on livebearers will be just as good. The Board is also exploring a recent offer by Tetra to partially pay the travel and lodging expenses to bring nationally recognized speakers to our monthly meetings. We may try to arrange one of these speakers for our October meeting.

Perhaps one of the most effective ways for PVAS to increase interest in our hobby (and in our club) is the Fall Workshop. The Board had considerable trouble finding a suitable, reasonably priced location, and for a time it definitely looked as though we would not be able to host a workshop this year. But I am very pleased to announce that the third annual fall workshop weekend will take place on November 11th and 12th. The location for the weekend will be the same as our monthly meetings - the John C. Wood facility in Fairfax City. Saturday, November 11th, will be the workshop, with three or four afternoon talks by national hobby experts. Plans are very tentative at this time concerning a banquet on Saturday night - this part of the weekend may be dropped this year. Sunday, November 12th, will be the auction. Lea Spickler, John Stieringer, and Ray Hughes are working on the workshop arrangements, and Gerry Hoffman will oversee the auction. These weekends are a lot of work for just three people to arrange and coordinate - please consider volunteering some time to lend them a hand.

This is the first Delta Tale issue in three months, and the second one I have put together as interim/default editor. The costs to print and mail an issue of the Delta Tale is around $150. The opinion of the Board of Governors is, for that amount of money, the Tale should represent the interests and expertise of the PVAS membership, and not be composed of only reprints from other club publications. Therefore, the frequency of publication for the Tale is being governed only by the amount of articles written by the PVAS membershop. I will put out a monthly issue if sufficient original material is available. Please consider writing about some aspect of our hobby that interests or concerns you. I will even type it for you if necessary! Even short less-than-a-page articles and artwork are needed. Especially artwork - your drawing can make the cover! I can honestly say that it is a uniquely gratifying experience to write an article and see it published and read by hundreds of hobbyists in the PVAS area. And to see it judged good enough to be reviewed or reprinted in our exchange publications is doubly rewarding.

Reprints can even be your chance at immortality - just look at John Mangan. He has written numerous articles for the Tale over the years, and his work has been reprinted all over the country. Long after his poor remains have been sucked up by the heavenly gravel washer, his "Packing Fish For An Auction" will continue to be reprinted!!

Finally, I would like to close this sermon by urging you to consider running for a seat on the Board of Governors or for a club officer position. Being a member of the Board does not mean that you are one of the most knowledgeable aquarists in the club, nor does it mean that you are an old-timer or are a member of "the clique". What it does mean is that you appreciate what the club offers you, and are willing to volunteer a little or a lot of your time in helping the club accomplish its goals of furthering the aquarium hobby and increasing the enjoyment of its members in that hobby. Most of the Board members have been members for so long only because there hasn't been anyone to take over the club's operation from them. The only prerequisities for a Board position is enthusiasm and concern for the future of our club, and a willingness to volunteer some of your time. Larry Wilkie is the chairman of the nominating committee. Please call him or myself for more information, or to volunteer yourself as a nominee. OUR CLUB REALLY NEEDS YOU!

Bill

SPONGE FILTER TIP

To greatly speed up the colonization of a new sponge filter by the 'good-guy' nitrifying bacteria, take an established sponge filter and rinse it in a bucket of aquarium water. Then repeatedly squeeze the new filter in the same water. This allows the new sponge to pick up a starter culture of the desired bacteria from the rinse water. Try this - it really works!

Spawning Aphyosemion Australe Gold (The Gold Lyretail Killie)

Tony A. Fitz, PVAS

The gold variety of Aphyosemion australe may be the most popular of all killifish. These are a fairly small variety of the large group of African "rain forest" killies, and the gold strain was derived from the wild type chocolate variety, which is a beautiful species in its own right. In the gold australe (pronounced, some books say, "aw-stray'-lee"), both sexes have mostly gold bodies, and the gold reaches brilliant hues on the body and fins of males, of an intensity which rivals the most colorful saltwater fishes. The male also has prominent white ray extensions on the caudal and dorsal fins. The gold australe is one of the more peaceful and sociable of killifish, their maintenance demands are fairly modest, and they can thrive in a carefully populated community tank (one which is notably lacking in cichlids).

Despite their great beauty and pleasing personalities, gold australes are not extremely common. In my hands at least, gold australes are far from easy to propagate, and in fact present more problems than almost any other variety of Aphyosemion in my experience. I have all sorts of problems with spawning gold australes.

As with most of my killifish, I prefer to spawn gold australes over peat. Like many killies, a good pair paradoxically seems to be much more productive than a larger group, and one fecund female, when cooperative, is capable of producing dozens of eggs daily. The breeding pair is fed heavily with a variety of foods, and the peat is harvested after several weeks of spawning. Eggs can be found in the peat, if the fishes are producing and the observer has good vision and a lot of patience. The harvested peat is incompletely dried and stored for about one month before wetting. This simple method sometimes results in huge numbers of fry.

However, many times the peat method does not work for my gold australes, yielding either few or no fry. Then I may resort to picking eggs from mops, an activity which I find thoroughly boring. The pair is maintained with a spawning mop, and at intervals eggs are transferred from the mop to a shoebox containing aged tap water (no chemicals added). This method has the advantage that I can monitor egg production and viability and follow egg development. However, the method requires a lot of work, a number of eggs may be lost to fungus, especially if any bad eggs are not removed quickly, and fry appear gradually over an extended period of time, complicating the rearing process. Incidently, based on considerable experience I am convinced that aged, unadulterated tap water is superior for this purpose to distilled water, breeder tank water, or any water containing antibiotics, "remedies", or other chemicals.

Both methods of egg handling have been used successfully by me in the past. However, very often my gold australes will refuse to produce eggs by either method. Also, I have been puzzled on a

number of occasions by peculiarities of egg development in gold australes. Often, the harvested eggs will develop extremely slowly or not at all; in many eggs I can see embryo development, but most embryos don't reach the hatching stage, instead finally dying after a period sometimes extending to several months. I don't understand why gold australe eggs will sometimes develop rapidly, hatching after less than two weeks of development, while at other times the eggs develop very slowly, and only a few eggs ever hatch. I don't believe that the problem is temperature dependent, since my fish room temperatures remain fairly constant throughout the year, and I have experienced this problem at different seasons of the year. The problem could be water-related, but the problem seems to be restricted to gold australes (even chocolate and red australes seem immune). I recently tried incubating gold australe peat for four months (which is fine for many annuals but way too long for australes), but while fry appeared at wetting, most were weak and did not survive.

While I have no firm basis for considering breeder age as the source of my problem, it seems that older (read this as REAL OLD) gold australes breed better for me. On a number of occasions in past years, I had reconciled myself to losing the gold australe strain because I had only a very few ancient, decrepid-looking breeders remaining, or even no remaining life at all except dried peat. However, so far (knock on wood) I have found the old breeders to be suddenly fecund, or jillions of fry will appear from the very last possible peat from breeders already dead. This situation occurred again very recently. I was down to a single pair of gold australes, the female at least two years old (ancient by australe standards) who has gotten quite ugly with age, and the male looking like the Ayatollah Khomeini's older brother, a real geriatric case. This pair had resisted my attempts at spawning for over a year, but they suddenly decided to cooperate; after a few weeks of hated mop picking, I now seem assured of a new generation, as the female is producing amazing quantities of eggs that are almost all fertile and that are hatching within two weeks of development. I am approaching the satisfying situation where I am saturated with a new generation of gold australe fry, I should have plenty of surplus from the new generation for distribution, and I will soon retire the breeders to a remaining lifetime of growing uglier and more decrepid.

I fully expect to find myself on the brink, if not over the edge, of extinction with the next generation of gold australe. Since I try to maintain a large variety of killies, I will be able to retain only a few specimens to produce the next generation, and will distribute the rest. Propagation of this species, or at least my strain, will probably continue to present a real challenge to me. However, the challenge is much of my thrill in killifish maintenance, the appearance of tiny, fragile fry always fills me with wonderment, and the delightful gold australe is well worth the frustrations involved.

ON JOINING A CLUB

Gian Padovani, NJAS

This article deals with personal opinions and reflections about the gathering of people that form, join, enrich, or damage an aquarium society. Why do people join clubs? I have often wondered why I belong to several groups and specifically, what makes me attend the North Jersey meetings? The conclusion is that I basically relish the company of people who share my interest, and enjoy the fact that this successful club operates in a professional manner. It is managed by a serious staff and their dedication is reflected at each meeting. The monthly meetings are carefully planned and at their conclusion, there is a feeling of contentment. During the meetings, the members are considerate and aware that a boisterous attitude shows lack of concern and respect to those who are conducting it. Through the years I have learned that there are many factors which can make or destroy a society, but the major responsibility rests always with the membership. What is the key to a healthy club? My first comment is that if you enjoy what the society has to offer, you should reciprocate by contributing to it. The annual dues should be a ticket not only to enjoy, but to JOIN the acitivities of a club. The people who are responsible for the success are not different than you; they have a family, a job, but are willing to give up some of their time for YOUR enjoyment. The success of a society is not based on aquarium achievements, but in the participation. This means giving support to the management and its functions. Examples: An annual show takes planning, a staff, and, to make it a memorable event, many entries. A competent newsletter, no matter how well edited or planned, needs articles from the membership. Can't write? My attitude is that if you can talk about it, you can write about it. A rough ink sketch can highlight any article. I realize that not everyone has the talent of Chuck Davis, but often a simple drawing can drive a point home just as well as a fancy illustration.

Whenever a group congregates you can expect people with different personalities. Some are gregarious, others introverts, some are bold, but others shy. "Still waters run deep" goes the saying, and not everyone brags about their accomplishments. An interesting aspect of this hobby is the competition, often reaching rivalry and envy, of some member who breeds fish. The "Breeders Award Program" stimulates this interest and the members try to outdo each other in the amount of species they have succeeded in breeding. These successes can create an unfortunate side effect with some aquarists who, as a result, tend to become conceited, pompous, and condescending. These attitudes can become annoying, especially to newcomers who, discouraged, may even leave the club. This is sad because for many a hobby is the basis for recreation, a diversion from the tenseness and rivalry of a job. Often a member will fail to recognize that our hobby has many facets, and what appeals to one person doesn't always appeal to another. I may get more satisfaction from drawing a fish than breeding it. Learning about behavior may be some else's cup of tea. Or diseases, snails, plants, or ... just plain fish watching. Too many aquarists forget that a person with one community tank has joined a club for the same reason as the one with 100 specialized aquaria, and if this person takes pride in the "babies" from his swordtail, there is no reason to demean his enthusiasm. I have met aquarists who, for lack of space

or time, were restricted to only a handful of tanks, but still managed to contribute to the hobby. I am a person who is usually more impressed by deeds than titles. I know an aquarist who had to inform the emeritus staff of a museum on how to prevent a Chaca-chaca catfish from starving! I have met aquarists with a string of degrees who couldn't keep a goldfish alive, but I know bricklayers, housewives, or pattern makers who are great aquarists. I know people who can name or spell every scientific name of fish, sounding more like a Latin mass than aquarists, but who will not write a simple article about the fish they can name so well. Years ago I wrote an article about the coveted "Hobbyist of the Year Award". In it I posed a question: Is the person with 25 tanks, or one that has bred 12 species of fish, more of a hobbyist than the member who faithfully makes coffee at every meeting? Many will agree that the simplest task in the world is to criticize and every society has its adherents. Unfortunately they are usually surrounded by a handful of gullibles who cannot see that their idol's reputation is built up on those he can knock down. The critics are easy to spot, as a rule they will never take the job they criticize the others for. They will knock a speaker, often out of order,if their opinions differ. They will also fail to recognize that the basis of their new-found success was probably laid down by old timers. On the other side of the coin, every society includes people who are enthusiastic supporters and are willing to share all that is good with the rest of the members. Everyone gains and the club becomes a model to follow.

(reprinted from The Reporter, North Jersey Aquarium Society)

Delta Tale Back To School Quiz

1. What do great white sharks, coelacanths, brotulids, and guppies all have in common? And just what the heck is a brotulid?

2. Why do your swordtails always jump out of the tank?

3. What fish does Gerry Hoffman like so much that he has a picture of one on a tee shirt?

FOR THE ANSWERS TO THESE AND MANY MORE BURNING QUESTIONS, COME TO THE SEPTEMBER MEETING!

Betta smaragdina

by Ken Muller - IBC, PVAS, MOBB

Betta smaragdina was first introduced to the aquarium hobby in the early 1970's. Their natural habitat is the weedy ditches, rice fields and ponds of northern Thailand. The species immediately caught the attention of the aquarist as the body is a red brown with emerald green scales, thus the common name of the emerald betta. The ventral fins are red while the anal and caudal fins are red brown with blue ribbing. Both the caudal and dorsal are round and the eye is usually red. It is a small bubblenestor about 1 1/2" long that prefers a well planted tank and spawns in the usual bubblenestor fashion. The eggs are oval shaped and hatch in 18-36 hours at a temperature of 80° F but longer in cooler temperatures. The fry hang in the bubblenest until free swimming which usually takes about 24 hours. At this I remove the parents but in a large well planted tank, this is not necessary as the parents are well behaved as long as you keep them fed. Once the fry exceed the size of a brine shrimp, the danger of being eaten by the parents disappears.

The first foods for the fry should be small, I used microworms since I constantly maintains a supply. Within a week some of the fry are able to eat newly hatched brine shrimp. Although all anabantoids grow at different rates, I have found that a few fry may out grow the rest of the spawn by four to five times in just two weeks. If one removes these fry into separate rearing chambers then within two more weeks the process has repeated. These fry can easily eat frozen brine shrimp, bloodworms or homemade beefheart mixture.

Since the males of the species are basically peaceful when kept together unlike *Betta splendens*, why haven't these bettas flooded the aquarium organizations within the U.S.? In the late 1970's the species disappeared from the European aquaria only to be replenished by the American aquarists. Shortly thereafter the species disappeared from the American scene until recently. One of the PVAS members stated that unusual sex ratios seemed to prevalent within the spawns after several generations. I am not sure if this is a cause of their disappearance or just that maintenance of the species is not a priority. This is similar to *Betta picta* whereas a few years ago, one could not give the species away but now you cannot obtain the species. This could be one cause for the disappearance but a more likely answer is an unusual characteristic I have found within my spawn. While sexing my spawn using *Betta splendens* characteristics as a guideline, I noticed all my fry had breeding tubes but some of the had slightly longer anal and ventral fins. I declared these to be males although a breeding tube was quite prevalent. I took my observation and applied it to the adults and found that I had one male and four females each displaying a distinct breeding tube. Could this be the interpreted sex ratio problem or am I just a few years away from disaster?

Culturing Fruitflies

Tony A. Fitz, PVAS

Many of us who are interested in breeding and raising tropical fish are eternally searching for new and improved food sources for our wet pets. Proper nutrition is a basic prerequisite for developing and maintaining the overall good health that is critical for successful reproduction and growth of our fishes.

It would be great if a single, convenient, inexpensive food were available to make fish feeding a simple chore. Some prepared foods are adequate for simple maintenance of certain varieties of adult fishes, but in general are inadequate for promoting the conditioning which is essential for successful spawning. For most spawning ventures, a wide variety of foods is needed, and live foods are important. In the group of killifish, which are the author's main aquatic interest, some varieties (notably many Nothobranchius species) will not even reliably eat anything other than live foods. In such cases, live foods are obviously critical just for species maintenance.

Some live foods, such as black worms, tubifex worms, and adult brine shrimp, are available commercially, but at substantial cost. While these live foods can be purchased, cheaper foods are needed by many of us. Certain other live foods, such as daphnia, mosquito larvae, white worms and grindal worms, can be cultured. However, the culture techniques all require some amount of effort, and each type of culture has its characteristic problems and limitations.

I have come to the realization that fruit flies (Drosophila melanogaster) deserve consideration as a live food for many fishes. Since fruit flies are only a few millimeters in length, they may not be useful for the garden variety two-foot-long cichlid. However, for smaller fishes, up to about the size of an adult angelfish, fruit flies are a nutritious morsel. Fishes find them to be delicious, and flies can be cultured easily, with relatively little muss and fuss, in quantities sufficient to nourish a large number of fishes.

Jorgen Scheel, a pioneer in the popularization of killifishes, used fruit flies as the staple diet for his fishes. He had a room dedicated solely to the propagation of fruit flies, sealed to make it hopefully escape proof, in which the flies were allowed to run (fly?) loose. Some inflexible individuals among us might object to establishment of a room filled with loose fruit flies. Maybe Aunt Etta would cut her visit short if the room doubled as her bedroom. But for those having an unreasonable prejudice against a room dedicated to flies, I recommend confining the drosophile in common jars. I use quart canning jars, fitted with sponge plugs. My plugs are cut from the spongy polyethylene "foam rubber" that is commonly used to insulate from vibrations the contents of many shipping boxes, or the sponges could be purchased (e.g. car washing sponges) at minimal cost. The plugs are cut with a sharp kitchen knife to a size slightly larger than the diameter of the jar

opening. A slightly oversized sponge top will form a fly-proof plug for a jar, yet permit plenty adequate gas transfer. Other types of gas permeable (but fly impermeable) lids, such as cloth held in place with a rubber band, would work as well, but try to avoid material that the flies can get trapped in.

A starter culture of flies is needed. These are readily available. I recommend one of the flightless varieties (yes, be CERTAIN to use nonflying flies!) available from a biological supply house such as Carolina or Wards at a cost of only a few dollars. Alternatively, biology departments in high schools or local colleges would probably be able to spare a culture. Or see me to get a start of the Fitz strain of incredible edible, neat and petite, guaranteed-to-crawl fruit flies.

The remaining necessity for fruit fly culture is a fly food. This is a critical ingredient. Many of us have unpleasant memories of the nasty fruit fly media of old, concocted from such perishable ingredients as bananas, apples and cereal. These home-made media inevitably developed a terrible smell, and for me it was usually a close race whether the flies would gain a foothold on a new culture before the mold took over. Additionally, it was always a fine line between a culture so moist that the flies would drown and a dried medium that would not support any fly life. Most fortunately, the sorry home-made culture media of yesteryear are obsolete, and need not be attempted except by the most adventuresome among us.

In today's age of enlightenment and convenience, simple, cheap, fruit fly media are easily obtained. These come from the biological supply houses in dry flake formulations that, when mixed with water, provide a complete, odorless food that with minimal precautions will not be overrun by mold or other undesirables. These media are available at very modest cost, and they are well worth the price; a virtual life-time supply of dry food for continual culture of, say, six quart jars could be purchased for about $20. The food comes with complete instructions, and its use is a snap for anyone who has access to tap water, and has mastered the use of a measuring cup. About one inch of food in the bottom of a quart jar will produce flies for months.

So with flies, jars, and fly food, cultures are easy to start and to maintain. I also like to add some screening material inside the jar, to increase the surface area available for flies to crawl around on (flies don't like crowds either). Within about two weeks of culture, a new generation of flies will appear. To feed these to fishes, simply remove the plug and sprinkle the flies like pepper on the water surface. Once fishes know what the flies are, substantial quantities will be eaten almost instantly. However, try not to overfeed or allow the flies to find refuge on floating plants, unless a houseful of crawling flies does not bother you. Cultures will gradually deteriorate, as the food is consumed and pupa shells and other (ahem) remains form a coating on the jar sides. At that point the most unpleasant aspect of fruit fly

culture, jar cleaning, becomes necessary. Fortunately, the cultures will only need to be recycled several times yearly, jar cleaning is pretty simple with soap, hot water and a brush, the cultures can be neglected for many consecutive weeks (for example if the culturist must occasionally travel) without loss of the entire culture, and the cultures, if established and maintained properly, are completely odorless.

For the convenience of anybody who may be motivated to start a fruit fly culture, the address of one of the biological supply houses is provided below:

Wards Natural Science Establishment, Inc.
5100 West Henrietta Road, P.O. Box 92912
Rochester, NY 14692-9012
Order Toll Free: 1-800-962-2660

This article is not intended as an endorsement of any biological supply house, but I have previously found Wards to be a reputable establishment having high quality biological supplies. Wards has many varieties of fruit flies (I recommend a vestigial wing variety such as catalog #87W6572; one culture for $4.05), as well as culture media (#38W0597; one liter for $3.55), culture vessels, and even fly anesthesia chambers (neat but unnecessary for our purposes and maybe dangerous to your fishes). Incidently, Wards has many other types of cultures of interest to the aquarist as well, such as worms, paramecia, rotifers, euglena, etc. Their catalog is fun to thumb through.

Good luck with the fruit fly cultures. Don't forget to keep plenty of microscopic live foods available for the fry that soon will be forthcoming from your well-conditioned breeders.

AQUARIUM HARDWARE I HAVE KNOWN AND SOMETIMES LOVED
Part 1

Pete Thrift, PVAS

Anyone who has been in this hobby for any length of time invariably has invested a great deal of money in aquarium hardware - the pumps, filters, heaters, cleaning tools, and all the other kinds of bric-a-brac we use to to keep our aquatic animals alive and hopefully prospering. In my own case, over the past eight years I have spent enough to personally solve the Northern Virginia road crisis! Hopefully these personal views and opinions in this article will be of some usefulness, especially to those who are new to the hobby. Rather than risk knocking a particular product unfairly, I will mention only those products and manufacturers with which I have had good experiences. I will discuss air pumps and heaters in this installment, and power filters in the next Delta Tale issue.

AIR PUMPS

Whisper 800 - A very good, two outlet vibrator pump. Very quiet. Reliable. Fair-to-good resistance to back pressure. The Whisper line of pumps is widely available. One note - the lower model numbers do not produce enough air to be worth their cost. Consider only models 500 and up. In the Whisper line, a bit more cash can get a lot more pump!

Tetra Luft G - Excellent single outlet vibrator pump. Good resistance to back pressure. Hums slightly. Hard to find replacement filters and repair parts.

Supreme Dynamaster - The grandaddy piston pump. Laughs at back pressure. Somewhat noisy if not carefully adjusted. "Time-proven" design. Requires periodic oiling. Needs a bleeder valve if you can't use all the air this pump produces - I replaced four Whisper 800s with one of these!

HEATERS

Supreme Heetmaster - Standard top-of-tank design. Excellent temperature control. Very easy temperature adjustment. Can be repaired by average person - I don't know of another heater brand which can. Very reliable.

Ebo-Jager - One of the original submersible heater designs. Excellent temperature control. Temperature knob hard to set - very small turn produces very large temperature change. Very reliable. Heater is filled with sand, which keeps the unit from flickering off and on, which should prolong the thermostat contact points.

PVAS BOARD MEETING - 7/31/89

Kenny Warren hosted the "August" meeting; also in attendance were Gene Aldridge, Ray Hughes, Bob Pallansch, and Pete Thrift. Absent a quorum, no votes were taken.

President Thrift;

- warned that the Fall Workshop was threatened by delayed arrangements; possible postponment 'till November or proceeding with an auction alone were discussed.

  [Ray Hughes agreed to consult with Lee Spickler and investigate facilities and catering at the Rockville Senoir Center; the decision as to location and format to be made at the 8/14 meeting. (A Maryland site is preferred to maintain PVAS' regional character.)]

- expressed concern for the status of the membership and nominating committees and IRS nonprifit status submission, and will check on the latter with Gerry Hoffman.

- will try to publish a Delta Tale in September with an August 14 submissions deadline.

Gene Aldridge announced that liability insurance and post-office box rental had been renewed, and he has received several publications for PVAS' library.

The meeting, which convened at 7:45, adjourned at 8:45.

Respectfully submitted,

Robert Pallansch

Recording Secretary

PICTURE YOUR

DELTA TALE ARTICLE

IN THIS SPACE!

Spawning Report for Killifishes

Tony A. Fitz, PVAS

Breeder's award programs in a generic tropical fish club such as PVAS favor the killifish enthusiast. Since most killifish readily grow and reproduce in aquaria having capacities of only a few gallons, a large variety of killifish can be maintained in a relatively small space. Killifish also are relatively undemanding and easy to spawn, if appropriate practices are followed.

I have not previously been an enthusiast of the PVAS breeder's award program, since my goal is not to spawn as wide a variety of fishes as possible, but instead to maintain a diverse collection of killies. However, my interest in the breeders award program was sparked by this year's contest to award a 70 gallon aquarium to the hobbyist who accumulates the most spawning points during 1989. This communication is submitted as part of my participation in the breeder's award contest.

In the breeders award program, spawning points are assigned to killifishes as follows: 10 points for the plant and mop spawners, 15 points to the African peat spawners, and 25 points for the South American annuals. If these points are meant to reflect the difficulty and complexity of spawning procedures, the values are exactly opposite of what they should be. South American annuals are typically easy to reproduce. Some of the African annuals are relatively easy, but many are difficult primarily because of their small size at hatching and sensitivity to water conditions. The plant and mop spawners are often very difficult (or at least time-consuming), since each egg/fry must be individually manipulated if more than a few specimens are to be raised.

South American annuals have short life cycles, often dying of old age within a year of their hatching. Most are large enough at birth to immediately gorge on newly hatched brine shrimp. They grow rapidly, and reach breeding size within a few months. Spawning is readily accomplished over a substrate such as boiled peat moss. The breeders are maintained over the moss for a period of time which in my tanks usually turns into several months. The peat is then harvested, dried, and stored in plastic bags. After the period of dry incubation, which varies according to species and temperature, the peat is wetted, and presto! Instant fry, which will eat anything in sight.

Using the basic procedure described above, in 1989 I have spawned Pterolebias longipinnis, and Cynolebias species minimus, constanciae, whitei, myersi, and nigripinnis. There are no secrets or alchemy involved. These critters are hard to kill, if you just keep them wet.

African peat spawners are maintained in my aquaria in similar manner to the South American annuals. The period of dry incubation tends to be a little shorter for Africans than for South Americans,

but in my estimation, incubation time is not a factor in spawning difficulty. Some African annuals, such as most of the Fundulopanchax species, are large and ravenous at birth, making their rearing a simple matter. However, as a group (at least in my aquaria), the Nothobranchius species present a real challenge. The Notho species tend to be very small at hatching, and must be started on infusoria. They are sensitive to water pollution, and velvet is often a problem. My success ratio for multi-generation maintenance of Nothobranchius strains is lower than for any other type of killifish.

Using the basic method of dry peat incubation for African peat spawners, in 1989 I have spawned Blue Gularis, Dwarf Red Gularis, Fundulopanchax walkeri, Roloffia nigrifluvi, Aphyosemion species australe and filamentosum lagos, and Nothobranchius species foerschi, guentheri, korthausae, patrizii, and rachovii.

The plant and mop spawners present another set of problems. Sure, if the breeders are kept happy, fry will show up in the tanks. However, with few exceptions, only a few, if any, fry will survive to adulthood in the same tank as the breeders. In order to rear appreciable numbers of these fry, the eggs must be harvested (even worse is trying to harvest the fry, who either get eaten, or quickly become adept at capture-avoidance). The harvested eggs must be inspected at frequent intervals, since dead eggs in a water-incubation system will rapidly pollute the vessel and kill all remaining eggs, and the fry are individually harvested as they appear. Since the fry hatch over a period of time, the older fry tend to grow at a disproportionate rate as they eat the younger fry; avoidance of cannibalism requires sorting, and results in an exponential growth of rearing containers. In short, the mop and plant spawners are a pain.

Using the grunt and cuss method for the mop and plant spawners, during 1989 I have spawned Epiplatys zimiensis, Roloffia guignardi souguetta and Aphyosemion striatum lambarreno. I have not spawned more of these "easy species" this year because I haven't had time to mess with mops and individual eggs.

There are no "tricks" involved in maintaining and reproducing most species of killifish. As is true for most classes of tropical fishes, success follows attention to simple details of feeding and water conditions. I feed a wide variety of live, frozen and prepared foods. I don't use aquarium heaters for killies, and attempt no manipulation of water chemistry except for the addition of rock salt to fry tanks and to the water containing certain species. Regular water changes are part of my normal operating procedure.

Spawning techniques for the killifishes are straight-forward. It actually seems unfair for the "generic" aquarist to have to compete against a killiophile for breeders award point accumulations. In one small room, I have spawned a number of species so far in 1989, and I haven't even started breeding efforts

yet for many other species in that same small room. I shudder to think of the space and effort that would be required to spawn an equivalent variety of, say, cichlids (of course, why would you bother to try? Yuk, yuk, just kidding, cichlid fans!). To be fair to non-killiophile aquarists, the breeder's award categories should be revised to award about one-half point for any species of killifish. An exception might be in order for Rivulus xiphideus; this beautiful and difficult species is one of the "easy" 10 point plant and mop spawners, yet provides daunting challenges in maintenance, much less reproduction, which makes it one of the most prized species in the killifish hobby. My personal breeders award program will be considered a success in 1989 if I can coax out and raise just enough xiphideus to maintain the species for another generation.

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The Mirror

Reviews and reprints of Delta Tale articles

*** REPRINTS ***

John Mangan's "Cloudy Water" was reprinted in the May 89 issue of Tropic Tank Talk, published by the Greater Detroit Aquarium Society.

John Mangan's "Packing Fish for an Auction" was reprinted in the April 89 issue of Fin Fax, published by the Delaware County Aquarium Society.

John Mangan's "Preparing For A Fish Show" was reprinted in the June 89 issue of the Heart of America Aquarium Society News.

George White's "Ten Commandments For Living With Non-Fishkeeping Fans" was reprinted in the April 89 issue of The Daphnian, the journal of the Boston Aquarium Society.

*** REVIEWS ***

Pete Thrift's "My Experiences With the Brown Discus" received a very favorable review in the July issue of The Reporter, published by the North Jersey Aquarium Society, and in the July issue of All Cichlids, the newsletter of the Michigan Cichlid Association.

John Mangan's review of the Tetra Manual of Fish Health was praised in the July issue of MCA's All Cichlids.

Tony Fitz's appraisal of the Meridian Automatic Water Changer received a nice mention in the July issue of NJAS's The Reporter.

Sharon Boone's "Telmatochromis burgeoni: A Harem Spawning Tanganyikan" received a very nice review in the July issue of MCA's All Cichlids.

National Aquarium Society

FOR IMMEDIATE RELEASE
JULY 20,1989

CONTACT: ANNE HOUSE QUINN
(202) 377-2827
FAX (202) 377-4946

GETIING HOOKED ON THE NATIONAL AQUARIUM

Washington, D.C. -- The National Aquarium is fishing for volunteers interested in learning more about our aquatic world and the treasures it holds as America's oldest aquarium.

Volunteers are needed to be docents (tour guides) for the education program. Docents must be available to work weekdays for school tours this fall.

Volunteers are also needed to assist in the exciting fund raising and public relations program of The National Aquarium. Volunteers assist staff members with a variety of tasks such as answering the telephone, typing and computer work (Word Perfect 5.0).

Anyone who has at least 8 hours a month is welcome to swim down and join the sharks and piranhas. If you are interested, please call Kathy Slavin at (202) 377-2826.

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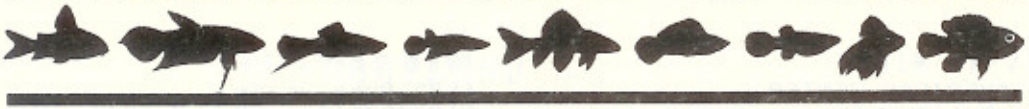
POTOMAC VALLEY AQUARIUM SOCIETY



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How long have you been in the hobby? _____

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Have you ever belonged to another aquarium society? _____

If yes, which one(s)? _____

Individual annual dues for membership in the Potomac Valley Aquarium Society are $12.00 per year, renewable each June.

Please hand this application to any PVAS member, or mail it to the address above. You will be contacted.

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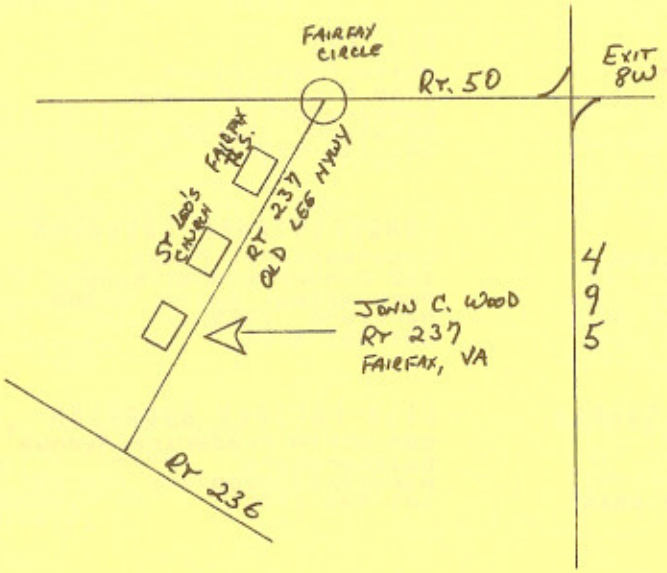

THE POTOMAC VALLEY AQUARIUM SOCIETY WILL MEET ON THESE 1989 DATES

9 JAN	10 APR	10 JUL	18 OCT
13 FEB	8 MAY	14 AUG	13 NOV
13 MAR	12 JUN	11 SEP	11 DEC

MEETINGS ARE AT THE JOHN C. WOOD FACILITY, RT 237 (OLD LEE HWY), FAIRFAX CITY, VA. DOORS OPEN AT 7:30, MEETINGS START AT 8:00 PM

EVERYONE IS WELCOME!!!!!