

DELTA TALK

OFFICIAL PUBLICATION OF P.V.A.S.

MAY 1973

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VOLUME 4
ISSUE 5

Call

DELTA TALE is published for the benefit of the Potomac Valley Aquarium Society (formerly the Potomac Valley Cuppy Club), a non-profit organization, established in 1960 for the purpose of furthering the aquarium hobby by disseminating 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 6067, Shirlington Station, Arlington, Virginia, 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.

All materials for inclusion in the DELTA TALE must reach the editor no later than the 10th of the preceding month.

OFFICERS FOR 1973

President	John Jessup
Vice-President	John Wolcott
Recording Secretary	Linda DeRoze
Corresponding Secretary	Richard Baker
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BOARD OF GOVERNORS

Eugene Aldridge	Kenneth Raab	Susan O'Meara
	Mike Sprague	

1973 MEETING DATES

Jan 8	Apr 9	Jul 9	Oct 8
Feb 12	May 14	Aug 13	Nov 5
Mar 12	Jun 11	Sep 10	Dec 10

**THE
VANDERBILT
AQUARIUM
SOCIETY**

*Invites all
Tropical Fish*

HOBBYISTS -- BREEDERS & DEALERS

**TO OUR
SPRING fish show**

MAY 19 & 20, 1923

RULES OF SHOW

1. Entries will be judged by visual elimination in each class in accordance with current class standards.
2. Exhibitor will be responsible for proper classification of his own entries. There will be assistance provided by a member of the show committee if needed. Entries will be considered for re-classification by the judges if improperly placed, and then ONLY if authorized by the exhibitor.
3. No entries will be removed, once entered, until completion of the awards presentation, except that dead or sick fish may be removed by a member of the show committee.
4. Decision of Judges in all classes are FINAL. AFTER JUDGING is complete, questions may be asked of the judges.

The following Classes are open to public competition:

I. GUPPIES

- a. RED
- b. BLUE
- c. GREEN
- d. MULTI
- e. AOC
- f. H/BLK RED
- g. H/BLK AOC
- h. SNAKESKIN
- i. BLACK
- j. FEMALE
- k. 2 MATCHED MALES
- l. 3 MATCHED FEMALES
- m. 5 MATCHED MALES

II. LIVEBEARERS

- a. SWORDTAILS
- b. PLATYS
- c. MOLLIES
- d. OTHER

V. SET TANKS

III. EGG LAVERS

- a. CATFISH-CORYDORAS
- b. CATFISH-ALL OTHER
- c. ANABANTIDS
- d. BETTAS
- e. SHARKS & LOACHES
- f. CHARACINS, BARBS, TETRAS
- g. KILLIFISH (AFRICAN)
- h. NATIVE AMERICAN
- i. OPEN

IV. CICHLIDS

- a. CENT. & SO. AMERICAN (LARGE)
- b. CENT. & SO. AMERICAN (MEDIUM)
- c. CENT. & SO. AMERICAN (DWARF)
- d. ANGELFISH
- e. AFRICAN RIFTLAKE
- f. AFRICAN TILAPIA
- g. NON RIFTLAKE AFRICAN
- h. CENT. & SO. AMERICAN BREEDING PAIRS
- i. RIFTLAKE BREEDING PAIRS
- j. BREEDING PAIRS (DWARF)
- k. ALL OTHER

SPECIAL PLAQUE

- l. SMALLEST MATURE ADULT FISH ENTRY
- m. LARGEST ENTRY BY SIZE

VI. DEALERS TANKS

SHOW YOUR FISH

FISH SHOW
POTOMAC VALLEY AQUARIUM SOCIETY
MAY 19 & 20 1973

GENERAL RULES

ENTRIES--Accepted 9:00 a.m. until 12:01 p.m. Saturday May 19, 1973
Includes fish--set tanks--dealers tanks

Judging -- 12:15 p.m. to 2:30

Open to Public -- 2:30 to 5:00 p.m.

2 Quart drum bowls are available, please advise number required prior to Show Date (\$1.00 Deposit Required)

All tanks or larger size drum bowls must be provided by entrant

CLASSES I through IV may not have individual lights or decorations. Air and heat, provided by entrant, are permitted in Class II through IV

Class I (Guppies) single entries will be shown in 2 quart drum bowls. All others in drum bowls or larger container not to exceed 2 1/2 gallon tank.

CLASSES V and VI Set tanks and dealers tanks--all equipment must be supplied by the entrant--Tank--Stand--Filters--Lights--Extension Cords--etc., No Restriction on tank size.
NO ENTRIES WILL BE ACCEPTED WITHOUT STAND

ENTRY FEES--SINGLE FISH \$1.00 (female may be added, but will not be judged)
MATCHED FISH \$2.00--SET TANKS \$2.00--DEALERS free

AWARDS--Trophies for 1st place--Ribbons for 2nd and 3rd place for CLASSES I - V. Dealers have rotating trophy
ONE Best of Show Trophy for Classes I - II - III - IV

MAY 20, 1973

OPEN TO PUBLIC 10:00 a.m. to 4:00 p.m.

RAFFLE promptly at -- 2:00 p.m.

AWARDS promptly following Raffle

AUCTION immediately after awards--

Fish bowls and other entries will not be removed prior to presentation of awards.

Fish designated for auction may not be withdrawn. PVAS receives 25% of selling price.

PRIVATE SALES of fish within the show area are PROHIBITED!

COME AND MEET OTHER TROPICAL FISH HOBBYISTS

FOR FURTHER INFORMATION CALL 262-4213

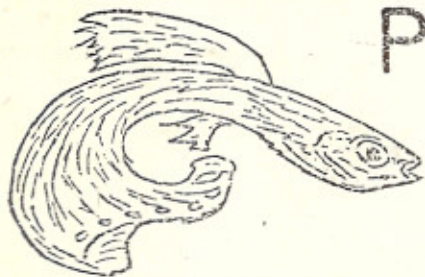
Hospitality Room
Coca Cola Plant
5401 Seminary Road
Alexandria, VA.

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ART WORK

Our cover this month of an African cichlid community is the work of Cathy DeLucien. The sketches in the remainder of this issue are by Kenry Pettingill.

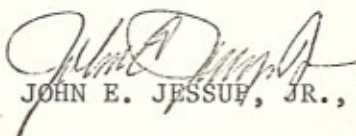


POTOMAC VALLEY AQUARIUM SOCIETY

FROM THE PRESIDENT

At about the time this is being printed I will be in New York attending a historical conference. I hope the schedule is such that I'll be able to visit a few of the fish shops as there are usually many varieties to be seen that never get into the Washington area. This is especially true in cichlids and I suppose many varieties are not coming into the country in sufficient numbers to get by the demand in the New York area. The trip will also give me a chance to check with some of the major importers on the status of restrictions placed on vertebrates by the Department of Interior.

Next month is a big one for the Society. Our Spring Show will be held 19 - 20 May and we all hope it will be as successful as last year's Fall Show. John Wolcott will be contacting many of you for assistance and I hope you will be able to help out.


JOHN E. JESSUP, JR., Ph.D.

EDITORS' NOTE

Again this issue is primarily our own work. Mike Sprague's interview of the Hardy family has resulted in a worthwhile by-product, a new fish club in Mr. Hardy's home town in West Virginia. Our article by Mike in this issue was printed in a local West Virginia paper and started the ball rolling. Gene Aldridge researched aquarium photography and provides a very useful article in this issue. John Wolcott recommended the article on guppy environment factors. However, we still have a lot of people who have yet to make good on their promises, even if the promises were sort of squeezed out! Please come through, we don't want to use too much of other people's material. Also, feel free to make suggestions or criticisms at our monthly meetings.

Alan Levitt has been sick and his "Notes From The National Aquarium" will not appear this month.

Don and Linda DeRoze

MEMBERSHIP AND THINGS

My column this month emphasizes "things" rather than "memberships," as I have a number of notices, reminders and requests to offer.

First a big THANK-YOU to Chuck and Genny Story. The Storys help me assemble and address the DELTA TAIL each month. Without their help I would spend many hours each month wandering around my dining room table collating the bulletin. Thanks again, Chuck and Genny!

Oh, about the DELTA TAIL - please keep me informed of address changes. Several DELTA TAILS were returned recently because of incorrect addresses. Send your address changes to the P.V.A.S. post office box.

Remember to attend the 1973 Mid-Atlantic "All Species" Tropical Fish Show sponsored by the South Jersey Tropical Fish Association. The show will be held May 4-5-6, 1973 in the Community Room, Cherry Hill Mall, Route #38 and Haddonfield Road, Cherry Hill, New Jersey. The show will be open to the general public Saturday, May 5th, 4:30 P.M. to 10:00 P.M. and Sunday, May 6th, 9:00 A.M. to 6:00 P.M. A fish auction will be held Sunday at 4:00 P.M. If you are interested in entering the show or want additional information, please call me at 360-5705. I'm told its only a 2½ hour drive to Cherry Hill and this would be a good opportunity to view another good tropical fish show.

Are YOU a catfish or loach fancier? If so the following information is for you.

-- The American Catfish and Loach Association (ACALA) is being formed in San Diego, California. The purpose of ACALA is to foster interest in catfish and "their kissing cousins the loaches." The Association will publish a monthly bulletin to be called "CAT TAILS." If you are interested in joining ACALA write to 3411 Sandrock Road, San Diego, CA 92123, or give me a call and I will send you a membership application.

-- A second notice for catfish "lovers" comes from Denver, Colorado. The notice reads as follows.
"WANTED: Correspondence with Aquarists interested in starting an INTERNATIONAL CATFISH SOCIETY. Such an organization is urgently needed for exchange of information and/or fishes among members. Equally important would be species maintenance

(espically of African catfishes) and increased, concentrated effort toward the spawning of the exotic cats and many of the frequently available but not so easily spawned cats. It's time CATS were given their due recognition as one of the most interesting and diverse aquarium fishes. If interested send the following information: NAME, ADDRESS, PHONE NUMBER, CATFISHES YOU ARE CURRENTLY MAINTAINING, FUTURE INTERESTS (IN CATS), WHAT YOU WOULD BE ABLE TO DO IN THESE BEGINNING PHASES OF THE CLUB and any other information relevant to this project, to Sally M. Winkler, 1450 Albion St. # 102, Denver, CO, 80220. Include a self addressed, Stamped envelope for reply."

With the help of my wife the P.V.A.S. library has been re-established. It is very small consisting of bulletins the club has received from other societies. I hope that it can be enlarged in the months to come. If you have any books, magazines or other reference material you no longer want or use, I would be glad to accept it for the library. At present you can borrow from the library at the monthly society meetings.

There are four memberships that expire this month.

Tom Brackeen
Jack and Emmy Corbett

Fred Pryor
Jack Shiflette

Please fill out the membership application and mail according to the instructions at the bottom of the application.

From the WELCOME CORNER we say hello to three new members.

The VOSS family, Bill, Lavina and daughters are very involved in the hobby. They have 80 tanks and Bill indicated an interest in guppies, killies and cichlids. Bill has been in the hobby for over 20 years and is currently interested in photographing fish. Bill is a data processing specialist and the Voss family resides "down south" in Woodbridge.

JIM MARTIN has only been in the hobby for 4 months and already has 5 tanks. Jim is maintaining angels, gouramis and several livebears. Jim is an engineer and lives in Alexandria.

TED KUTZLO has been a hobbyist for 6 years but is just getting started again after a recent move to the Washington area. Ted has 4 tanks and is a guppy fancier. He has spawned catfish, gouramis angels and bettas. Ted also lives in Alexandria and is employed as an auditor.

That's 30 for this month. See you at the May meeting AND the Spring Show.

Dick Baker

SECRETARY 'S LETTER

The first part of the April 9 meeting was devoted to a review of the action up to now concerning legislation related to the aquarium hobby including a listing of the species which will be banned either because they are endangered, harmful (poisonous, etc.), or present an ecological threat to the environment. Dr. Jessup suggested each of us concerned should write his Congressman questioning him on the details of the ban on the importation of fish, as well as the proposed prohibition of the interstate transportation of fish, eliciting his concern. The new Federation of American Aquarium Societies was also discussed in conjunction with this, but we will await the study of the Constitution when received before committing the Society.

Carl Hardy was asked by a few people in a small West Virginia town to help them set up an aquarium club there. He took our Constitution to serve as a guideline, plus many fish which were not available to them, to broaden their knowledge and get them started on more varied species. Carl, who has taken much of his own time to do this, deserves all credit for this, although he did it in the name of the Society. This is what the hobby is all about. He will be taking more fish to West Virginia in a couple more weeks. If you have any which you feel would benefit this fledgling club, contact Carl. He deserves our support in this worthwhile project.

The second All New England Guppy Show and auction will be held in Cranston, Rhode Island, May 12-13. For entry rules and information call Gene Sargent.

If anyone is interested in joining the American Catfish and Loach Association, see Dick Baker for information. Dick also reported on his and Etta's efforts to establish our library. They have catalogued all magazines we have received from other aquarium societies. Many of these clubs publish informative magazines. Look through the article listings, check out any you are interested in and return them at the next month's meeting.

Our May Show chairman John Wolcott has been quite busy. After reporting on his progress to date, he asked for anyone who could help to contact him. Also one of the biggest expenses from the show is trophies and plaques. If you could donate the \$5.00 to \$10.00 for a trophy the Society would greatly appreciate it.

The slide program was on Central and South American

cichlids. It was an interesting presentation, explaining what makes a cichlid a cichlid, showing also their spawning and fry development patterns and behavior.

We again had many good entries for the bowl show. All of us learn something by seeing each other's fish. Bring in YOURS next month!

Linda M. DeRoze
Recording Secretary

A T T E N T I O N !!

Since the single big expense of the May Show is trophies, the Society would appreciate any donations. They run around \$5.00 each. Please contact John Wolcott if you could help the club in this manner.

THANK YOU

POTOMAC VALLEY AQUARIUM SOCIETY

TABLE SHOW RESULTS & STANDINGS

APRIL 1973

★ <u>FANCY GUPPY</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>
a. Blue	SERGEANT	MELNICK	MELNICK
b. Black	SERGEANT	WALSH	CUNNINGHAM
c. AOC	WALSH	WOLCOTT	POULSEN
★ <u>CICHLIDS</u>			
a. Angelfish	HARDY, C.	SPRAGUE	SPRAGUE
b. Cent & So Am Breeding Pairs	JESSUP	JESSUP	JESSUP
c. Other	O'MEARA	JESSUP	O'MEARA
★ <u>EGGLAYER/LIVEBEARER</u>			
a. Sharks & Loaches	DeROZE	DeROZE	HIRSCHMAN, A.
b. Catfish (Non Corydoras)	HIRSCHMAN, A.	HIRSCHMAN, E.	HARDY, DON
c. Other	SMITH	HIRSCHMAN, A.	SMITH

POINT COUNT

<u>GUPPY</u> 19	APRIL	QTR	ANN'L	<u>EGGLAYER LIVEBEARER</u> 16	APRIL	QTR	ANN'L
★ Sergent, P&G	11	11	40	★ Hirschman, A.	11	11	45
Walsh	10	10	33	Hirschman, E.	3	3	3
Poulsen, W	5	5	26	Shiflette, D.			14
Wolcott	7	7	22	Shiflette, A.			13
Melnick, A	8	8	21	Jessup, June			8
Shiflette, N				Pettingill			9
Raab				DeRoze, D.	8	8	16
Lenzen				Goodman			4
Cunningham	3	3	7	Hardy, Don	3	3	7
HIRSCHMAN, E. 2	RUSHTON 1			Poulsen			2
<u>CICHLIDS</u> 23				Rushton			2
★ Jessup, Jn	13	13	50	Story			2
Hardy, Carl	8	8	29	DeLecian			2
DeRoze, D.	2	2	22	Smith, R.	9	9	17
Hirschman, E.	1	1	12	Raab			4
Shiflette, J.			11				
Sprague	5	5	13				
Goodman			7				
Aldridge			6				
Story			2				
O'Meara	9	9	9				
Baker	3	3	3				

HARDY, DAN; WHITTMAN 1 Each

▼ ▼ ▼
MAY 14

GUPPY: Multi, 2 Matched Males, AOC

CICHLIDS: Riftlake, Breeding Pairs (Dwarf), Other

EGGLAYER/LIVEBEARER: Tetra, Characins, Other

HARDY, D; HARDY, B; MELNICK, S; HAYES & LENZEN 1 Each

★ SPRING SHOW ★

SHOW YOUR FISH

MAY - 19 & 20, 1973

ENTRIES: 9 a.m. to 12:01 p.m.
SATURDAY MAY 19th

FISH PHOTOGRAPHY

By Eugene T. Aldridge, Jr.

What is the next best thing to having that favorite fish of yours on perpetual display? A picture. Any aquarist with a camera and a reasonable knowledge of how one works can take pictures of fish. I am assuming the hobbyist knows how to operate the particular camera he or she has.

The camera and its lens are the corner stones of any good outfit. There are many kinds you can use, but I have found the automatic single-lens reflex (SLR) to be the best in the 35mm field. The SLR allows you to look directly through the lens to see exactly what you are taking a picture of and the automatic feature allows the aperture to be wide open except at the time the shutter is in operation. I have used a "range-finder" or "split image" camera; that is, one that does not focus through the lens. With this type you need to be an engineer when real close to get the fish properly centered. You are not seeing what you are taking a picture of. If you want to buy an automatic SLR camera they start at about \$100 and go up. There are many cameras that will do the job, some better than others. I currently have and use an old Nikon F and a new Nikkormat. Both of these take excellent pictures and are relatively easy to use even for the novice, but are rather expensive.

The next item is to have a good solid tripod. A tripod is an excellent aid in holding the camera steady and ready for picture taking. Some people can take pictures without one, but not me, I use one all the time. In fact, I use two, one for the camera and one for the flash. A flash unit is required for indoor pictures. There are many kinds ranging from \$10 and up. The least expensive use "one shot" bulbs, the more expensive ones are electronic and run by batteries, rechargeable or not, and/or by direct house current. Mine is a Keystone using two penlite batteries or direct house current and cost \$30.

Another very big item is the lens. Here you can try and make do, or go "hog-wild". A very, very good one is the 55mm Auto-Mirco Nikkor. This lens will cost about \$200, so is normally not included in the average hobbyist's equipment. Those of you who have the normal 50mm lens on a camera can secure extension ring(s) fitting between the lens and camera; this gives you a smaller field of vision thus a larger picture without getting closer to the tank. Those of you who have a medium range telephoto lens in the 100-150mm range will find this an excellent lens

especially with an extension ring. I personally have and use a 135mm telephoto with an extension ring. This 135mm will focus down to five feet and the extension ring cuts this in half. At these distances, the field of vision allows me to use a 2½ gallon tank for picture taking. It is also far enough away to have the fish act normally. The edges of the tank are not in the picture. You can also use your larger tanks by just watching your fish come into view, and snap.

The next important item is the film for normal aquarium pictures with a flash. Use a fast color film such as Ektachrome or High Ektachrome. I use High Speed Ektachrome with its ASA rating of 160. The daylight type can be used with a normal color corrected electric flash. No filter is required. Slower films like Kodachrome or Kodachrome II can be used when specialized set-up methods are used. These will be explained briefly later on. The higher speed films are easier to work with fast moving fish. I personally use High Speed Ektachrome with very good results with shutter speeds of 1/60 or 1/125 of a second, depending on the camera use. The shutter speed depends on how your camera is set to work with various flash units; each one is different.

The slower films are used when the fish is held in one position. That is, either dead or pressed into position. The Randall Technique calls for a freshly dead fish laid out flat on a board. The fins are spread out and brushed with a formalin solution to give a rigid and natural appearance. During this process all the imperfections such as torn fins, gaping mouth, etc., can be corrected with pins. After a few minutes drying, the fish is put in a flat glass fish and covered with several inches of water to make the picture more natural. The picture is taken from above. The other method is the Axelrod Technique. This method calls for first anaesthetizing the fish with something like MS-222. Then place the fish in a pre-set-up tank with the decorations in the back or behind. A separate piece of glass is then used to press the fish lightly against the front tank pane. Both of these methods are described in great detail in Photography for Aquarists by Dr. Herbert R. Axelrod.

The tank should have a background capable of enhancing the color of your fish. Most fish stores have a wide selection of types and colors, so one should fit your purposes. Your flash should be set at an angle about 45 degrees to the tank so no hot spots will appear on the final picture. I find it best to have a separate tripod for the flash to provide the proper angle.

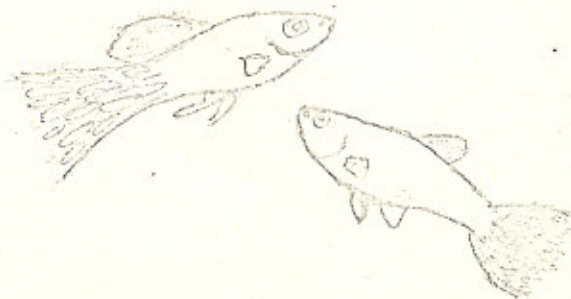
Now you are ready to take your first pictures. Set your camera and flash up in the proper position, focus the camera at something in the middle of the tank. Be sure to set the aperture opening to go with the shutter speed. An important thing to consider is depth of field. This is the range in front of and behind the point of focus, so that everything is in focus. The smaller the aperture is, the more will be in focus. The higher numerically the F-stop is, the smaller the aperture. That is, an F-stop of 22 has a smaller opening than an F-stop of 3.5.

If you have never taken fish pictures before, try a roll or two of black and white to get your technique down pat. Personally I take my pictures using the tanks the fish are in. This helps to get truer color; you do not have to wait for the color to return. There is one thing now to remember when taking pictures of a swiftly moving fish-- not all your pictures will be "good". Five out of a roll of twenty might be good enough to save with only one or two being really good, the rest go into the trash can.

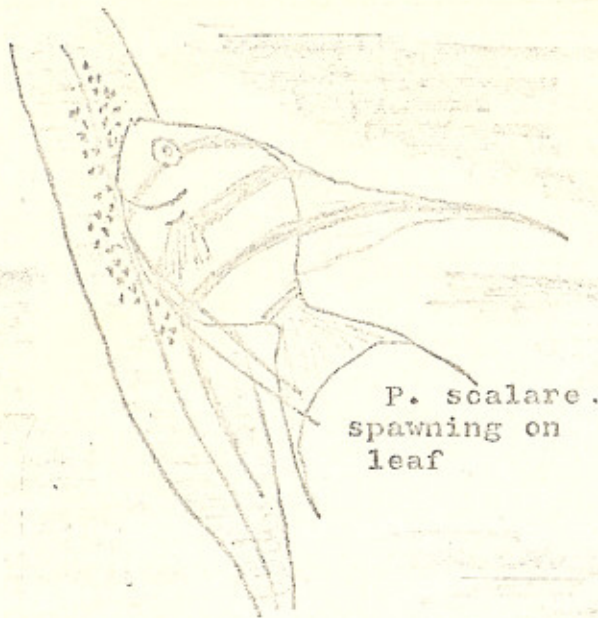
I hope this article will get you to try and take pictures of your fish; there are many good books on the subject and your photo dealer can get them. The book by Dr. Axelrod is good for someone who knows how to operate a camera but needs help on the specific camera and equipment selection and on ways to get started. I have done very well with my Nikon F, Nikkormat, and a 135mm lens.

If you have any questions why not raise them at the next club meeting question period? I will try to answer them.

GOOD LUCK



THE
HARDY
ANGELS



P. scalare.
spawning on
leaf

By Mike Sprague

On a recent warm but rainy Saturday morning, I was approaching the apartment of Carl and Mary Hardy. I was on my first assignment as an interviewer for Delta Tale. On the surface, my project was rather simple. Find out what special secret Carl has for raising prize winning Angels. This article is the result of that interview. Many of the things we discussed did not find their way into this article. However, I have tried to present Carl's ideas as accurately and clearly as possible.

The first thing I learned about Carl Hardy is that he is a true aquarist. When I arrived at his apartment, he was in the midst of everyone's favorite Saturday chore--cleaning tanks. We started with a cook's tour of the tanks. I counted six or seven tanks which ranged from a 55 gallon show tank in the living room to a 10 gallon tank in the back bedroom. Most of Carl's tanks are the 20 long variety which he uses for spawning separate pairs of angels and for raising fry. With the tour completed we relaxed in the living room with hot coffee and got down to business.

Carl has been in the aquarium hobby about seven years and he has always been interested in angels. He got started like most of us but with a lot less luck. His first tank was the ten gallon variety but, if I have my stories right, it cost him around \$160.00. Anyone interested in details on that one should see Carl at the next meeting. The first inhabitants of this small but lavish home were guppies, swordtails and of course angels. All these fish had something in common--they died well. So did their replacements. Carl's cureall was simple. Get rid of the fish, break down

the tank and start all over. The new tenents, 25 angels, were a vast improvement since only half died. Although the death rate appeared to be under basic control, the birth rate remained zero. Carl solved the birth rate problem with a sure thing. While in a local pet shop, he found a pair of angels spawning on the air hose of their filter. He purchased the entire family, mother, father, eggs and air hose, and was on his way with his first successful spawning. About twenty fry hatched out and survived.

Today the story is substantially different. I figured seven years of experience must have taught Carl some good secrets since he is a rather consistant award winner in PVAS competition. When he told me his formula for producing prize winning angels, I guess I should have been surprised but I wasn't. The "secret" was as obvious as the punch line to the old joke about "Why did the chicken cross the road." As he puts it, "I try to let them go naturally."

Carl allows the parent fish to raise all spawns. Under parental care only the strongest and the best fry survive. The undesirable fry, i.e., the sick, the dying, the deformed, the slow, the weak, etc. are eaten by the parents.

For those of us, my wife and myself included, who have lost every spawn of angels that was left with the parents, here is how he "lets them go naturally." The breeding pair are housed in a 20 gallon (long) aquarium. There is gravel on the bottom, a few artificial plants and a large flat object (in Carl's case, a section of "Hot Wheels" track) on which to spawn. The light source is at the opposite end of the tank from the spawning surface to protect the eyes of the young fish. The pH is maintained around 7.0, neutral. If the pH varies substantially, Carl breaks down the tank and starts over. Too many distractions or disturbances near the tank will cause the parents to eat the entire spawn, even the healthiest and strongest. Carl's example was children. "You let kids go near the tank and they'll tap the glass to see the fish run. If that happens, an angel will eat the babies that (snaps fingers) fast." To give his parent angels privacy, Carl tapes newspaper over the outside glass of the aquarium. This technique reduces the chance of loosing a spawn because of outside disturbance.

Use of natural selection to weed out the poor fry does have its drawbacks. Not all angel parents will care for the eggs and fry. For example: Carl has one male that will spawn with two different females. When the male spawns with the first female, he will eat all the eggs and drive the female off. When the same male spawns with the second female, he will care for the eggs and raise the fry. Loosing spawns in this manner does not bother Carl. He believes a

whole spawn is usually destroyed because it is all of sub-standard quality.

If the spawn develops along normal lines, Carl ends up with about 35 fry per spawn by using natural selection. Not only are the fry strong and healthy but the mother fish gets a chance to partially recover from spawning. Carl believes it takes strong, well-conditioned fish to produce good fry. He does not spawn his angels any sooner than 30 days after the last spawn since rapid spawning seriously weakens the female.

Once the fry are free swimming, Carl recommends feeding BioRell brand Fry Food for Egglayers or Delta brand (available in local drug stores) Baby Fish Food. When the fry are around 30 days old, he moves them to a growth tank. At this time they should be willing to accept flake foods. He feeds them his special flake mix. He mixes a can of basic diet, a can of growth food, a can of color flakes, a can of breeding flakes, etc. This mixture provides a complete range of foods at every feeding.

Carl's temperature control is easiest of all--none. "When I tried controlling the temperature by using tank heaters, I kept losing fish." Now he maintains the apartment temperature around 70-75 degrees. The temperature in the tanks takes care of itself.

My only remaining question was, "How do you raise the young fish to maturity?" "put them off in a corner and forget them. Feed them and change the water," says Carl.

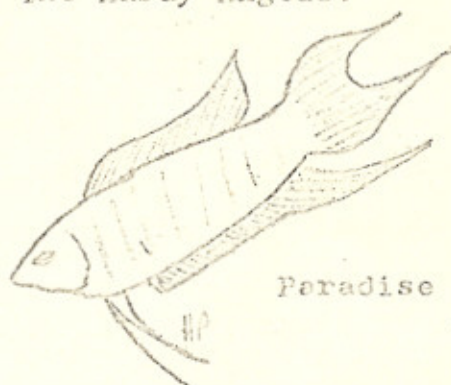
Although the original intent of my interview was directed toward prize winning angels in general, Carl and I spent a great deal of time discussing his current breeding project. He is attempting to establish his own special strain of marble angel with an "even" pattern. At the present time, he has one young adult with the desired pattern. This fish is about 50% white (or silver) and 50% black. At the time I saw it, the black markings were not jet black as in most marble angels, but had a noticeable hint of gray. Each of the gray and silver markings were approximately the same size and were distributed evenly over the entire body. The fish has an air of distinction and beauty that sets it apart from other marble angels I have ever seen.

Carl and Mary have been looking for a fish with the pattern for a long time but have been unable to find them in any of the local shops. The fish they currently have is the result of a spawn last year by one of their breeding pairs of marble angels. Of course, Carl is trying several combinations of parent fish in an effort to get more fish with this even pattern. The big problem seems to be that the pattern develops late. His current fish looked all

gray when it was young. Carl believes he can determine the future color development by the time the fry are three months old, i.e. about dime size or larger. He may have to keep the fry a little longer to find one with that rare even pattern.

I tend to think Carl's real secret is something that he did not say but was obvious during the interview. He cares about his fish. "I talk to my fish," says Carl. "People think I'm crazy, but I talk to my fish."

Whatever happens to be Carl's secret, I am sure we all look forward to seeing more of The Hardy Angels.



Paradise

EXPLANATIONS TO A VERY YOUNG AQUARIST:

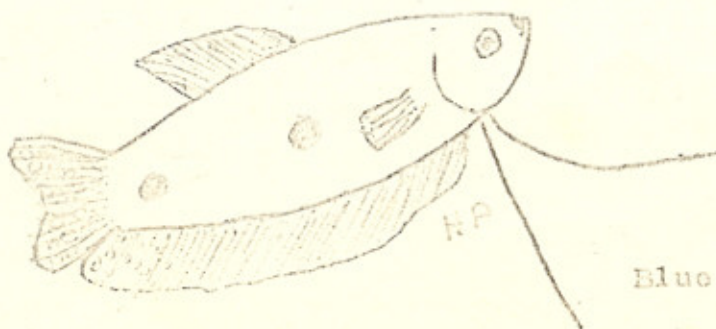
This little fishy went to market
(and was bought by a "fish-nut" with lots of tanks);

This little fishy stayed home
(and was kept for future breeding stock);

This little fishy had beef heart
(while the aquarist's family ate hot dogs);

This little fishy had none
(flake food and a drum bowl for this culturally deprived specimen);

This little fishy cried "Wee, wee!" all the way home
(because he didn't win any prizes at the bowl show).



Sue O'Meara

Blue gourami

HINTS FOR THE GUPPY HOBBYIST

by David Levy
Everglades Aquar. Society

A Survey of the 20 Top Guppy Breeders

Conditions used by each to produce Show Winners

Topic #1: Tank Size

10 gallon tanks preferred by 10 breeders.
10-20 gallon tanks preferred by 5 breeders.
20 gallon tanks preferred by 2 breeders.
5-10 gallon tanks preferred by 1 breeder.
5 gallon tanks preferred by 2 breeders.

Comment: The use of 10 gallon aquariums seems to be the happiest medium. I personally think that 5 gallon tanks are too small for anything other than a pair or maybe a trio.

Topic #2: Filtration

Box filters preferred by 12 breeders.
Outside filters (air or motor) preferred by 5 breeders.
Biological filters preferred by 2 breeders.
Undergravel filters preferred by 1 breeder.

Comment: The use of box filters seems to be most widely preferred. They are easy to maintain - economical to purchase. Outside filters are equally good. (Sometimes better) Biological filters often create problems as the fish grow larger (bacteria attacks the tails of the larger fish).

Topic #3: Filter Changes

Changes made once a week preferred by 16 breeders.
Changes made every two weeks preferred by 3 breeders.
Changes made once a month preferred by 1 breeder.

Comment: Biological filters should be cleaned once a month while regular filters should be changed on the average of once each week.

Topic #4: Water Changes

1 breeder advocates a 10% change twice each week.
10 breeders prefer a 30% change once each week.
8 breeders prefer 15% change once each week.
1 breeder (who uses a biological filter) advocates a 50% water change once a week.

Hints for the Guppy Hobbyist - 2

Topic #5: Conditioned water - yes or no?

Raw city water is used by 4 breeders.
De-chlorinated water is used by 6 breeders.
Aged water was preferred by 10 guppy breeders.

Comment: I agree to 15% - 30% water change weekly. I use raw city water or de-chlorinated water, whichever proves best for the area.

Topic #6: Water Content (salt or no salt)

6 breeders use 1 teaspoon salt per gallon of water.
3 breeders use 1 tablespoon salt per gallon of water.
11 breeders use no salt at all.

Comment: I use salt as a basis of disease control. I believe this is true as shown by my own experience. I use a 1 to 5 treatment, that is, 1 tablespoon of salt to 5 gallons of water. The use of salt allows your brine shrimp to live longer so the fish can eat them at their leisure.

Topic #7: P.H.(alkalinity - acidity) & D.H.(degree of hardness)

4 breeders preferred P.H. 6.8 and D.H. 0-3.
6 breeders preferred P.H. 7.0 and D.H. 3-4.
8 breeders preferred P.H. 7.0-7.2 and D.H. 0-4.
2 breeders preferred P.H. 7.2-7.4 and D.H. 4-6.

Comment: I keep my water at 7.2 - 7.4 and from medium-soft 2-3 D.H. - Hard 7-9 D.H. Fish seem to adjust to this if the change is gradual.

Topic #8: Foods and Feeding

<u>Types of Food</u>	<u>Breeders</u>	<u>Feedings per day</u>
Dry	20	4
Frozen	4	5
Live Brine	20	7
Daphnia	10	2 times weekly
Worms	3	2 times daily
Home Made	18	1 time daily
Paste	16	2 times daily

Hints for the Guppy Hobbyist - 3

Topic #9: Total number of feedings per day

- 3 breeders feed 5 times per day.
- 2 breeders feed 6 times per day.
- 10 breeders feed 8 times per day.
- 1 breeder feeds 10 times per day.
- 4 breeders feed 4 times per day.

Comment: Alternate feedings of foods listed in Topic #8. A minimum of 4 feedings per day but strive for 8 - 10 feedings per day.

Topic #10: Sexing and seperating fry

- No breeder sexes or seperates his fish the first week.
- 2 breeders sex and separate the fry at 1-2 weeks of age.
- 14 breeders sex and separate the fry at 2-3 weeks of age.
- 4 breeders sex and separate the fry at 3-5 weeks of age.

Comment: Fish should be sexed before definite sex differences appear - about 2-4 weeks at the most.

Topic #11: Show Age

- 5 breeders believe 6 months to be the proper show age.
- 10 breeders believe 8 months to be the proper show age.
- 3 breeders believe 10 months to be the proper show age.
- 2 breeders believe guppies should be older than 10 months for showing.

Comment: 6-10 months of age, is the best age for showing.

Topic #12: Tank and Room Temperature

- 8 breeders start the fry at 82 and lower the temperature to 76 after 8 weeks of age.
- 4 breeders start the fry at 82 and lower the temperature to 72' after 8 weeks of age.
- 3 breeders maintain the temperature at 80.
- 2 breeders maintain the temperature at 78.
- 3 breeders maintain the temperature at 76.

SUMMATION: Things to remember

1. Tank size - 10 gallons.
2. Filters - box filters.
3. Filter changes - once each week.

Hints for the Guppy Hobbyist - 4

4. Water changes - 15% to 30%.
5. Water condition - aged or dechlorinated.
6. Water content - salt if desired.
7. PH - DH --- 7.0 to 7.2 PH; DH 2-6. (guppies will adapt to almost any water condition with proper acclimation.
8. Feedings - assorted diet fed 6-8 times daily.
9. Sexing and separation - 2-4 weeks of age.
10. Show Age - 6-10 months.
11. Temperature - average 80 degrees.

Reprinted from Guppy Gossip - originally from The Glades

PARENTAL BEHAVIOR IN
THE CONVICT CICHLID

By Jim Price.
Suburban, Maryland A.S.

Cichlid fishes show parental responsibility towards their offspring demonstrating the parental devotion common in species of the family Cichlidae as they stand guard over their offspring in readiness to drive off predators, perhaps thrice their size, which pose a danger towards their brood.

In this series of experiments I hope to explore the bounds and dependencies of these instincts in the species *Cichlasoma nigrofasciatum*, the convict cichlid.

Convict cichlids are easy to spawn and often make good parents. They grow to approximately 4 inches for the males, 2½" for the females. When they spawn they usually lay from 50 to 500 eggs. Usually, once a compatible pair has formed, they will choose an area in their aquarium with a hard substrate, and which is easy to defend from other aquarium inhabitants. The pair defends this area from intruders and will, at this stage, show particular aggression to other members of their species.

In the following accounts of experiments reference will

be made to two mated pairs of convict cichlids. Pair A and Pair B were both spawned about three months ago, the young are of equivalent size in each case.

Both pairs of fish were spawned in a 100 gallon cichlid community aquarium with other fish up to 7 inches. Both pairs were left alone for one week. Then pair B was moved into a formerly unpopulated 20 gallon aquarium. Each pair was allowed to raise their babies under the above conditions for $2\frac{1}{2}$ months after which the following experiments took place.

Experiment #1 Pair A had for $2\frac{1}{2}$ months raised their babies normally and defended them from other fish, some larger than themselves. Pair B had apparently degenerated as a result of the seclusion and deprivation of the use of their parental instincts to defend their babies. There was nothing to defend them from and the tank was small enough so they couldn't get lost. The parents had cared for the babies during only the first few weeks of privacy and then grown careless. To test this I introduced a threat, a white convict. After becoming familiar to the tank the white convict began his routine behavior and mingled with the unafraid young (they hadn't learned to fear fish in their seclusion) unmolested by the parent fish!

To verify this result I removed the white convict and introduced a 5 inch banded severum a real threat to the young. The severum went unmolested!

To this I conclude that the lack of necessity towards their parental instinct had caused it to subside (at least temporarily).

In my second investigation I took 6 babies from pair B and, having stained them with methylene blue for identification purposes, placed them among pair A's offspring. The new parents examined them and then herded them in with their real babies. The parents either thought the new babies were their own or intentionally adopted other members of their own species.

Next, to determine how far their adoption process would allow them, I took 5 baby Kribensis (*Pelvicachromis pulcher*) equal to the convicts' young in size and put them in pair A's brood. This resulted in the deaths of the Kribensis within three hours, indicating that convicts will not adopt other species of dissimilar appearance, but will of similar appearance.

This article was the result of a biology project submitted by Jim Price, a Junior member of the Suburban Maryland Society. The original project included many supporting pictures which could not be reproduced. How about hearing from some of our own Junior members about your projects?

The Editors

Date _____ 1973

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 P.V.A.S. are \$7.50 family; \$5.00 individual; \$3.00 corresponding and \$2.50 junior. Completed applications accompanied by your check or money order should be mailed to P.V.A.S., P.O. Box 6067, Arlington, Virginia, 22206. Please attend our meetings at the Coca-Cola Bottling Plant, 5401 Seminary Road, Alexandria, Virginia at 8:00 P.M.

1973 Meeting Dates

January 8	April 9	July 9	October 8
February 12	May 14	August 13	November 5
March 12	June 11	September 10	December 10

Potomac Valley Aquarium Society
P. O. Box 6067
Shirlington Station
Arlington, Virginia 22206



THIRD CLASS

Advanced Aquarist of the
National Capitol Area
7000 River Oaks Drive
McLean, VA 22101