

* DELTA TALE *

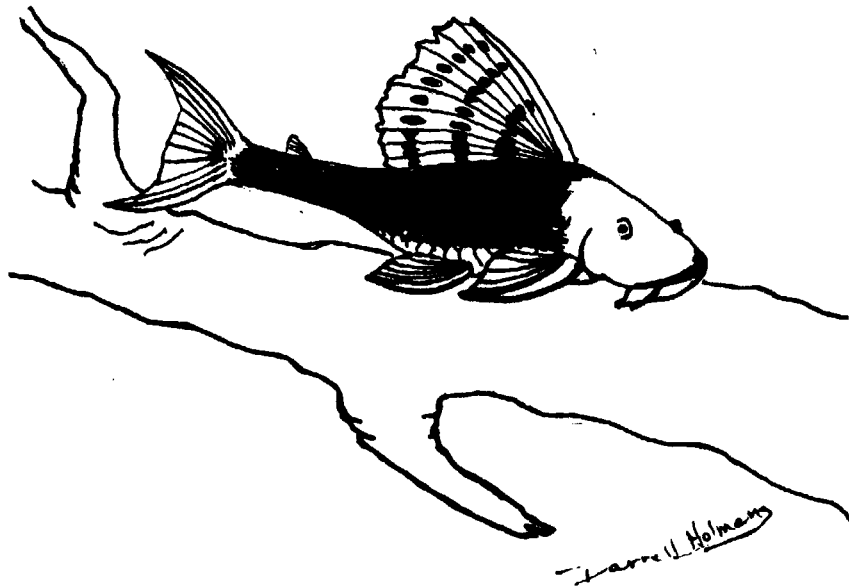
JULY, 1981

VOL. XII, ISSUE 7

OFFICIAL PUBLICATION OF

potomac valley aquarium society

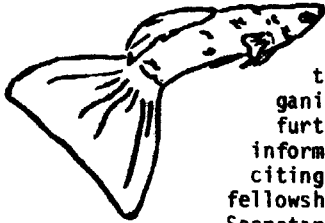
Fifty Cents



ACA CONVENTION, Indianapolis, Indiana, July 17-19, 1981

First Half Bowl Show Standings

PVAS Picnic on JULY 12 at Sligo Creek Park ---Don't Miss It!!



Delta Tale is published for the benefit of the Potomac Valley Aquarium Society (formerly the Potomac Valley Guppy Club), a non-profit organization, established in 1960 for the purpose of furthering the aquarium hobby by dissemination of information, encouraging friendly competition, soliciting participation in its shows, and promoting good fellowship. Correspondence should be addressed to:

Secretary, P.V.A.S., P.O. Box 6219 Shirlington Station, Arlington, VA 22206. Original articles and drawings may be reprinted if credit is given the author and Delta Tale. Two copies of the publication in which the reprint appears should be sent to Delta Tale, which will forward one copy to the author/artist. All material for inclusion in Delta Tale should reach the editor no later than the first Saturday after the monthly Monday meetings. The Potomac Valley Aquarium Society and the Delta Tale disclaim any responsibility for content or availability of advertised merchandise or service in these pages. Customer satisfaction is a matter to be worked out exclusively between the advertisers and buyers.

DELTA TALE STAFF: Editor, Vince Edmondson
Assistants: Carol Kawecki, Barbara Edmondson
Exchange Editors: Gil & Bonnie Baldwin

P.V.A.S. OFFICERS, 1981

President :	Woody Griffin 949-1290	Corr. Sec. :	Chryss Guiler 864-1299
Vice-Pres.:	Pat Mahoney 534-0006	Rec. Sec. :	Maggi Mahoney 534-0006
Treasurer :	Ken Fisher 256-1755		

P.V.A.S. 1981 BOARD OF GOVERNORS

John Jessup, Nancy Griffin, Vince Edmondson, Kenny Warren

P.V.A.S. 1981 COMMITTEE HEADS

Auctions :	Pete Tietjen	Bowl Show :	Jim Hajdics
BAP :	Gerry Hoffman	Programs :	Gerry Hoffman/ Ruth Brewer
Library :	Nancy Griffin	Ways/Means :	Kenny Warren
Membership :	Wayne Hilburn		

MEMBERS OR NON-MEMBERS HAVING QUESTIONS ABOUT FISH, AQUARIUM KEEPING, AND BREEDING CAN CALL ONE THE THE OFFICERS LISTED ABOVE, WHO WILL BE GLAD TO ASSIST YOU, OR REFER YOU TO SOMEONE WHO MIGHT.

Printed by TOP CAT PRINTING, 164 Colburn Drive, Manassas Park, Virginia

MINUTES OF THE BOARD OF GOVERNORS MEETING, June 1, 1981

BOG Meeting was held at the Griffin's residence and was called to order by Woody at 8:10 p.m. Present were Vince and Barbara Edmondson, Ken Fisher, Chrissy Guiler, Wayne Hilburn, Darrell Holman, John Jessup, Pat and Maggi Mahoney, Pete Tietjen, Kenny and Sandy Warren, and Woody and Nancy Griffin.

Woody thanked everyone for the tremendous effort shown in producing the biggest Spring Show and Auction in the club's history, with special thanks going to the concessionaires, who sold in excess of \$100.00 worth of soft drinks, Tee shirts, and assorted other items. Kenny Warren was singled out for a tremendous job in securing the Tee shirts and trophies, and pulling out of storage a lot of Raffle Prizes. Also mentioned were Peggy Holmes, who donated the health food snacks, and Don Sprinkle, of Sea View Aquarium in Dundalk, Maryland, who donated an aquarium set-up, complete with fish and plants.

Letters of thanks have been sent to our judges, and Chrissy will send the donees' letters in a few days. Vince Edmondson commended John Jessup and Pete Tietjen, Show Chairman and Auction Chairman respectively, for the outstanding jobs they did. The board concurred, especially upon being advised that we netted a profit of \$1,370.32 from gross income of \$4,436.59.

Woody announced that he favored an Executive Show Committee to begin now working on next year's spring affair, hopefully making it easier for next year's board and officers. A motion was made and passed in support of same. Named to the committee, which will meet in August, were Vince Edmondson, Ken Fisher, Darrell Holman, John Jessup, Pete Tietjen, and Kenny Warren. Nancy Griffin volunteered to serve on the committee, and other volunteers will be welcome.

We picked up quite a few new members during the big weekend, and welcomed some old members back into membership.

The June meeting is scheduled at the National Aquarium in Washington, D.C., and will include a two-part seminar and guided tour of the facility. There will be a short business meeting and the monthly bowl show, as usual.

PVAS will hold its picnic on July 12 at Sligo Creek Park, Silver Spring, Maryland. Admission is a six-pack of soft drinks. All other refreshments will be supplied by the club. Details will appear in the July Delta Tale.

A discussion was held with regard to the speaker for our upcoming Fall Banquet. No decision was made and more discussion will take place soon.

Meeting was adjourned at 9:27 p.m.

Respectfully submitted,

Margaret E. Mahoney
Recording Secretary

NEW MEMBERS - May, 1981

PVAS picked up quite a few new members, according to our new Membership Chairman, Wayne Hilburn, during the weekend of our Spring Show and Auction. We are very pleased to have the following individuals and families join our Fish Family:

James E. Brueggeman, of Sterling, Va.	Corresponding - 430--4372
Chesapeake Cichlid Club, c/o Art Lembke, of Bowie, Md.	Corresponding - 464--0359
Adam J. Hain, of Lebanon, Pa.	Corresponding (717)273-- 6238
Doran D. Hoskins, of Winchester, Va.	Individual (703)662--0862
Lonnie and Tammy Langione, of York, Pa.	Corresponding - (1-717)-- 848--3736
Adrian Phillips, of Bladensburg, Md.	Individual - 927--1071
Bob Rivers, of Arlington, Va.	Individual - 578--4804
Kurt W. Schnepf, of Reston, Va.	Individual - 435--9159
Robert J. Slodysko, of Arlington, Va.	Family - 525--5286

If there is anything that I might do to make your membership more fun and/or informative, please call me at (202)234-5641 'til 11:00 p.m. I can be reached in the daytime at (202)872-8040. The names and numbers of the officers are listed in the DELTA TALE and there is someone in the club, or available to us, who can answer your questions and assist you in your fish-keeping. WELCOME!!

NOTE, PLEASE, New members and old members, that the Delta Tale is usually printed on the last Wednesday of the month and returned on the last Friday of the month, so that it can be mailed (HOPEFULLY) well in advance of the monthly meeting. Accordingly, it is imperative that materials intended for publication reach me by the 20th of the month prior to publication. Due to the problems associated with the mails, it is advisable to call me if an announcement must be made, to insure its timeliness. Your cooperation would be sincerely appreciated.

Respectfully requested,

Vince Edmondson, Editor
1700 - Harvard St., N.W. #706
Washington, D.C. 20009

BETTA SPLENDENS

by Darrell Holman

My first encounter with trying to spawn *Betta splendens* happened about nineteen years ago. I was still a beginner in the fish-keeping hobby and really had no idea of how to go about spawning these fish. As a matter of fact, the only fish that had reproduced for me had been some livebearers, but I did manage to spawn the Betta and raise about fifty to sixty fry from this first attempt. Then several years later, I started breeding Bettas to make some extra money. This worked out all right, but started to get boring after the first year.

About a year ago, I decided to spawn *Betta splendens* for our club's Breeder Award Program. I figured since breeding Bettas had been so easy for me in my earlier attempts, this would be an easy way to accumulate some more points.

Before I get into the spawning and rearing techniques, I would like to tell you a little about the fascinating Betta. When originally brought into the hobby, the Betta was a drab, quite ugly example of an aquarium fish, but years of breeding has turned it into a very spectacular fish. It has long, flowing fins and can be found in a variety of colors. An interesting feature of this fish is the labyrinthine organ, which makes it possible for this fish to breath air from the surface of the water; consequently, no air supply is necessary. Housing these fish is very simple, since they don't need a lot of room in which to move. All you need is a drum bowl or an empty mayonnaise jar, making it nice if you don't have a lot of room in your house set aside for your fish. A shelf can hold a lot of jars, making it possible to keep many Bettas at one time. I must point out that you cannot keep two male Bettas in the same quarters unless they are separated, because they will fight, sometimes to the death. Feeding Bettas presents no problems, as they will consume almost any kind of commercially prepared food available, though I find it best to use one with a meat base.

To condition my breeders, I feed them a combination of beef heart, liver, flake, brine shrimp, and mosquito larvae. A continuous diet of this (mixture) gets them into spawning condition quickly. After the pair has been conditioned, I set up the spawning tank, a 5½ gallon all glass tank, without filtration or gravel. The tank is then filled half-way with fresh tap water (some authorities say to use a 50/50 combination of distilled water and tap water). The tank is then allowed to sit for a period of four days, after which I introduce the female alone, feeding her heavily for three days on brine shrimp or mosquito larvae. I then add a divider to the tank and place the male on the opposite side. He almost immediately shows interest in the female, displaying his fins and brilliant coloration. After three to five hours of activity, he will begin to build a bubble nest, at which time I usually add some pieces of floating plants so that he may weave them into the nest. When the nest is about the size of a silver dollar, I release the female. The male will chase the female awhile, before they commence spawning, which will usually last a couple of hours. The pair will meet just beneath the nest with the male embracing the female and squeezing the eggs from her.

Only a few eggs are released at a time, with the male fertilizing them, picking them up in his mouth quickly, and placing them in the nest. After spawning has ended, it is best to remove female because the male will chase her away and, if she returns, he might kill her.

The eggs hatch in about forty-eight hours, at which time the male really devotes all of his time catching fallen fry and returning them to the nest. He also keeps an eye open for intruders which may wander into the nest area. In a few more days, the fry will have absorbed the yolk sac and become free swimming. I then remove the male and divide the fry into several 2½ gallon tanks. This is to enable the fry to find food more easily, since I immediately start feeding them newly hatched brine shrimp. They appear too small to eat brine shrimp, but eat them readily, growing very fast on this diet, along with a few feedings of Kordon Fry Flake. At thirty days they look much like their parents, but with little coloration. At sixty days the males need to be separated, so that no fighting goes on.

I feel that Betta splendens are very easy to spawn, and recommend that the beginner, starting in egglayers, give them a try.

Potomac Valley Aquarium Society
Spring Show and Auction
16 and 17 May 1981

Income

Auction	\$3,086.00
Raffle - Tank	604.00
Raffle - Misc.	280.09
Sodas	102.00
Registration	364.50
	<u>\$4,436.59</u>

Expenses

Auction Proceeds	\$1,983.11
Trophies	341.64
Judges	50.00
Luncheon	124.44
Tank	163.59
Advertising	180.74
Misc. Show Expense	111.45
Sodas	111.30
	<u>\$3,066.27</u>

NET \$1,370.32

ANCISTRUS LINEOLATUS

by Vince Edmondson, PVAS

Of the unusual fish that I have come across in my few years in this hobby, none has given me greater pleasure thus far than the bristle-nose catfish, *Ancistrus lineolatus*. These algae-eating natives of the Upper Amazon and Colombia, primarily night feeders are unsurpassed when it comes to ridding a tank of any type of algae, including the blue-green variety which has been an unsightly thorn in many hobbyists' aquaria. Their relatively small size makes them quite convenient for all but the smallest tanks, since they reach a maximum of about six inches.

I obtained a pair a few months ago and placed them in a ten gallon tank with a sponge filter, a piece of driftwood, and a ceramic log which can be found in local fish stores. I fed the four inch female and her slightly longer mate a varied diet of cucumber, scalded spinach and lettuce, live blackworms and frozen brine. I kept the temperature at 76 to 78 degrees without a heater and changed about ten to twenty percent of the water each weekend. There was a buildup of mulm which I occasionally would siphon off the tank bottom. The fish didn't react noticeably to the water changes, so I stopped for a few weeks, but changed their diet almost daily.

Early one morning, I noticed the male chasing the female about the tank and sensed that they were about to spawn. I didn't witness the actual spawning, but noted that the male was in the log and the female was under the driftwood, remaining there for long periods of time. I used a flashlight and was able to see a number of eggs suspended from the roof of the log. The male had "staked out" the area and the female was no longer welcome, so I removed her since the male also refused to eat during his vigil. After a few days, I became very disheartened when the male appeared to be looking for food and no babies were in sight. I assumed correctly that either he had eaten the eggs or that the eggs had fungused.

About fifteen days after placing the female back in the tank, I saw basically the same behavior as before, but the courtship lasted for about two hours at about 2:30 A.M. I again saw the female hiding under or beside her driftwood and knew that the male was guarding eggs again when I checked later in the morning.

I verified the eggs and again removed the female to other quarters. I added a fungicide and replenished my cucumber and spinach supply. In five days, I saw eighteen small catfish, crawling over the driftwood and the food supply, with the ever attentive father nearby. At sixty days, I counted fourteen baby catfish at just over an inch in length, looking very much like their parents.

As soon as the males develop some bristles (the females in this species have none), I'll make some available for you who have a similar likeness for the unusual, as well as beautiful, bristle-nose cats.

FISH DOCTOR

BY John Bertelli, Underwater World
Grand Island Aquarium Society
Grand Island, Nebraska

ICH: Ichthyophthirius multifiliis

The causative agent of ich belongs to a group of one celled organisms whose surface is completely or at least partially covered with cilia. Cilia are thread like appendages used for movement. As a rule they possess a macronucleus which is responsible for regulating the metabolic processes. This is also known as a vegetative nucleus. There is also a micro nucleus (generative nucleus) which is concerned with sexual reproduction.

Ichthyophthirius is a large ciliate, up to 1 mm., which is visible to the naked eye. The size of the organism is dependent on the size of the infected fish and the external circumstances. This ciliate is spherical in shape and has cilia which are evenly distributed over the entire surface. The macronucleus in this species is horseshoe shaped and very prominent. Another characteristic is that it has a continual rotating motion.

The parasite penetrates the mucous coat and the upper layer of the epidermis. Movement of the organism irritates the epidermis. The epidermis responds by producing more epithelial cells causing a layer of the fish's skin to cover the parasite. The swelling of the fish's skin is due to the reaction to the activity of the parasite and not the parasite itself. The organism is always situated between the epidermis and the cutis, where it feeds on red blood corpuscles and disintegrated epithelial cells. While the swarmer is under the fish's skin it matures. When the swarmer matures it bores its way to the surface and once out it drops to the bottom. The formation of the cyst occurs within one hour after the detachment. During this stage there are numerous rapid divisions which form new swarmers. One parent cell may produce between 600 and 1200 swarmers. Cells which don't attach to an object don't develop any further. Also if a swarmer is scraped off before it matures totally, it can produce fewer new swarmers without going through the cyst stage. The swarmers which are released from the cyst go out in search of a host to start the cycle again.

To be able to combat the parasites it is necessary to have some idea of the duration of each stage of development. At a temperature of 10 degrees C. (50 degrees F.) it takes 4 weeks or more from the time of attachment of swarmers to the detachment of adult parasites. At 27 degrees C (80 degrees F.) it takes as few as 4 or 5 days. As stated before, the parasite becomes encysted within approximately 1 hour of detachment. At 27 degrees C., the swarmers are released after about 18 to 20 hours. At a higher temperature it may occur after only 8 to 9 hours. One half hour after liberation the swarmers are infective (able to attach themselves to a host). The swarmers can live up to 48 hours without a host but after 55 hours none will survive.

Fish which are infected show white spots which may form patches if the parasites are very close together. The spots are easily seen with the naked eye and with a very strong magnifying glass the rotating movement can be seen. Affected fish hold their fins close to the body and often try to rub or scrape the organisms off. If the gills are severely infested, the fish become listless and make no effort to avoid capture and eventually die. As with many other diseases Ich seldom affects healthy fish, only those whose resistance has been weakened. A healthy fish may have a couple small signs of Ich without any evidence of distress.

Ich is a very common disease and can be contracted by fish of practically every species. An acid environment is less favorable for swimmers and at a pH below 5.5 growth totally ceases. Fish kept in acid water are therefore less inclined to contract Ich.

There are many ways to cure Ich but I would like to deal with three ways which might not be known too well.

1. **Transfer Method:** Every 12 hours the infected fish are transferred to a tank which is free from parasites. At temperatures below 2 degrees C., the parasites which have dropped to the bottom of a tank during the period the diseased fish was in it cannot have had a chance to produce swimmers. The problem for this method is that it requires 7 tanks to be effective and few aquarists are willing to tie up tanks like this.

2. **Chemical Treatment:** An important point here is that the adult parasites under the skin can't be killed without killing the fish. It is necessary to attack the swimmers. For this reason baths of very long duration are necessary to ensure that all the parasites have left the host. This isn't a new idea but there is a new suggestion to aid the drugs. To speed up the process it is recommended to increase the temperature to 91 or 92 degrees during the day while allowing the temperature to drop to 70 degrees during the night, provided the fish can tolerate this.

Chemical suitable for this technique are malachite green and trypaflavice. I have never tried this method and if you wish to experiment it would be wise to use inexpensive fish first. The treatment should last 4 to 5 days. There are many medications which a reputable pet dealer can suggest which are effective and simple.

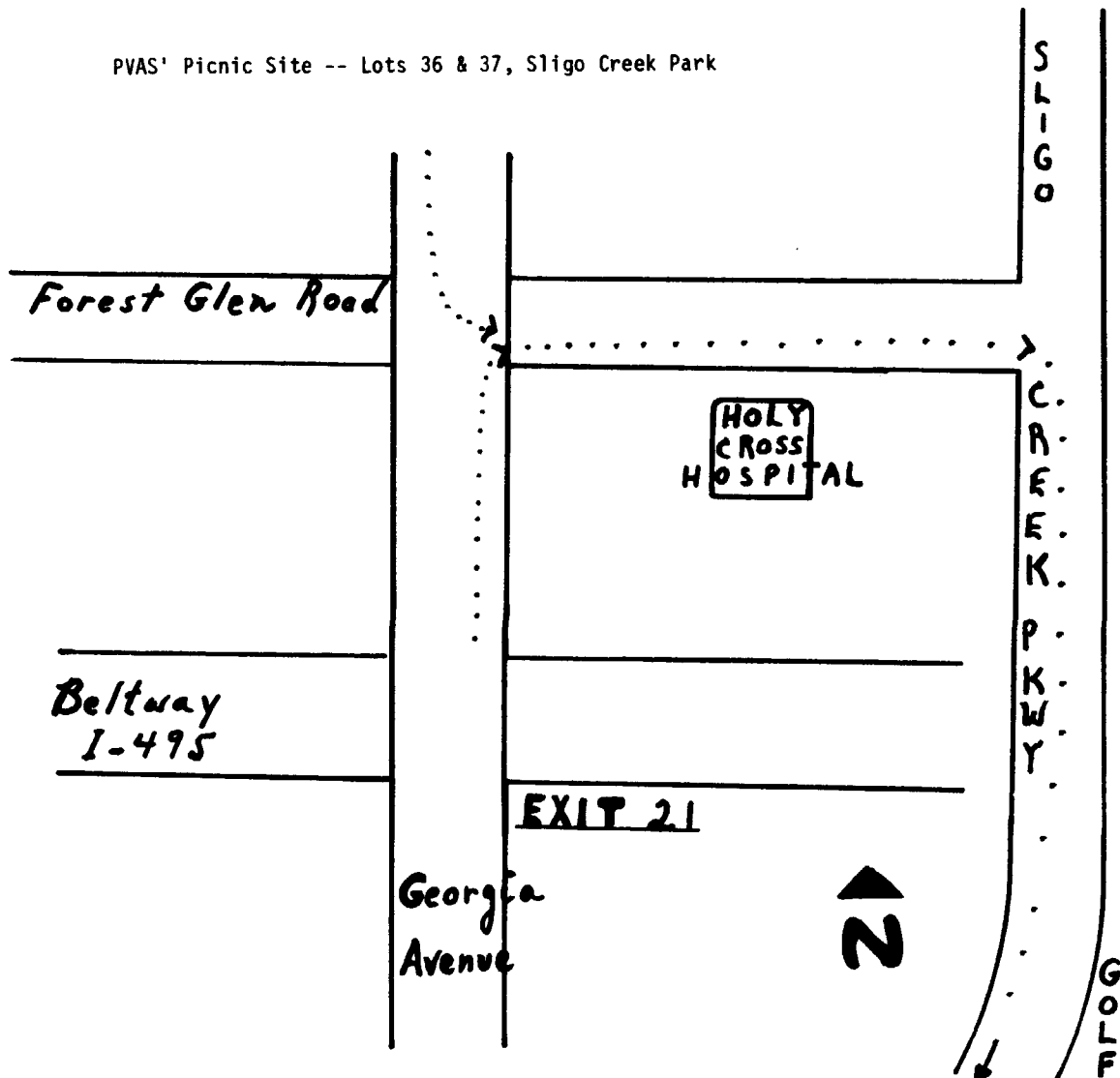
3. **Physical Control:** This method is carried out in a bare tank with strong aeration. In this way the detached parasites can't continue to develop and the infection ceases after some time. Due to the strong currents required, this treatment is recommended for large fish.

LIFE CYCLE OF ICH (ICHTHYOPHTHIRIUS MULTIFILIS)

1. Adult cells present on fish. 2. Adult cells drop to bottom of tank. 3. The cells form a protective cyst and begin dividing. 4. The cyst bursts, releasing the newly formed swimmers. 5. The swimmers become infective and attack the fish's skin. 6. If the cell drops off the host prematurely, swimmers are formed directly without a cyst.

[This article is also found in the October 1979 issue of Colorado Aquarist, the publication of the Colorado Aquarium Society, Inc.]

PVAS' Picnic Site -- Lots 36 & 37, Sligo Creek Park



NEWS and NOTES

A BIG THANKS is due the many national aquarium suppliers, local pet stores, and individuals who donated prizes for the raffle. Without their generosity, no aquarium club can have the kind of success we just enjoyed at our annual show and auction. Hoping to touch all bases, without benefit of the actual listing, donations were received from the following: Gene and Millie Aldridge, Aquarium Stock Co., Aquarium Systems, Inc., Bailey's Pet Center, Creatures 'N Critters, The Critter Corner, Eugene G. Danner Mfg., Inc., G & G Aquatics, Glenmont Tropicals, Rolf C. Hagen Corp., Hartz Mountain, Darrell Holman, Home Aquarium, Jungle Laboratories Corp., Kordon Corp., Longlife Pet Products, Mardel Laboratories, Marineland Aquarium Products, National Petland, Oakton Pet Center, Ocean Odyssey, and Circle Pet. Also, Woody Griffin, Fish, LTD., John Jessup, Sue Liebetau, Ramco Manufacturing, Inc., Sea View Aquarium, Tropical Lagoon (both locations), Tyson's Pet Center, and Wardley Products Co., Inc. If I have included anyone erroneously, you can thank us for the free plug by contributing in the future. If I have omitted anyone, please accept our apology and, if you'll be kind enough to let us know, we'll make an individual apology next month.

Member Mike Havay won the 55 gallon tank set-up at the Spring Show and Auction...as if he needs more water to change. Congratulations, Mike.

PVAS' 2nd Annual Picnic will be held on Sunday, July 12, 1981 at Sligo Creek Park, Silver Spring, Maryland, from 11:00 a.m. 'til... Admission is a six-pack of soft drinks. All other refreshments will be provided by PVAS. At last count, I heard that about sixty (60) people had indicated their intentions to come. If you haven't been contacted yet and intend to come (hungry), please let Woody or your Editor know so that enough of everything will be available. Incidentally, there is a specific Parking Area for Areas 36 and 37, so please park in the proper place. For those not familiar with the picnic grounds, it is located off Georgia Avenue, just North of the Beltway (I-495). Take a right turn at the first traffic light (Forest Glen Road), proceed past Holy Cross Hospital, and make another right turn at Sligo Creek Parkway. The Sligo Creek Golf Course will be on your left and the picnic areas will be on your RIGHT. Hope to see you there! Bring games and sports equipment so that we can do something other than tell fish tales!

In poring through the many exchanges I happen to have on hand, I noted Ginny Eckstein's review of Pat Mahoney's Half-beak report in the Paradise Press, March, 1981, published by the Long Island Aquarium Society and, from the same issue, the following: From: NEWSDAY - "Health Watch," CNS: AFTER A HARD DAY, TRY FISH-WATCHING. Fish may be beneficial to your health. Not just eating them, mind you-watching them. Three U. of Pa. researchers report that quietly watching fish swimming in a home aquarium eases stress, and may offer a means of treating high blood pressure. The fish are the key, the researchers say. People who watch fish tanks with bubbles, pebbles and plants-but no fish-don't benefit nearly as much. The study was supervised by Ecologist Alan Beck, Psychiatrist Aaron H. Katcher, and Biologist Erika Friedmann.

I've extracted quite a few outstanding articles from the exchanges and will get them into print as time permits, along with some newly-received spawning reports from members via BAP Chairman Gerry Hoffman. Several members are approaching the coveted Master Breeder's Award; maybe we'll have an awardee before 1982. If any of our new members are interested in the BAP, please speak up at the July Meeting. You'll enjoy the program and the competition for awards and fun.

'Til next month ...

MOSC AND MOPS

THE CINNAMON KILLIE, APHYOSEMION CINNAMOMEUM

By Greg G. Asbury

Aphyosemion cinnamomeum, the Cinnamon Killie, is an even-tempered killie, with more subtle coloring than its closely related cousins of the genus. This killie is one of the substrate spawning varieties and is partial to the lower areas of the tank, hiding under plants and in the peat. As with all killies they should be kept in a tightly covered tank, as they are prone to fits of jumping. The Cinnamon Killie seems to be able to tolerate wide ranges of water conditions, but if kept in soft/acid water, some salt should be added to the water in order to control velvet.

The coloring of A. cinnamomeum is a typical of the genus, in that there is an almost total absence of red pigments. The body is an overall pastel violet with maroon reticulation around the scales. The edges of the pectoral, pelvic, anal and caudal fins are a velvety cinnamon yellow, with a maroon submarginal band in the anal and caudal. The unpaired fins are also scattered with blotches of maroon and light blue. The female is typical drab tan, as is characteristic of the genus. A. cinnamomeum males reach a length of 2½ to 3 inches with the females being slightly smaller. In spawning colors, the Cinnamon Killie is one of the most beautiful fishes available to the hobbyist.

The Cinnamon Killie is best kept in hard/alkaline water and is quite comfortable in extremes of hardness and alkalinity. I am keeping my killies in water that is 350 ppm + and has a pH of 7.8-8.0. In water of these extremes I have found it beneficial to reduce the frequency of water changes. By close observation of the fishes one can observe when a partial water change is needed. One sure sign is dark blotching on the body that has been called "acidosis" by Marshall Ostrow. I have observed this in my fishes and it does indeed indicate a weakened state, but it also seems to be linked to feeding. So I change the water when the fish look like they need it and otherwise leave them alone. A. Cinnamomeum seem most comfortable in water temperatures ranging around 20-22 degrees C., but will tolerate temps from 16 to 24 degrees C.

Feeding this fish is a joy, as they eat most anything. I feed the following: Tetramin, F.D. tubifex, F.D. brine shrimp, F.D. mosquito larvae, F.D. daphnia, frozen beef heart, frozen tubifex and frozen brine shrimp. Of course

they love live foods and they relish the following: Brine shrimp, tubifex, daphnia, gummaris, mosquito wigglers, chopped earthworms and white worms. A varied diet is often the key to success in the breeding of fishes and when you get a fish that eats like this, the odds are stacked in your favor. Also, I have found live tubifex to be an important part of the diet in killies. Egg production can be increased two to three times by feeding this food 3 or 4 days a week.

Another nice thing about the cinnamon killie is that they live a long time for a Killie. I have a female, given to me by Mike Wilson, that is 2½ years old and is spawning regularly. I have heard of them living as long as 3½ years. Along with longevity is another factor. They grow slowly! Taking up to 8 months to mature.

I have handled the spawning of this species in two ways. I have used both a permanent set up and temporary set up in the spawning of this fish. I prefer the former technique but use the temporary method when someone requests eggs. It's the simplest, so I'll describe it first.

Separate the spawning pair for a week or two and feed them well. The female would blow up like a balloon with eggs. Place a peat pellet in a 2½ gallon drum bowl with water from the tank that the female has been in. After the peat has all sunk to the bottom of the bowl add the fish. After about 4 to 7 days the female should be skinny again and the fish removed. Now the peat must be dried and bagged. The easiest way I've found to do this is to pour the peat through a fine mesh net, gently squeeze out the excess water and let it set out overnight. The next morning place the peat in a plastic bag and mark it as to species and hatch date. The incubation period in peat is 40 to 45 days. Mark the hatch date on your calendar before you forget. On the day indicated, wet the peat with some aged water. The fry should appear within the next twelve hours. If none of the eggs hatch in that time, redry the peat and rewet it with fresh water. Something about the pH change seems to trigger hatching.

Start the fry on infusorians, rotifers, microworms, vinegar eels or artemia napulii. After a couple of weeks you can add sifted daphnia and finely ground flake food to their diet. I have been experimenting with freeze dried daphnia as a fry food with good success on most killies. As I said before, the fry grow slowly, but be patient with them and you will be well rewarded.

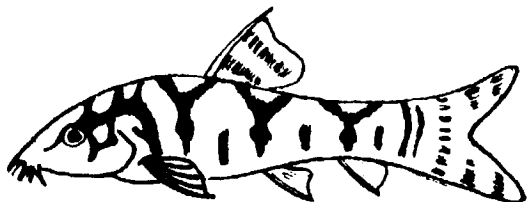
The permanent set up is considerably easier, that's why I prefer it. The hatch rate seems to be better and the fry are bigger and stronger. I use a 5 gallon tank set up with a normal undergravel filter using 1/8" grain gravel.

I have some *Cryptocorynes* growing in the tanks for hiding places for the females. A pair or trio occupies the tank, and there is little trouble with the males being rough on the females of this species. About every three weeks I clean the substrate and collect the eggs. I use a squeeze-ball type of gravel cleaner with a muslin bag on it which returns the water to the tank. Inside the bag are a number of things including eggs, fry, mulm, and microorganisms found in the gravel. This combination of material is the medium the eggs have been incubating in and is on the acid side of the pH table. Carefully picking the eggs out of this material can be difficult, so I just dump the contents of the bag into a small container of fresh water the same temperature as the tank. The change in pH seems to trigger hatching in the mature eggs, and fry begin to appear almost immediately. I usually let this mixture set for 12 to 36 hours. Then I catch the fry in a dip tube and transfer them to a rearing aquaria. I then pour the mixture through a fine mesh net in order to collect the rest of the eggs. As these eggs are in various stages of development, I place them in a dish and remove the fry as they hatch.

This method of handling killies is useful to the forgetful or lazy killie fancier. There is no collection of bags of peat to keep track of, or dates to remember. And the fry are all the same size because they hatch at approximately the same time. And the fry seem to be larger and stronger when incubated this way. I have used this technique on many other soil spawning killies as well as those that are notorious switch spawners.

So, if you want to try a different substrate spawning killie, that doesn't require a lot of water doctoring, the Cinnamon Killie may be for you. They offer a lot of advantages that other killies lack in terms of ease of care, and are relatively prolific if given a proper diet. Not to mention their beauty and longevity.

Reprinted from Kitsap Aquarium who reprinted it from The Plecostomus who reprinted it from The Fish Net who reprinted it from THE COLORADO AQUARIUM: Colorado Aquarium Society, Inc. - 5444 Clay Street, Denver, Colorado 80221



Darrell Holweg

A PRIMER ON PHOTOGRAPHY, PART III

by T.C. Hodgson, II, Tank Topics
Greater Akron Aquarium Society, March, 1980

This month the topic to be presented is film and its characteristics. To properly discuss the characteristics of film one must understand certain information pertaining to light. These two topics will intersperse during this discussion.

What is good color. There are three goals pertaining to color rendition. Color can be natural, i.e., the color in the transparency can match the color of the object viewed in white light. It can be accurate, in which case it may not look natural. It can be effective, aesthetically satisfying, regardless of accuracy or naturalness. Therefore each time one exposes a picture he must determine the combination of film, light, and impression desired. The term impression is totally mine and refers to the many aspects of selection open to the photographer. Film must be chosen by film speed (asa), grain, and color rendition. Film must be balanced to the exposure light temperature or filtered to create impression. Most of us have seen pictures published in various books, relating to the hobby, which just didn't look right. Either they were too drab or possessed unnaturally vivid colors. This is the downfall of photographic communication! I will not try to recomend any of the three conditions to you as a standard. Personally, my tastes vary depending on the use of the photograph. For publication with a technical article I would use the natural renditioning of of the subject. For advertising or a slide show to gain interest in the hobby I would use effective renditioning. Simply be advised that renditioning is a variable and realize when your senses are offended when looking at a picture it was the photographer's fault for selecting poor renditioning, or just using any old picture available -- perhaps T.F.H. can explain this better than the author.

How can the picture of the same subject, with the same film, at different times change in color rendition. Light is the variable! We as human beings are color programmed based on midday white light. When we see a white shirt under tungsten light (regular light bulbs) we record a white shirt even though, in that light, it is actually yellowish. This rationalization cannot be built into film! It sees a yellowish shirt and records the same. No adjustment is made by the film to make it white. If we want a white shirt we must adjust the temperature of the reflected light or try to filter to the film's color temperature, or select a film adjusted to the light. Sun light is our basis for color. In the earlier hours of the day as well as the later hours the sun's light must travel through more atmosphere. The passing of light through air depletes certain wavelengths more readily than

others by refrigeration. Red waves are the longest and travel most safely. The next longer waves are green and the shortest are blue. Thus, in the morning and late afternoon daylight assumes a yellow-orange quality. This is known as warm light while predawn and after sunset light assumes a blue cast known as cold light. This occurs because the only light visible is refracted light and we already know blue refracts most easily. This same thing happens underwater. Reds disappear by 20 feet, orange is gone by 30 feet, yellow is gone by 60 to 70 feet, and at 100 feet everything takes on a blue or blue-green cast. I might point out that the egg spot theory should be evaluated on this basis as well as certain fishes color patterns. Possibly at the depth at which they reside in their natural habitat the colors are not in the light and therefore are not reflected as in our tanks!!!!

Color temperature as mentioned previously was determined to exist by Lord Kelvin and carries his name as a measurement, degrees Kelvin. The method at which color temperature is derived is of little importance to this discussion but, briefly, it is determined by the number of degrees of heat to derive a true color from a radiator. If you're really interested write to Photo Question Box.

The following is a list of color transparency film available in most good photographic stores. We shall examine only transparency film for color negative films can be printed with any color rendition and unless you are printing your own you will not have control. Your processor and printer probably cannot maintain consistency as subtle as that of which we speak either for he buys different lots of paper and chemicals. Black and white film can be adjusted by scale and contrast as well as grain but I think fish pictures should be in color for the hobbyist.

- | | |
|---|---|
| Kodachrome II
daylight
(ASA 25) | Balanced for 5500K (approximate daylight): excellent skin tones; clean, slightly warm whites; soft, natural greens; violet-tinged blues; bright oranges and reds; extremely fine grain. |
| Kodachrome II
Professional,
Type A tungsten
(ASA 40) | Balanced for 3400K (photoflood lamps): slightly cool, pleasant warm skin tones when exposed to professional or other 3200K studio lights; very fine grain. |
| Agfachrome CT 18
daylight
(ASA 50) | Balanced for 5500K (approximate daylight): clean whites; crisp blues; excellent greens; excellent warm colors; magenta cast in skin tones; moderate grain. |
| *3M Color Slide
daylight
(ASA 50) | Balanced for 6000K (approximate daylight): slightly contrasty skin tones; clean whites; bright greens; bright blue sky; very good oranges and reds; relatively fine grain. |

Ektachrome-X daylight (ASA 64)	Balanced for 5500K (approximate daylight): slightly cold skin tones; slightly cold whites; bright greens; light blue sky; excellent warm oranges and reds; relatively fine grain.
GAF 64 Color Slide Film daylight (ASA 64)	Balanced for 6000K (approximate daylight): yellow cast in skin tones; slightly yellow-tinged whites; rich blue sky; soft good greens; rich oranges and reds; relatively fine grain.
Kodachrome-X daylight (ASA 64)	Balanced for 5500K (Approximate daylight): slightly warm skin tones; clean whites; excellent greens; slightly violet-tinged blue sky; moderately fine grain.
Fujichrome R-100 daylight (ASA 100)	Balanced for 6000K (approximate daylight): excellent skin tones; clean slightly warm whites; soft greens; rich blue sky; bright oranges; good reds; relatively fine grain.
Sakura Color R daylight (ASA 100)	Balanced for approximate daylight: brilliant blues; deep reds; slightly soft yellows; blue-tinged whites; overall pleasing tone; moderate grain
High Speed Ektachrome tungsten (ASA 125)	Balanced for 3200K (floodlights): excellent for available light; cool toned outdoors at night normal to warm balance indoors; moderate grain
High Speed Ektachrome daylight (ASA 160)	Balanced for 5500K (approx daylight): excellent skin tones; clean, slightly warm whites; slightly bluish greens; rich blue sky; excellent oranges and reds; excellent for warm-toned available light outdoors at night; moderate grain.
GAF 500 Color Slide Film daylight (ASA 500)	Balanced for 6000K (approximate daylight): only for subjects requiring high shutter speed or in low light level; red cast in skin tones; slightly magenta whites; dull greens; slightly violet-blue sky; contrasty oranges and reds; VERY COARSE GRAIN.

After reading the above list it is possible to see that no two of these films will produce the same results. At this point if we review each of the articles in this series it is obvious that the number of

variables set against the learning photographer approaches celestial magnitude. **STRONG ADVICE -- SELECT ONE METHOD OF OPERATING NEVER ADDING MORE THAN ONE VARIABLE AT A TIME UNTIL THE RESULTS SUGGEST ADOPTION OR CHANGE OF THE VARIABLE!!!!!!!** I have included film and its characteristics prior to other exposure information simply because I assume you don't know everything or you wouldn't be reading this series, and film characteristics are most readily obvious on bad shots. Therefore, while you're learning to take good pictures switch around the film type and learn which ones you like.

Films are either set for approximate daylight or tungsten use. This is the range of color temperature at which the best results are obtained from the film emulsion. The exposing light must be of the color temperature for the film or filtered to it to obtain acceptable results. 5500K to 6000K is recognized as approximate daylight, but the density of the filter required reduces f/stops and thus depth of field to less than the limits needed for good fish pictures. If you wish to use tank lights for available light photographs try one of the tungsten films balanced at 3200K.

The American Standards Association established certain guidelines regarding the exposure intensity of light to create an image on film. ASA is the term used by the manufacturer to signify the type of scale he is using to determine film emulsion speed. This number tells you how to expose the film under normal conditions. ASA 25 film speed means more light is needed to expose this film than ASA 100. You probably noted that as film speed increases so does the corresponding grain of the film. For the best pictures we want the least amount of grain possible with the film speed we need to take our pictures with the greatest depth of field. When selecting a film then you must know the guide number of your flash or try the dial used to determine f/stops on your flash at different ASA ratings. If you are using a focal plane shutter your shutter speed is constant. Your flash output hopefully is also constant at a specific distance. Therefore, the only variable to exposure is the film speed. Try for a f/stop of at least 5.6 with a good lens and preferably f/8, f/11, or f/16. This will depend upon the power of your flash and the distance from subject to camera. If you can't get the higher f/stops don't run out and buy a bigger flash unit until you read next month's article on light.

The final variable is grain. Grain is the pattern you see in some pictures which can be used creatively but is normally a bother. The least grainy film you can use is the best.

My recommendations regarding a basic film for most fish photography would be based on the light output of your flash and the distance of your exposure. I would recommend the least grain for the best color rendition of your work. This means at one time or another I would probably recommend most of the films on the list on previous pages. If your flash can perform with Kodachrome II try it. Mine can at 70 ft. but I don't like the colors. To be truthful the color I don't like is green. Consulting the film list I find the information-natural greens. The green I'm talking about is money, however, if you're not processing your own color slides I would give it a try. I use Ektachrome-X and Fujichrome because I can develop them myself and know how to use selective color compensating filters with them to get the most desired result. Try Ektachrome-X and Kodachrome-X for good medium speed films. And Fujichrome for a real treat!

BOWL SHOW STANDINGS, MAY, 1981

<u>CICHLID STANDINGS</u>	<u>MONTH</u>	<u>QUARTER</u>	<u>YEAR</u>
Jim Hajdics	12	16	32
Woody Griffin	0	6	12
Wayne Hilburn	0	6	10
Amy Stirman	0	0	8
Bill Kent	0	6	6
Garland Neese	0	0	4

EGGLAYER/LIVEBEARER STANDINGS

Jim Hajdics	12	28	42
Mark and Ruth Prendergast	0	0	30
Wayne Hilburn	12	16	24
Amy Stirman	0	0	16
Woody Griffin	0	12	12
Gerry Hoffman	10	10	10
Bill Kent	0	2	2

Thanks to Jim Hajdics, our new Bowl Show Chairman, for his very timely recap of the May standings. Of course, Jim has added incentive to set the record straight since he is the leader of each category as we head into the second half of the year. Jim would be encouraged even more, as would most of us, if some of our new members, and veterans, would participate in the monthly shows. The July categories are CICH-LIDS: New World Medium, Haplochromis, and Open; EGGLAYER/LIVEBEARERS: Guppies, Barbs, and Open.

GEOPHAGUS BRASILIENSIS

by Vince Edmondson, PVAS

One of the truly beautiful sand-sifters from the Amazon River Basin and the adjacent coastal rivers is the "Pearl Cichlid," *Geophagus brasiliensis*.

I purchased three (3) two and a half inch fish several months ago and placed them in a twenty gallon (long) tank with a number of similarly small fish and a few *Corydoras* catfish. The usual chasing and nipping ensued and I soon realized that one of the *geophagus* had grown quite plump, and that one of the other two fish was very attentive to what was presumably a female. I removed the smaller (and less aggressive) third fish and placed a rock against the left rear side of the tank. A small flower pot was placed nearby, in an upright position. The two remaining fish soon began moving gravel from behind the rock, but little else could be observed of the breeding sequence.

I found it necessary about two days later to place a divider in the tank when one of a pair of *Cichlasoma septumfasciatum* was damaged by what was apparently the male *brasiliensis*. I say apparently only because the *Geophagus* species as a rule are essentially isomorphic, making sexual identification difficult at best. Having read of the generally peaceful nature of the *Geophagus* species, I sensed that a pair-bond had been formed and that any fish which now approached the intended spawning site would indeed risk injury. The pair would alternately guard the area behind the rock and the newly-created mound of gravel, and I was able to see the female's breeding tube extended later that evening. I looked the next day and evening, but couldn't see the eggs which I felt certain had been laid. I then noticed that the pair had moved the gravel around some more and were seemingly shifting their interest to an area behind the nearby flower pot. They were contentedly awaiting the hatching of their still invisible (to me) babies.

On the fifth day, I noticed a swarm of reddish-brown wrigglers, still carefully watched by the proud parents, who would take turns eating, guarding, and moving the fry to other pits in the gravel. I started feeding the babies Kordon Baby-Fry Diet and frozen daphnia and baby brine shrimp. I fed them live baby brine once or twice, but raising them successfully has never been my strong suit. Furan-2 was added to the tank as a fungicide for the approximately 150 new inhabitants, forty of which were moved ten days later to a five gallon tank containing a pinch of Holdex.

My male was badly damaged once I removed the divider and I could only surmise that the *C. septumfasciatum* retaliated. I soon learned that the third fish of the original trio was also a precocious male when he spawned with the same female, producing 200 fry. The first babies were three-fourths of an inch at sixty days and were profitably dispatched to a local shop after the appropriate verification(s).

BOWL SHOW RESULTS AND STANDINGS, JUNE, 1981

CICHLIDS

New World Large

1st - No Entry

2nd - " "

3rd - " "

Rift Lake, Mbuna

1st - Melanochromis auratus -
Jim Hajdics

2nd - No Entry

3rd - " "

Open

1st - Black Lace Angel - Gerry
and Karen Wagner

2nd - Pelvicachromis pulcher (krib)
Leslie Stirman

3rd - Red Zebra - Amy Stirman

EGGLAYERS/LIVEBEARERS

Anabantoids

1st - Red Betta - Leslie Stirman

2nd - No Entry

3rd - " "

Catfish, Corydoras

1st - Albino Corydoras - Jim Hajdics

2nd - No Entry

3rd - " "

Open

1st - Cynolebias nigripinnis - Jim Hajdics

2nd - Cynolebias whitei - Jim Hajdics

3rd - Aphyosemion bualanum - Jim Hajdics

CICHLID STANDINGS

Jim Hajdics
Woody Griffin
Wayne Hilburn
Amy Stirman
Bill Kent
Gerry and Karen Wagner
Leslie Stirman
Garland Neese

MONTH

6
0
0
2
0
6
4
0

QUARTER

22
6
6
2
6
6
4
0

YEAR

38
12
10
10
6
6
4
4

EGGLAYER/LIVEBEARER STANDINGS

Jim Hajdics
Mark and Ruth Prendergast
Wayne Hilburn
Amy Stirman
Woody Griffin
Gerry Hoffman
Leslie Stirman
Bill Kent

18
0
0
0
0
0
6
0

46
0
16
0
12
10
6
2

60
30
24
16
12
10
6
2

NOVICE CLASS: Red Betta - Les-
lie Stirman

MEMBERS CHOICE: Black Lace Angel - Gerry and
Karen Wagner

JUDGES: No Listing

BAP REPORT

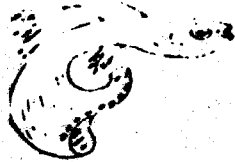
NAME	POINTS AWARDED
Garland Neese	580***
Pat and Maggi Mahoney	445***
Gerry Hoffman	430***
Woody Griffin	405***
Ruth Brewer	305***
Vince Edmondson	265**
Darrell Holman	255**
John Jessup	210**
Sue and Mike Sprague	165**
Kenny Warren	90*
Gene Aldridge	80*
Jim Hajdics	70*
Tom Wright	55*
Thompson Family	35
Amy Stirman	10

RECENT POINTS AWARDED (as of 6-17-81)

Woody Griffin -----	Marble Sailfin Molly (10 points) Black Tetra (25 points)
Gerry Hoffman -----	Buenos Aires Tetra (25 points)
Darrell Holman -----	Leibistes reticulatus, Guppy species (10 points) Gymnogeophagus australe (15 points)
Pat and Maggi Mahoney --	Aphyosemion gardneri "Nsukka" (10 points) Pseudotropheus Zebra, red-red (10 points) Aphyosemion australe, gold (10 points)

I owe a sincere apology to Kurt Schnepf for failing to list his BEST OF SHOW entry in last month's show results, though it was on the Best in Class, Egglayers (Non-Cichlid) listing on page 12. Kurt won with a Red Betta splendens and though I had the presence of mind to congratulate him personally at the show, I didn't see it on the list given to me and didn't note it timely. Kurt also became a member of PVAS and, in light of his victories, should be heard from again and again in the months to come, maybe in the monthly competitions as well.

The June Meeting at the National Aquarium was well attended and the outstanding presentation by Mr. Craig Phillips and his staff was both entertaining and informative. We owe Member Wayne Hilburn for his efforts in arranging a truly enjoyable evening. Maybe we'll be fortunate enough to visit again in the near future.



**POTOMAC VALLEY AQUARIUM SOCIETY
PO BOX 6219, SHIRLINGTON STATION
ARLINGTON, VIRGINIA 22206**

Date _____ 19 _____

APPLICATION FOR MEMBERSHIP

NAME _____

STREET _____

CITY _____ STATE _____

PHONE _____ ZIP CODE _____

Number of tanks _____

Type of fish _____

Time in hobby _____

Fish you have spawned _____

What you would like to do in this Club? _____

Which sub-group interests you? (guppy, cichlid, other) _____

How long do you plan to be in this area? _____

Occupation _____

Membership dues for the Potomac Valley Aquarium Society are:

Family	\$10.00	Corresponding	\$5.00
Individual	\$ 7.00	Junior	\$3.00
		(under 18)	

Completed applications accompanied by your check or money order should be mailed to P.V.A.S., P.O. Box 6219, Arlington, Virginia 22206.

Please attend our meetings at the Coca-Cola Bottling Plant, 5401 Seminary Road, Alexandria, Virginia at 8:00 P.M.

Potomac Valley Aquarium Society
P.O. Box 6219
Shirlington Station
Arlington, VA 22206

FIRST CLASS MAIL

1981 MEETING DATES:

JAN. 12	APRIL 13	JULY 13	OCT. 12
FEB. 9	MAY 11	AUG. 10	NOV. 16
MAR. 9	JUNE 8	SEPT. 14	DEC. 14

Meetings are held at the Coca-Cola Bottling Plant Hospitality room,
5401 Seminary Rd., Bailey's Crossroads, Alexandria, Virginia.

Meetings start at 8 p.m. Doors open 7:30 p.m. Bowl Show registra-
tion 7:45 p.m., to 8 p.m.