

DELTA TALE

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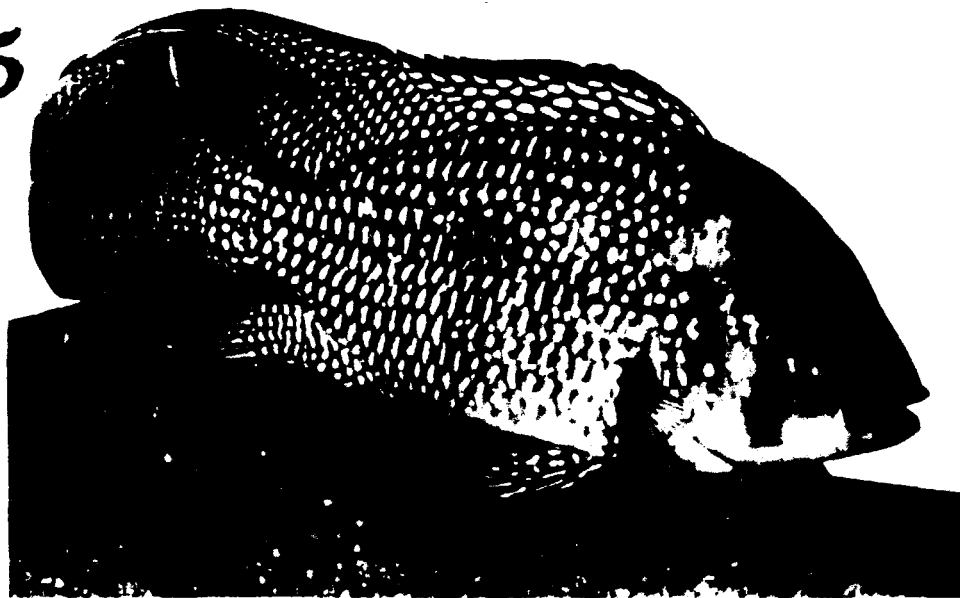
JUNE-JULY 1977

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Volume 8

Issues 6 - 7



SHOW RESULTS

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 disseminating information, encouraging friendly competition, soliciting participation in its show, and promoting good fellowship. Correspondence should be addressed to Secretary, P.V.A.S., P.O. Box 6219, 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 Saturday after the monthly Monday meeting.

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Susan Sprague Ruth Brewer

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John Jessup	Susan Sprague
Heinz Lenzen	Warren Garner
Pat Mahoney	Mark Prendergast
Steve Siska	Diane Nixon
Craig Tingen	Pat Tietjen

TABLE OF CONTENTS

Volume 8	Issue 6
	<u>Page</u>
Minutes of the Board of Governors.....	1
BAP Report.....	2
Bowl Show Categories.....	3
MINI-AUCTION.....	4
Spring Show Results.....	5
Trading Post.....	6
Featured Articles	
SELECTING QUALITY GOLDFISH	
By Rick & Debbie Graham.....	7
APISTOGRAMMA CACATUOIDES	
By Gerry Hoffman.....	11
BUMBLEBEE GOBIES FROM SANTA	
By Jim & Nancy White.....	12
LET'S TALK CICHLIDS	
By Edwin (Bud) Welty.....	14
WHY WHITE WORMS?	
By Judy Jordan.....	17

This month's cover is a photograph of a *Geophagus brasiliensis* by Susan Sprague.

MINUTES OF THE BOARD OF GOVERNORS MEETING

The Board of Governors met May 3 at the home of Gene Aldridge with eight members present. The Treasurer reported that we had a bank balance of \$384.15 with unpaid bills for lumber, ribbons and trophies amounting to \$365. and an undetermined outstanding bill for printing. Of this amount the \$215. bill for ribbons can wait until after the spring show.

There was a lengthy discussion of setup plans for the show and final details were settled with all pre-show work to be completed by May 7.

Diane Nixon has resigned as chairman of the Ways and Means Committee and Pat Tietjen agreed to fill the balance of Diane's term.

Michael Sprague reported that he had acceptances from all the judges invited with the exception of the McCorkles who had not replied at the time of this meeting.

Jim Long and Gerry Hoffman were appointed to the Breeders Award Program Committee as checkers for the Herndon/Reston area.

Dave McInturff raised the question as to what type of awards were to be made for the quarterly bowl show points standings. It was agreed that we would use merchandise awards this year rather than ribbons or trophies. Pat Mahoney was delegated to purchase two 10-gallon tanks as awards for the first quarter.

Millie Aldridge agreed to help with preparations for lunch for the judges on Saturday. She would welcome any contributions of food, labor and/or cash toward the lunch.

Gene Aldridge reminded the Board that bank signature cards must be filed to cover the recent change in officers. Ruth Brewer moved, Pat Mahoney seconded and it was unanimously carried that the President and Treasurer were authorized to co-sign checks; the signature cards were completed and the Treasurer was instructed to file them with the bank.

Pat Mahoney offered to host the June 7 meeting of the Board.

The meeting adjourned at 9:20 p.m.

Respectfully submitted,

Ruth Brewer
Recording Secretary

Bowl Show Report For April 1977

Cent. & S.A. Dwarf

1st - - -
2nd - - -
3rd - - -

Other African

1st Warren, K. - Jewel
2nd - - -
3rd - - -

Open

1st Warren, K. - T. jacobfreibergi
2nd Warren, K. - Rainbow
3rd Warren, K. - Angelfish

Livebearers, non-guppy

1st Morrison, W. - Sailfin molly
2nd Brocato, M. - Green swordtail
3rd Mahoney, M. - Hi-fin lyre, sword

Killifish

1st Mahoney, P. - A. gardneri
2nd Mahoney, P. - A. lineatus
3rd Mahoney, M. - A. australe

Open

1st Morrison, W. - Mono
2nd Garrett, R. - Green kisser
3rd Lighton, T. - Red fire eel

	Month	Qtr.	Ann'l
Warren, K.	19	19	57
Terwilliger, J.	0	0	2
Sprague, S.	0	0	10
Lenzen, M.	0	0	6

	Month	Qtr.	Ann'l
Mahoney, P.	13	13	23
Garrett, R.	6	6	23
Brocato, M.	4	4	6
Morrison, W.	14	14	20
Mahoney, M.	7	7	11
Donnelly, J.	0	0	2
Lighton, T.	2	2	12
Heflin, T.	0	0	10

bap REPORT

NAME	POINTS
Susan & Mike Sprague	155**
Ruth Brewer	240**
Gene Aldridge	80
John Jessup	55*
Diane Nixon	70*
Pat Tietjen	15
Jan & Dave McInturff	385***
Jerry Donnelly	10
Gerry Hoffman	25

- * Breeder Award
- ** Intermediate Breeder Award
- *** Advanced Breeder Award

Spawnings:

McInturff - Ps. livingstoni and White Clouds
Hoffman - Apisto, cacatuoides

Dave McInturff
BAP Chairman

Bowl Show Report For May 1977

CICHLIDS

Angelfish

1st Warren, K. - Marble Veil
 2nd Dickens, S. - Silver
 3rd - - -

Tilapia/Seratherodon

1st Terwilliger, J. - S. mossamb.
 2nd - - -
 3rd - - -

Other Rift Lake

1st Warren, K. - H. lividus
 2nd - - -
 3rd - - -

EGGLAYERS/LIVEBEARERS

Sharks/Loaches

1st Mahoney, P. - Irridescent shark
 2nd Mahoney, P. - Rainbow shark
 3rd Mahoney, P. - Kuhli loach

Catfish, non-corydoras

1st Trout, B. - Synodontis
 2nd Lighton, T. - Midnight cat
 3rd Mahoney, P. - Whiptail cat

Guppies

1st Lembke, A. - Black
 2nd Lighton, T. - Blonde
 3rd Lembke, A. - Cobra

	Month	Qtr.	Annual
Warren, K.	12	31	69
Terwilliger, J.	6	6	8
Sprague, S.	0	0	10
Lenzen, M.	0	0	6
Dickens, S.	4	4	4

	Month	Qtr.	Ann'l
Mahoney, P.	15	28	38
Garrett, R.	3	9	26
Brocato, M.	1	5	7
Morrison, W.	0	14	20
Mahoney, M.	0	7	11
Donnelly, J.	0	0	2
Lighton, T.	8	10	20
Heflen, T.	0	0	10
Trout, B.	6	6	6
Terwilliger, J.	1	1	1
Lembke, A.	9	9	9

Judges: Aldridge, G. & Lenzen, H.

Judges: Brewer, R. & Garner, W.

1977 BOWL SHOW CATEGORIES

	<u>Cichlids</u>	<u>Other Egglayer/Livebearer</u>
June	Haplochromis Mbuna, non-pseudotropheus Open	Tetras Characins Open
July	Cent. & S.A. Large Pseudotropheus Asian	Bettas Corydoras Goldfish/Koi
August	Cent. & S.A. medium Julidochromis Discus	Barbs Anabantoids Guppies

Bowl Show Report For June 1977

CICHLIDS

Haplochromis

1st Warren, K. - H. venustus
 2nd - - -
 3rd - - -

Mbuna, non-pseudotropheus

1st Warren, K. - L. trewavasae
 2nd Terwilliger, J. - L. trewav.
 3rd - - -

Open

1st Warren, K. - Regal peacock
 2nd - - -
 3rd - - -

EGGLAYERS/LIVEBEARERS

Tetras

1st Mahoney, P. - Red serpae
 2nd Mahoney, P. - Neon
 3rd Mahoney, P. - Black

Characins

1st Brocato, M. - Silver dollar
 2nd Mahoney, P. - Scissortail
 3rd Mahoney, P. - Harlequin

Open

1st Brocato, M. - Choc. mollies
 2nd Garrett, R. - Archer
 3rd Garrett, R. - Black lyre.
 mollie

	Month	Qtr.	Ann'l
Warren, K.	18	49*	87
Terwilliger, J.	4	10	12
Sprague, S.	0	0	10
Lenzen, M.	0	0	6
Dickens, S.	0	4	4

	Month	Qtr.	Ann'l
Mahoney, P.	18	46*	56
Garrett, R.	7	16	33
Brocato, M.	12	17	19
Morrison, W.	0	14	20
Mahoney, M.	0	7	11
Donnelly, J.	0	0	2
Lighton, T.	0	10	20
Heflin, T.	0	0	10
Trout, B.	0	6	6
Terwilliger, J.	0	1	1
Lembke, A.	0	9	9

Judges: Lenzen, H. & Aldridge, G.
 *Quarterly award

Judges: Walsh, T. & Brewer, R.
 *Quarterly award

 #
 # ATTENTION #
 # #
 # We are having a MINI-AUCTION at our #
 # July 11, 1977 meeting. The specifics #
 # are: #
 # Registration: 7:30 - 8:00 p.m. #
 # Limit: 3 bags per person #
 # Minimum: \$ 1.00 per bag #
 # #
 # Anyone may attend and bring fish! #
 # #
 #####

1977 SPRING SHOW RESULTS

		<u>FIRST</u>	<u>SECOND</u>	<u>THIRD</u>
I.	LIVEBEARERS			
a.	DELTA-TAIL GUPPIES, MALE	(5) Whitesell	Whitesell	Thompson
b.	DELTA-TAIL GUPPIES, FEMALE	(2) Thompson	Herrell	--
c.	GUPPIES-ALL OTHER	(5) Westfall	Thompson	Westfall
d.	FANCY SWORDTAILS	(1) Herrell	--	--
e.	FANCY PLATIES	(1) Morrison	--	--
f.	FANCY MOLLIES	(4) Brocato	Owens	Herrell
g.	REGULAR SWORDTAILS, PLATIES, AND MOLLIES	(4) Brocato	Whitesell	Morrison
h.	OTHER FISHES	(1) Morrison	--	--
		(23)		

BEST OF CLASS - Westfall

II.	EGGLAYERS (NON-CICHLID)			
a.	CATFISH-CORYDORAS	(3) Morrison	Skibbie	Skibbie
b.	CATFISH-AFRICAN	(1) Jessup	--	--
c.	CATFISH-ALL OTHER	(9) Barry	Catlett	Brensiki
d.	BETTA SPLENDENS	(14) Liebetrau	Rosendorf	Rosendorf
e.	BETTA-ALL OTHER	(1) Liebetrau	--	--
f.	ANABANTOIDS-ALL OTHER	(3) McInturff, S.	Catlett	Showman
g.	SHARKS AND LOACHES	(5) Morrison	Mahoney, P.	Brensiki
h.	TETRAS	(2) Catlett	Morrison	--
i.	BARBS	(1) Morrison	--	--
j.	GOLDFISH AND KOI	(6) McInturff, S.	Brown	Lighton
k.	DANIOS, BRACHYDANIOS AND RASBORAS	(0) --	--	--
l.	KILLIFISH	(5) Mahoney, P.	Mahoney, P.	Mahoney, P.
m.	NATIVE AMERICAN	(3) McInturff, D.	Morrison	Morrison
n.	OTHER FISHES	(4) Herrell	McInturff, D.	Prendergast
		(57)		

BEST OF CLASS - Barry



Many thanks to our club members who donated money toward the purchase of trophies;

Gene Aldridge
Ruth Brewer
Pat & Maggi Mahoney

Steve Siska
Mike & Susan Sprague

Also thanks to those women who made sandwiches for the judges and workers;

Millie Aldridge
Ann Garner
Maggi Mahoney

1977 SPRING SHOW RESULTS (cont'd)

		<u>FIRST</u>	<u>SECOND</u>	<u>THIRD</u>
III.	CICHLIDS			
a.	NEW WORLD LARGE (<7")	(1) Dyke	--	--
b.	NEW WORLD MEDIUM (4"-7")	(3) Brensiki	Jessup	Jessup
c.	NEW WORLD DWARF (>4")	(2) McInturff, D.	Morrison	--
d.	ANGELFISH	(9) Newsome	Owens	Catlett
e.	RIFTLAKE MBUNA	(3) Warren	Aldridge	Aldridge
f.	RIFTLAKE NON-MBUNA	(4) Jessup	McInturff, D.	Jessup
g.	NON-RIFTLAKE AFRICAN	(1) Morrison	--	--
h.	AFRICAN PAIRS - 1M, 1F	(0) --	--	--
i.	NEW WORLD AND ASIAN PAIRS - 1M, 1F	(1) Catlett	--	--
j.	OTHER	(0) --	--	--
		(24)		
	<u>BEST OF CLASS - Brensiki</u>			
IV.	MARINE			
a.	FISHES	(2) Prendergast	Marks	--
b.	INVERTEBRATES	(7) Marks	Marks	Prendergast
		(9)		
	<u>BEST OF CLASS - Marks</u>			
V.	SET TANKS			
a.	FRESHWATER	(2) Mahoney, P.	Mahoney, M.	--
b.	MARINE	(0) --	--	--
		(2)		
VI.	DEALER TANKS	Aquarium Supply		
VII.	PHOTOGRAPHY			
a.	COLOR SLIDES	(10) Paull	Hoffman	Brewer
b.	COLOR PRINTS	(11) Brewer	Aldridge	Brewer
		(21)		
	TOTAL ENTRIES	(136)		

TRADING POST

Susan & Mike Sprague 841-0857

Tanks - metal frame

20L's - \$ 7.50

10's - 1.50

29's - 10.00

Wooden rack holds 9- 10 gal. tanks - \$25.00

Various Julidochromis

SELECTING QUALITY GOLDFISH

By Rick & Debbie Graham
Tank Topics, March, 1977
Greater Akron Aquarium Soc.

Part I - Goldfish with dorsals

In the past three years Goldfish have gained much popularity in our area and nationally. Much of this popularity is because of the Oranda, but more and more types are also gaining interest. With all the types now becoming available, people are asking us what to look for when selecting these varieties. First you must realize that these are our opinions and others may not agree. We are writing these articles in the hope you will not spend a lot of money on poor quality fish. Much we have learned is from our own experiences with raising, breeding and showing our fish. Plus much time has been spent talking to other hobbyists, breeders and importers of this interesting fish. We also thank Jim and Nancy White for spending time explaining what a judge looks for when judging a show.

Since all the fish described in this article have a dorsal, double caudal, anal, pectoral and ventral fins, we will describe what to look for in these first. Later we will get into what to look for in color, condition and various body shapes.

The Dorsal - When selecting your fish, do not buy any that have a dorsal that is bent, curled, or short. They should be erect at all times and as large as possible without being out of proportion. Also look to see if each ray is complete and not broken and rehealed, leaving a mended area. Check for small pinholes between rays. This may not be that important but if the competition is close, it may be the tie breaker.

Caudal Finnage -- This is the area that makes a Goldfish a winner or a loser in any competition. Do not buy any fish on which the finnage bends under or over. We have tried cutting away this area hoping it would grow back correctly. It usually gets worse instead of better but once in a while it does work. The chances are 1 out of 100. Avoid bent or crimped finnage as it gets worse with age. Also check to see if the caudal finnage is each of the same length. Frayed finnage will repair itself in time unless the fish is very sick. One must remember that Goldfish are cold water fish and do not mend as quickly as tropicals. We have a ten year old Telescope that has taken 14 months to repair a slightly split caudal finnage. Also avoid webbed and tri tailed fish.

Anal Fins - You will note that we said anal fins. Any Goldfish with double caudal finnage must have double anals (except the Eggfish, which has none.) This is one area that can be overlooked easily in the excitement of finding an otherwise beautiful fish. If you want it as a pet go ahead and buy it. If you are planning on showing or using it as a breeder, forget buying it. Make sure both anals are of equal length and shape. Make sure they are fully developed and not curled or stubs. Again, if the competition is close, the judge may check to see if both anals are the same color to break the tie.

Pectoral Fins - These fins have ruined many otherwise quality fish. We have seen many beautiful Goldfish that have had bent, curled or unevenly developed pectoral fins. Avoid fish with these faults. Select fish with straight, fully developed fins. Make sure both are of equal length. Again try to find fish that have the same color on each fin.

Ventral Fins - The same goes for these fins as the anal and pectoral fins. They should be equal in length, fully developed, not misshaped and of the same color.

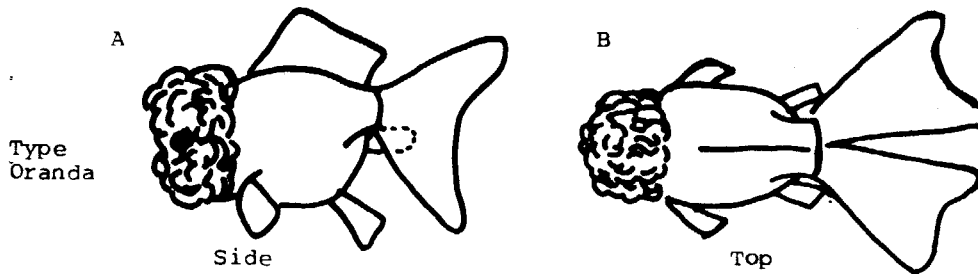
Eyes and Mouth - Make sure the fish has two eyes. This may sound strange, but I know of a case where a one eyed Oranda was bought. When buying telescope eyed fish make sure they are of equal size, more on this later. Make sure the mouth is not abnormally shaped. I was once fooled this way. I bought a fish with a crooked mouth and didn't notice it until a few days later at home.

Color - This is a very controversial area. The breeders of the Orient cull out all white fish. Many American Goldfish fanciers enjoy them and find them more desirable than other colors. Also, many Oriental and Great Britain fanciers who raise calico colored fish strive for much blue in these fish. In fact, to a point where we feel they lose their appeal. We like a well balanced, patched colored calico fish with a lot of vivid colors. After all, we are not Orientals or British, we are Americans and our tastes are different. It is time we developed our own strains and varieties and quit imitating others. So if you like it, buy it and if you are a breeder, develop your own strains.

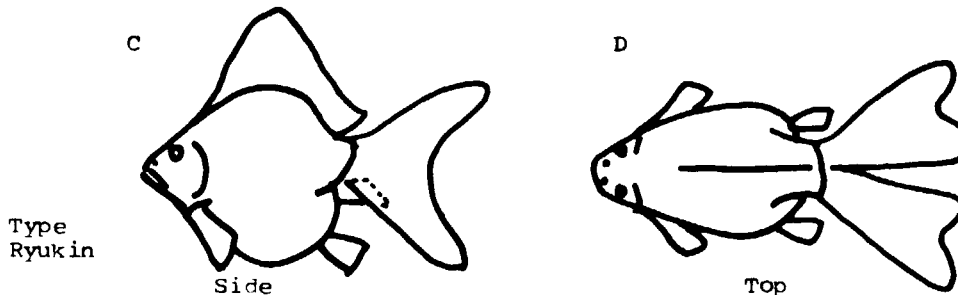
Condition - This could be an article in itself. Check first for distressed fish in the tank. If fish are setting on the bottom or floating at the top, avoid this tank altogether. Check for anchor worm or fish lice. Although they are usually easy to treat, I would not bother unless it is a rare fish or a very good bargain. Avoid fish with puffed or inflamed gills or missing gills. Stay away from fish with red veins in their finnage, red spots in the body and foggy eyes. In other words, buy healthy fish that are active and well conditioned. Don't buy it because you are sure you can make it a healthy fish with your great knowledge in medicines. It is not worth the time or the cost. When you do select a healthy fish, keep it that way. Know its requirements before you buy it and make sure you are willing to carry them out. Goldfish are not hard to take care of but they do have different requirements than do tropicals and marines.

THE ORANDA - As stated earlier in this article, this type of Goldfish is responsible for the renewed interest in Goldfish. It has universal appeal with its cute face and shape. Some fanciers like the robust body, while others prefer the short deep body. No matter which you like, avoid long bodied fish. Long bodied Orandas show up in all color types but are usually found in Red Caps and Blue Scales. The Oranda can be found in many color types: the red, orange, blue, white, black, brown, azuma (Calico) and sarassa (red and white.) So the problem is deciding what type you want and then finding it. All Orandas must have a full developed wen (hood growth) and large developed cheeks. Avoid so called Orandas that do not have these develop-

ments on adult specimens. When selecting young, choose blunt, broad headed fish. Keep these young Orandas at 60 to 65 degrees and feed live foods for the best hood growth. See illustrations A and B for an idea of how an Oranda should be shaped. When picking your Oranda you may see a white tissue like substance coming out of the head growth. This is natural, and only shows that head growth is still developing. If you see a white fuzzy area, which has a base of red area, this could be a result of dry food rotting in the crevices of the head growth. If you see this, just swab the area with a salt water solution.

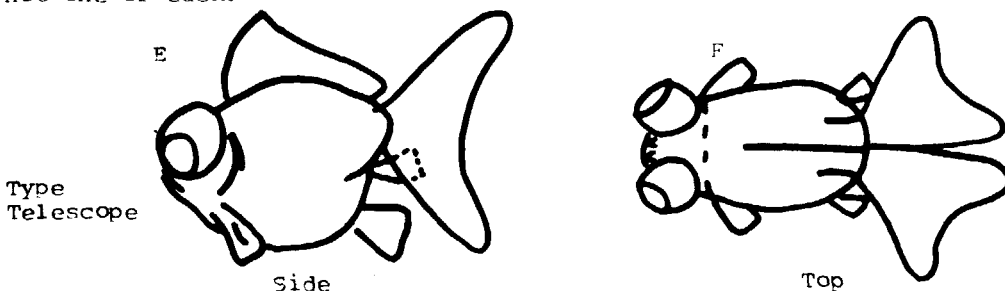


RYUKINS - The Ryukin is the most common household pet in Japan. It is as common as the domestic dog in this country. It comes in all colors, red, white, calico, brown, black and sarassa (red and white.) The sarassa type is the most commonly found in the United States. They are sometimes called hump backed Ryukins. But all quality Ryukins must have this type of shape. (See illustrations C and D.) They body is deep and very round with a pointed head. This type of Goldfish develops swim bladder trouble and constipation very easily, so avoid fish floating at the top or having problems swimming.

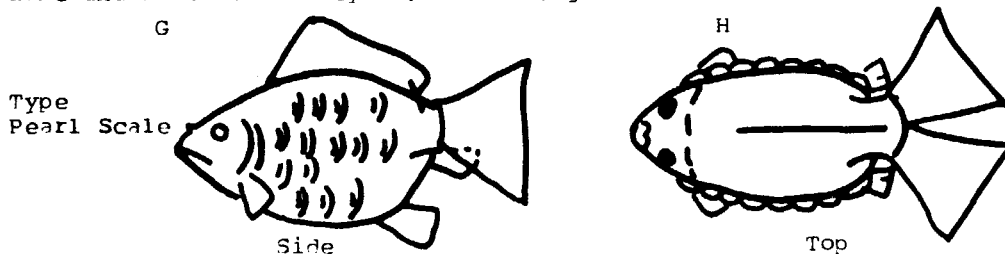


TELESCOPES - The Telescope is a strange but interesting looking fish. The best specimens have short, robust bodies that, when full grown, look like soft balls (see illustrations E and F.) They come in all colors that were described in the Oranda summary. The black Telescopes are known as moors. Finding a quality Moor is very difficult. The body has the shape of any other Telescope and the color should be velvet black. Check the stomach area, if it is white there is a higher chance of the fish staying black. Moors usually change to red or orange as they grow older. If kept at lower temperatures (55 to

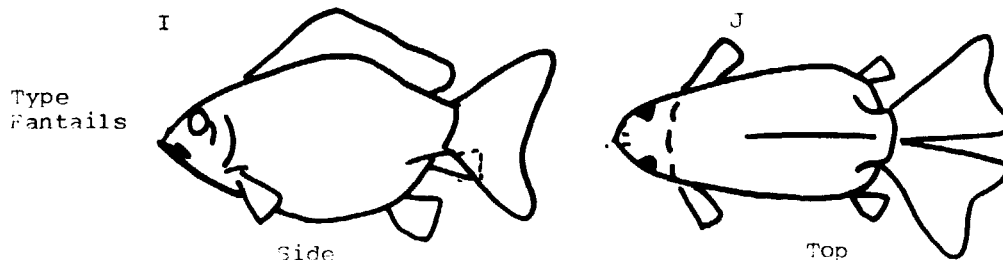
60 degrees) this change can be prevented much later in life. Eyes should not be foggy, this is the first sign of distress. They should be uniform in shape and size. They can be shaped like globes or almonds, but not one of each.



PEARL SCALES - This is a very popular fish with the new Goldfish fanciers. It should be shaped like a compact teardrop. They resemble a woman's pearl change purse. Pearls should be in an even row. The finnage should be 1/3rd the length of the body and should have a straight edge (chop tail). See illustrations G and H for the body shape. In some specimens you will notice a number of small red spots. This can be cleared up with sulfur quinine and clean, well filtered water. We have read and heard many times that the scales do not grow back. We removed some and found that they do, in time, grow back.



THE FANTAIL - This type of Goldfish has the worst specimens on the market than any other type. In any pet shop you will see double tailed comets, poor Tyukins, Ribbontails and other cull fish. These are all referred to as FANTAILS. Look at illustrations I and J. This will give you an idea of what they should resemble. They are shaped much like the Pearl Scale. In fact, if you want a high quality Fantail this may be the place to look. Find someone breeding Pearl Scales and see if they have any that did not pearl. Then start developing your own strains of Fans.



APISTOGRAMMA CACATUOIDES
(A BAP Report)

By: Gerry Hoffman, PVAS

Apistogramma cacatuoides is a New World dwarf cichlid reaching a size of about two inches in length, with the female about 1/2 inch smaller. As with other closely related species, the males are noted for their double pointed or lyre-shaped tail, and an elongation of the second and third rays in the dorsal fin which gives this fish its common name, the Cockatoo Dwarf Cichlid. Females remain somewhat drab in color except at spawning time, when they take on a golden yellow hue.

I obtained six fish about three weeks prior to one pair's spawning and, being only 3/4 to one inch long, they appeared too young to attempt any mating activity. Their 5 1/2 gallon aquarium was freshly set up with a corner box filter, several rocks, gravel, and a few rooted plants. The genus Apistogramma likes clear water, warmth, and privacy, so a temperature of 78-80° was maintained, with ph 6.8 and DH 9. Seemingly fussy over food, only live foods were accepted at first. A diet of live tubifex, adult and baby brine shrimp and daphnia were eagerly eaten. Soon, four of the smaller fish were found huddled behind the box filter and seemed cautious about even coming out for any live food, while a young male and female remained in the rocky area. In a few days, there were five fish behind the filter.

Suspecting an illness, a closer inspection by flashlight revealed five timid fish at one end of the tank and a bright yellow female at the other end glaring at me. On the rocky ledge was a group of 20-25 tiny reddish eggs, at most 1 mm in diameter. Thinking the fish were a bit young to spawn, I hadn't recognized the female cichlid's behavioural pattern directed toward the other inhabitants. Leaving the female to guard the eggs, everyone else was cautiously removed. She stayed near the fry, but didn't appear to fan the eggs as other cichlids do. In the next few days with the hint of a tail appearing and some slight wiggling, the eggs were moved back and forth from one side of the rock to another, always with the head end upwards and all facing the same direction. As the female placed the fry on a new spot, they immediately adhered.

By the fourth day, the spawn had been placed in a pile in the gravel under a corner of a rock. Not yet free swimming, they hardly seemed to move at all, unlike the quivering masses often seen in the larger spawns of the cichlid family. At this point, the eye area was fairly well developed and the yolk sac was still reddish in color. The next day saw some occasional upward bursts from individual fry, but it wasn't until one day later that they were out free swimming in a school.

All this time, the coloring of the female became more intense, with a gleaming yellow color accented by black bands in the foremost dorsal rays, a vertical band through the eye, another in the pelvic fins, and a horizontal band running from the eye to the caudal fin. It's always a sight to watch the female leading the fry around their home, catching one and spitting it out again. Under the mother's protection, the young were eating microworms and newly hatched brine shrimp immediately. Ten days after spawning, the female was removed and the fry allowed to mature on their own. At 60 days, about twenty young A. cacatuoides were 1/2 inch long and growing. A small spawn, but an unexpected one, too.

BUMBLEBEE GOBIES FROM SANTA

By Jim & Nancy White
Reprinted from Tank Topics
Greater Akron Aquarium Soc.,
March, 1977

BAP Report on Brachycobius xanthozona

We've had these cute little miniatures off and on for years, but never tried to spawn them. They never seemed too hardy. We'd buy several, acclimate them slowly to a community tank of small fishes and they'd gradually die off. Then in Sept.'76 we set up a 40 gallon brackish water tank. The water wasn't really brackish (should read 1,010 on a hydrometer) but we did put in 1 gallon of water from a marine tank, so some salt was present. We used coral for decoration and planted water sprite. The effect was startling, with the white coral, the bright green live plants, a few red swordtails, 3 each of Monodactylus sabae and M. argenteus, 2 danionids, 6 scats and the 4 little bumblebees. Substrate was dolomite over U.G. filters, temp. 78°.

All of the fish except the swordtails were purchased as small as we could find but they didn't stay that way for long. The Monos grew extremely fast and the others weren't far behind. Before long, any mouth in the tank might have tried to engulf the little bumblebees, so in November we moved them to their own 10 gallon tank.

According to Willy Jocker, in Spawning Problem Fishes, Book II, the bumblebees need soft alkaline water, the two of which do not usually go together. We had moved them with water from the 40, which was pH 7.8. We then added a piece of coral to their 10 and a nylon knee stocking filled with 2 cups of Canadian peat. Jim added a 5 oz. cup of water from a marine tank. Not knowing he had done so, I added another 5 Oz. cup. Not knowing I had done so, he decided later that his addition wasn't enough and added another 5 ounces. 10% water changes were made each week and by now each of us thought the other was adding salt and neither of us did. We're going to have to start communicating soon! Needless to say, we have no idea how much salt was in the tank. Truth is, we didn't expect them to spawn, even though we provided 3 large empty mystery snail shells for the purpose, 'just in case'.

Their diet consisted of live baby brine and small amounts of frozen adult brine. In spite of our mismanagement of salt, it soon became evident we had two fat 1½" females and 2 slender little 1" males.

By Dec.1, just 3 weeks after the move, one little male began defending a mystery snail shell and trying to lure a female in to join him. She must have done so, for 3 days later he was guarding some amber--white eggs, a few of which could be seen on the upper inside, hanging from threads. They would bobble back and forth as the male, and sole protector, fanned them. Since Christmas was coming faster than we could get ready, we left the eggs and added some floating water sprite and hornwort, hoping some of the spawn would survive on the infusoria and hide in the plants. None did.

We moved the male's favored snail shell to the front glass with the opening facing out and just an inch away from the glass. Even if we didn't have time to culture infusoria, we could at least get pictures if they spawned again, and they did, on Dec. 20th. This time there were at least 25-30 eggs visible. On the third day, every small egg that we could see had 2 large black eyes, and this is when we started calling them - 'The Eyes". Being so close to fry, we couldn't stand to leave them to whatever fate had befallen the others and moved the shell containing The Eyes to a small 6"x6"x6" container. We used all of their water and placed an airstone, on fairly strong, right beside the shell. No fungicide was used.

The flurry of Christmas left little time for Eyes or anything else. The day after Christmas we realized it had been 6 days from spawn. Sure enough, several dozen little slivers were darting about the container and we had no infusoria ready. What do do? Three tanks away was a 5 gallon with sponge filter and algae covering the sides. Grunge was on the bottom and just a few livebearers that wouldn't mind being moved, which we did.

We then dumped the 5, being careful not to disturb the algae, and left some of the grunge in the bottom. We refilled that tank with water from the parent gobie's tank and then eased the small 6" square container down in the 5, allowing the slivers to swim out. The snail shell still contained many attached fry that were not free-swimming, so we layed the shell on the bottom of the 5, now containing the freeswimming fry. We didn't put an airstone next to the shell for those remaining, for they looked ready to swim. We added some floating plants from a nearby tank and 5 drops of liquafry. With fingers crossed, we hoped there were enough organisms in the tank to keep the fry alive until they could eat live baby brine.

The next day a check of the snail shell found those remaining had turned white and died. Perhaps if we had either left them in the hatcher with the airstone or put an airstone beside the shell when it was moved to the 5, they would have survived. However, we didn't and they didn't, so attention was directed to the living slivers. They were pale grey and seemed to hover at random about the tank, not showing preference to any area. They'd dart now and then and seemed to have rounded tummys (a magnifying glass is indispensable for checking this!) so apparently could see food we couldn't see. We tried newly hatched Bay brine, even though Mr. Jocker said they couldn't eat it for a week. They showed interest and would snap at it, but it was still too large for them. They survived the first 2 days on whatever was in the tank and were able to eat newly hatched brine on the third day.

A note here on Mr. Jockers' books. We've read that his works are worth their weight in fish eggs and we believe it. He gives instructions in great detail on spawning and raising fry of problem fishes and leaves few, if any, unanswered questions. The fact that our bum-

blebees could eat live brine after 2 days and his took a week, should in no way detract from his excellent writings. Many variables could be responsible for this difference and anyone spawning them would do well to be prepared for a week's feeding on infusoria, just in case. Where we part company with authorities is when reports are obviously guesses, and not based on someone's actual experience in working with the specie in question. Mr. Jocker has no doubt worked with every species he's written about, and differences you may note can be reconciled.

Though it is not always so, we feel we're home free once the fry are eating live brine and the little bumblebees did not disappoint us. We managed water changes by changing 10% in the parent's tank, then changing 10% in the fry tank using the parent's water. Eventually both tanks should be nearly free of salt, making acclimating of fry to new homes easier. They apparently do O.K. in fresh whater but are happier with the addition of slat. We feel our past experience in gradually losing them in community tanks was a result of them getting the tail end at mealtimes. They are ravenous little eaters, but take their time, and do not compete well in a tank with swift, darting species.

The Eyes grew into their eyes and it was no longer noticable after a week. They grew fairly slowly but at 2½ weeks had taken on the characteristic 4 black stripes of the specie. This transformation was remarkable, for it seemed to happen overnight; no stripes one day - stripes the next. The basic fry-gray between the stripes did not give way to yellow for another week. At one month, the count is 45 wee bumblebee gobies that are tiny 3/8" duplicates of their little parents. We couldn't have bought a better Christmas present.

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LET'S TALK CICHLIDS

By Edwin (Bud) Welty
The Youngstown Aquarist
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The difference between large, healthy adult cichlids and under-sized ones is due entirely to how the fry are started out in life. Too often fry are only half heartedly cared for and as a result the fish never grows up to its potential size and never becomes robust and completely healthy. With this in mind, this month I'll talk about raising cichlid fry.

The best hobbyist in the world is Mother Nature. She knows exactly what to do at all times and she seldom makes a mistake. One of her children, homosapiens, also known as man, is not mistake free and because of this our pet cichlids die at an early age, never grow up to maximum size and refuse to fall in love and start a family. If you have these problems and if you are always making mistakes, then maybe you should take a few lessons from Mother Nature and then apply it to your aquarium management.

The first thing to remember is that your aquarium only has one season and not four. Your aquarium may stay at a constant 78° for 365 days a year but our fishes home waters are constantly changing. In nature these seasons are directly related to the reproduction cycle of fishes, but in our tanks the one season allows our fish to spawn all year around. There are still species of fishes that only spawn at certain times of the year in our aquariums such as goldfish, but I've found that cichlids will spawn throughout the year if properly cared for. Some fish will spawn after certain conditions arise to trigger the spawning cycle, such as heavy rains, colder waters, warmer waters, etc. But one condition must always be there, plenty of food.

Different areas of the world have different breeding seasons, but they are still regulated by the availability of large quantities of food. Heavy rains and the warming of the climate creates an abundance of insects to condition the fish for breeding. Also because of the rain fed oxygen rich waters there is an infusoria bloom which the newly hatched fry eat. As the fry grow they eat smaller fry, insects, etc. The adults have an abundance of small fish, tadpoles and insects to condition them for other spawning and the future dry season. This cycle allows plenty of food for everybody. It allows for a rapid growth rate and the conditioning of the fish for the up and coming seasons when food is scarce.

The heavy rains make the water oxygen rich which also increases the growth rate. The rains also work as a perfect filtration system by washing away all the impurities and making the water almost perfect. Also, the warming of the water increases the growth rate assuring the fry proper size to allow them to get through the up and coming shortages of food. I realize that conditions may vary from area to area, but the above are generally the conditions that prevail in the fishes breeding season.

Now if you take the above and apply it to your aquarium management you cichlid fry will be assured of a good start in life.

It doesn't matter if you have the fry with their parents or raise them in a separate tank, they should be handled the same. Immediately upon free swimming be prepared to feed baby brine shrimp. To me, this is the only first food for baby cichlids. Liquid fry, micro worms or infusoria are too small and lack food value that is so needed in getting cichlid fry off to a good start. Another reason brine shrimp is good, when fed heavily they stay alive for about two hours, thus allowing the fry to graze. Feed baby brine at least twice a day and more often if possible. A powdered food may also be fed in addition to the shrimp feedings and as the size of the fry increases, so should the amounts of food and the size of the dry food. If you are feeding baby brine it would be advisable to add othertypes of food to enlarge the variety and to assure the fry of getting the proper diet. After feeding, the fry's stomach should be chock-full and bulging. It would be a good idea to add a couple of corydoras catfish or some large snails (after the fry are free swimming) to help clean up the excess food.

The temperature is also important in raising healthy fry. 76 to 80 degrees is safe and recommended by many. Temperatures below 76 will slow the rate of metabolism which in turn will decrease their appetite and growth rate. Cooler waters are sometimes harmful to the less hearty species.

Temperatures above 80 degrees will increase the growth rate but there are two dangers. 1. The higher the temperature, the less the amount of oxygen to be found in the water. In a crowded tank with many fry, the lack of oxygen is very uncomfortable and may lead to a very dangerous situation. When the metabolism is increased it also shortens the fishes' life span. Also, I have found that fish raised in warmer waters (84 to 88°) have a harder time adjusting to new surroundings. 2. Size of the aquarium is also important. Of course the best rule is "the larger the better". As the fry grow, you should keep moving them to larger quarters. If you do not have larger aquariums you may use smaller tanks, but divide the spawn as they grow. Some of your more advanced hobbyists have the capability of raising larger numbers of fish per tank, but this is unadvisable and dangerous for the less experienced hobbyist.

People that know me are well aware of the importance I put on frequent, partial water changes. I recommend these changes for fishes of all ages, from the very old right down to the youngest fry. I've found that fry need the water changes more than adult fish for one simple reason. Remember fry are in the process of growing. Everything possible should be done not to retard the growth rate. Also remember the heavy rains keep the lakes, rivers and streams clean and pollution free, so why can't we do the same for our aquarium fish? Adult fish, although they need water changes, can occasionally go without because you don't have to worry about the growth rate. Depending on the amount of time available, 10% of the water should be changed daily or every other day. Small daily water changes are better for the fish than large water changes once a week.

These 10% daily water changes will help the tank maintain a more constant pH and these daily changes will add up to 70% weekly, where a once a week change will only be 25 to 30%. Feed them heavily, keep them warm, give them plenty of room and of course, CHANGE WATER!!!!!!

My last thought for the month deals with the word "my". Most people don't use the word "our". Everything is my house, my car, my friends, my money, my time, even my children. This is the sound of selfishness and I've never met a selfish person that was truly happy. They fail to realize that everything that is given to us is actually borrowed from someone or something greater than us. These things are only loaned to us for our short stay on earth.

So, if you want to use this two letter word, then use it when you talk of your accomplishments in life.

Thank you for listening and "Think Cichlids".

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WHY WHITE WORMS?

By Judy Jordan
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White worms, compared to most other live foods, are richer in protein. They do not smell, and if you forget to feed them for a couple of weeks, so what? Most aquarists know because they are so rich, they should be fed to fish only twice a week as a treat.

My original container is a glass refrigerator dish 4-1/2" wide by 3-3/4" high by 7-1/2" long with about 2-3/4" dirt. Plastic shoe boxes with larger dimensions are excellent to use and they may be purchased from any department store. Either top must fit firmly, but not air-tight.

All-purpose potting soil which usually has been sterilized and says so on the bag is best to use. Do not use African Violet soil as this type has other ingredients which are harmful to the worms.

Feed once a week with cooked cereals such as oatmeal or bread soaked in milk. For example, using bread, start with a quarter size piece. If in a week this is gone, stick to this size until your culture grows. Do not leave left over food in the container from one week to the next. At this time, spray the culture with water. The same spray bottle you use on your house plants works well, but be sure there has been no fertilizer in the container. (Soluble insect spray doesn't do them a lot of good, either - Ed) Bury the food, either at the side or the bottom, then you can see when it is gone without disturbing your worms. Burying the food also cuts down on mold and mites. Do not kill your worms with kindness! Do NOT overfeed!

Since my bedroom is the coldest room, 72°F, in the house - this is where I keep my worm cultures. The closet, if you have room, is better because it is colder and darker. They must be kept cool, but not refrigerated.

The best time to harvest the worms is about three or four days after feeding. The worms congregate around the food. Mine have never amassed in a ball yet. To separate them, use tweezers. If mites are present, the fish love them, too. When the white worms start up the container side, it is definitely time to harvest them or start a new culture. A new culture takes four to six weeks before it should be harvested.

Let the worms rest and reproduce during the summer when there are so many other live foods available. This insures a source of live food for the long winter months. At this time, the worms do need to be watered and fed.

My original culture in the glass refrigerator dish is two years old. Good luck with yours too.