

FISH WORLD



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Dear Reader

During the past year FishWorld has undergone changes, all for the better, I am glad to say.

Any magazine, regardless of subject matter, depends on readable content for its popularity and to this end we have produced far more aquatic articles in order to meet this demand. As a result of this, the Federation's Approved Dealer Scheme (see the coloured mini-panels in each issue) has rapidly expanded, to some 90+ premises, as more dealers appreciate being able to reach more specialised customers through our columns.

It is a fact of life that, to survive, there has to be more than just articles in a magazine and here I must thank the aquatic trade who have taken advertising space whose revenue provides a financial helping hand to enable us to keep the quality of production at its usual high levels. Another big 'thank you' is due to our production house at Haywards by Design who unfailingly deliver on time despite our shortcomings in meeting ever-encroaching deadlines.

Thanks to generous support from Aquarian, there isn't a single Society, Judge or Speaker that doesn't receive FishWorld free of charge, as do recipients of replies from the Aquarist Advisory Service. FishWorld has an ever-growing readership not only at home but overseas too.

We think we've got another good issue with this one but, if you feel differently, then the remedy is in your own hands - get writing and send your articles in to our Features Editor (by 21st January) or moans and complaints (perhaps bouquets sometimes!) to me.

We wish all readers a Merry Christmas and a Peaceful New Year.

Peter A. Furze

Peter A. Furze, Editor, FishWorld

Material for the next issue of this magazine should be in by the 21st January 1995, and sent to either myself at 9 Upton Road, Hounslow Middlesex TW3 3HP Tel or fax 081-570 0934 or The Features Editor, Dick Mills 10 Rosken Grove, Farnham Royal, Buckinghamshire SL2 3DZ.

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FROM THE CHAIRMAN

It seems such a short time ago that the Editor of the then F.B.A.S. Bulletin asked me for a regular item each quarter, since then, I have had the similar 'obligation' hanging over me for Fishworld and, whilst it never gets any easier to put a few words together, at least I ought to be comforted by the fact that this is to be my last one.

For me, the past eight years have provided a period of great pleasure in leading the F.B.A.S. Council, and working together with the Aquatic Trade too, to bring to our member Societies (and increasingly many non-members as well) the benefits of the Federation's numerous services. We have contacted the uncommitted parts of the hobby like no other organisation has; we have reached out to people who never even know of our existence, let alone our willingness to help them with their fishkeeping problems. It seems, now, that whenever anyone wants expert advice or some other form of fish-assistance, their first reaction is to 'ask the Federation'.

With such a high public profile, I feel the Federation's future is ensured. My greatest hope is that all the hard work which has laid the foundations for such a great future will be taken up and continued by the new Chairman and his team. Incidentally, I can thoroughly recommend the support of the Council — their efforts cannot be bettered: for a bunch of spare-time hobbyists (for that's all they are!) they have given of their time willingly, have travelled many a long mile and, apparently, still come back for more!

In the previous issue of Fishworld, I promised that this last period of my term of Office was to be the best. It started off with a great win at Hampton Court where we won a Silver-Gilt medal and more recently, the Federation was delighted to be present at the British Aquarists' Festival in Manchester; those of you that supported the Supreme Festival of Fishkeeping at Weston-super-Mare, will no doubt agree that it was the best ever. The whole event seemed to click together and the friendly atmosphere was evident from the first day. I would thank all of our friends in the aquatic Trade for supporting us yet again, the resident guests came from far and wide and, encouraged by excellent coverage on television, day visitors were impressed too.

Well, now the time has really come to sign off. Thank you, Societies and Traders, for your support and friendship over the years, please transfer them to the new team for a continuing successful Federation future. Having been at the planning end of things for so long, maybe I should now take time to enjoy some of the services myself from the consumer's end.

A Very Happy Christmas and a Successful New Year to fishkeepers everywhere. See you around the fishkeeping scene.

Joe Nethersell

Joe Nethersell, Chairman F.B.A.S.

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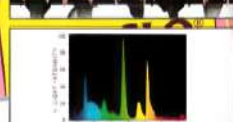
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CLUB NEWS

Essex Interclub by Chris Cheswright

Another year passes along with its successes and failures. Five clubs set out on this year's round of quizzes and tableshows, Ilford, Romford, Thames, Walthamstow and Southend. Unfortunately due to various reasons Romford had to withdraw and recently I have been informed that the Society is disbanding. It is a shame to see a society go that has been around for so long. We shall miss Romford & Becontree Aquarist Society.

The other Societies beavered on with answering impossible quiz questions, ending with a game of Bingo at Ilford. As usual, these events are treated as a good social night out allowing the various members to make new friendships or, in some cases, ending them!

Over to the positions — a bit of an embarrassment for us here at Southend — but the others have given us plenty of stick over it. In the Quiz — in reverse order Ilford; Walthamstow; Thames; Southend. In the Tableshow — Ilford; Walthamstow; Thames; Southend.

The prize for our endeavours? To organise next year's events.

The Societies would like to send condolences to the loss of two Fish Keepers in 1994, namely Henry Walters of Thames and Glad Somers of S.E.L.A.S., both of whom were great characters and will make the world of fishkeeping an emptier (and quieter) place.

As many of you know, 1995 is the 60th year of S.L.A.D.A.S. so look out for one or two special events.

A.S.A.S. Fishkeeping Convention

by Jack Stillwell, Chairman

The Convention held in Portsmouth on Sunday 25th September was attended by Bournemouth, Eastleigh, Hounslow, Isle of Wight, Mid-Sussex, Portsmouth, Reigate & Redhill, Salisbury, Solent and Southampton Societies — a total of 61 aquarists.

There was an excellent talk on Fish Health by Adrian Exell of Interpet, followed by a break for coffee. This was followed by Steve La Thangue who entertained us with reminiscences of collecting fishes in the Amazon and brought forth many questions.

After an interval we enjoyed an excellent buffet, prepared by Dawn Slade and this was followed by a well supported auction in which there were 87 lots of fish, books and aquatic equipment. The winning ticket number was held by Bill Slade who won a book on Fish Health and an aquarium Test Kit donated by Interpet.

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(continued)

A.S.A.S. Fishkeeping Convention - continued

Altogether, a modest but successful beginning to what I hope will become an annual event in the aquarium calendar.

Mid-Sussex Aquarist Society

by John Smith, Chairman

On behalf of the above Society I would like to thank all the exhibitors who attended our 1994 Open show, for helping to make our Show very successful. Thanks also to the Judges for their time and expertise. To Dr. David Ford & "Aquarian"; Dr. Neville Carrington & "Interpet"; "Rolf C. Hagen"; Aquarist & Pondkeeper. The F.B.A.S. and local sponsors Crabtree Aquatics of Lancing and Splash of Portlisle our grateful thanks. Last but not least thanks to our own club members for their support. Best in show Bofia sidmunki - Andy Feast.

South East London A.S.

by Pauline Thwaites

It is with regret that we have to inform our aquatic friends of the sad loss of one of our members Gladys Somers who passed away on the 21st October 1994.

Gladys joined SELAS in 1980, becoming Secretary from 1988 to 1990 and from 1991 to 1994 she was the Club Treasurer. Gladys was a significant member of SELAS, she will be greatly missed by all who knew her.

Hounslow & District A.S.

by Bob Nelhams

Many thanks to all who supported our 1994 show in September. Whilst our Trophy Class was one of the less attractive classes to the 'pot hunter', we still managed to get a good number of entries on the bench. Our sincere and grateful thanks also to "Aquarian" and "Rolf C. Hagen". Special thanks to "Interpet" for the Best in Show Trophy and the Gold Pin.

The GREEN Guide to ... Tropical Fish

by Nora Green, Tameside A.S.

My husband hasn't a clue how to relax, he also has a quick temper — he's so bad sometimes I'm sure he'll have a heart attack. To be fair, it takes him 30 seconds to lose his temper, then another 30 seconds to get over it. Then two days to complain about my sulking!

Now everyone knows that sitting watching fish is relaxing, otherwise why do they have them in dentists' waiting rooms? So, to help him relax I suggest we get some fish. The most popular saying in this house now is ... Fish help you relax? What a load of ...

The first thing we did was to buy ourselves books on tropical fish. We did everything by the book, once we got the tank up and running and were buying fish. We carried a list around with us to show the shop whenever we saw a fish we liked, so we wouldn't mix fish that weren't suitable. This way, you soon find the reputable shops — one shop wouldn't let me buy a Red Oscar, while another sold me a Red Fin Shark that turned our house into a battlefield.

The Shark spent its time chasing the other fish round the tank, while I in turn, spent my time tapping on the glass to reprimand him. The problem with that was that in order to get to the tank I had to pass between hubby and the TV! It wasn't my fault that whenever I wanted to go to the tank someone scored a goal! In the end, hubby says on of us will have to go. We find a shop that will take him off our hands — hubby can't wait to get home to get him.

Can you remember catching your first fish? My husband made it look the

most difficult task on earth. Half an hour later, I'm banished to the kitchen because he says even after all this time I still don't know when not to give unwanted advice. All the plants that haven't died from heart failure are now floating on top gasping for breath (now I know you're going to say plants don't do that — you haven't seen ours). He also has had every other fish in the tank in the net, plus to make matters worse, I have a sense of humour! When he finally manages to net the Shark I'm summoned from the kitchen to hold the bag while he gets the Shark into it. Now this is a bit like being back at school and getting the giggles, it's not what your laughing at, it's the fact that you shouldn't be giggling at all that makes it worse. So, you're standing there with your legs crossed, a hankie stuffed in your mouth and tears streaming down your cheeks. But you're expected to hold the bag steady while he sets the Shark into it — I tell him I'm giggling because I'm nervous ...

About an hour later we arrive at the shop with the fish in the little bag. I'm carrying it because he's driving and because he says he's tempted to jump on it. The shop door is stuck ... I didn't notice it was stiff before. We look through the window, it looks closed. Hubby looks at his watch — it's taken even longer than we thought to catch the ... thing. The shop has been closed for half an hour. He does a funny sort of war dance, right there on the pavement. Because I'm holding the bag, the Shark is safe but we can't say the same for me as my sick sense of humour has again reared its ugly head.

Shortly after we got our fish I nearly killed them all by overfeeding. Everytime I went near the tank (about every 10 minutes) they would swim to the glass. I thought they were hungry, so I fed them. What I didn't realise was that it was my personality that was attracting them.

All our fish are very friendly and will feed from our hands. We also feed Bloodworm from a net, therefore theoretically eliminating any fear of the

The GREEN Guide to ... Tropical Fish

(continued)

net and making them easier to catch. Mind you, whenever you put the net into the water all the fish jump into it, apart from the one you really want — that's the one hiding under the rock! But my theory is this — hubby frightens them. If he can't catch the one he wants, he loses his temper and starts shouting at it. Now if someone was shouting how they were going to squash you, wouldn't you hide?

Hubby does the water changes, but he sometimes lets me help. I usually get to rinse out the sponge from the filter. Mostly, he does it on a Sunday morning while I'm out — he says I get in the way. I do get some good ideas but not always the credit they deserve. For instance, because of where we keep our breeding tank it gets a lot of sunlight and the water goes green. While we were breeding Angels the water was so bad we couldn't see the fish. I came up with this great idea — if you can siphon water from the tank into a bowl, why if you can hold the bowl high enough can't it work the other way? Hubby, who is bigger and stronger than me stands on a stool holding the bowl of water above his head with the tube hanging down (no, I resisted the urge to knock him off). Our siphoning tube is rather up-market and has a tap on one end which I am playing about with whilst we discuss the best way to go about things (or rather hubby is telling me what to do and to make sure the tap is turned off). I hear a gurgling sound — (I must have turned the tap on!) but before he realises what I've done I turn it off and smile sweetly up at him — I'll show him who's stupid. He, however, is about to start another one of his screaming fits ... there he stands, on a stool holding above his head a bowl of water — coming from the bowl is a tube that is emptying water down his legs. Then, to make matters worse, my nervous giggles start again and I run into the living room to lie down. Hubby can do

nothing except shout naughty names at me, as any sudden movement will spill water over his head, as well as that already running down his legs.

Because we only live in a small house, our breeding tank is on a work surface in the kitchen. I'm told this isn't an ideal place to breed fish, but it works for us. Hubby says it must be something to do with the camouflage as the kitchen is constantly full of black smoke, while at our local Club there is a nasty rumour going around that with my luck if I put two males together they would breed! I can't get them to understand it's skill!!

We have 2 Pink Kissers which, although at the time I didn't know, weren't old enough to breed — I thought I would try. We put the smallest in the tank first, then hubby replants all the plants in the community tank. I don't think he will ever learn how to catch fish without first uprooting all the plants, the way he rushes round the tank with the net. I spend half an hour watching her (I call this one "her" because it's the smallest) and she doesn't seem very happy alone. Hubby isn't very happy as he wanted to move them together in the first place. While he is replanting the tank, yet again, I sit watching the two of them and decide since they still don't look happy they should go back into the community tank again. I've always wanted to let my Angels rear their own young, maybe we should put them in the breeding tank? Hubby says this time both fish will come out of the tank together, that way he'll only have to replant it once. While he's doing just that, again I don't feel they look happy and maybe they should go back. He's not going to like this — he's uprooted all the plants three times in two days and he's bound to blame me if they die.

Anyway, as he's decided to put central heating in, the breeding tank will have to be emptied regardless. I think the only real reason we have central heating now is because he couldn't face replanting the tank again!

International Betta Congress

courtesy of Gene A. Lucas (Flare Magazine, USA)

For several years I was a partner in a local fish tropical store and we regularly purchased fish from customers or local breeders. Two of these local breeders were purchasing the most fabulous swordtails we ever encountered. They had superb colour and were always in fine, robust condition, but their most incredible quality was their size. They were 3 to 5 or 6 times the size of the ordinary swordtails we got from wholesalers and fish farms! Males, which usually nearly stop growing when they reach sexual maturity were consistently as large as the females.

As might be imagined, we were always glad to get those fish, even at a much higher cost. They sold quickly in spite of their higher prices and we had the privilege of offering the best fish around. There was just one problem, invariably after a few days they would begin to deteriorate rapidly in our tanks. We would begin to lose many of those that were still with us. Customers often reported the same experience. We suspected infections at first but were unable to detect any and medicating didn't seem to help. We also usually had other fish in the same tanks and they would usually remain healthy, as did other fish in customers' tanks.

As it happened, when I first noticed the problem I was also developing an aquarium fish course, which I now teach at Drake, and I had been doing a good deal of reading and thinking about what to do in some lectures concerning aquarium management. We had encountered another problem on a rather routine basis which seemed in many ways similar. People would buy some new fish, take them home and put them in their aquarium, then either have them all die or stricken and die later. The common story was that the fish that were already there were still doing fine

... there must have been something wrong with our fish ... an apparently logical deduction.

We usually found that the fish in our tanks were still okay too. The problem was in the transfer, but just what was it? If pH was intolerable why did their fish survive? If the levels of nitrogen compounds were high or water hardness varied or some other parameter of the aquarium environment was "out of synch" how come there were no problems with their other fish?

Conversations with the swordtail breeders revealed such details as frequent feedings (including live foods), special effort to set size on young (especially males!), careful selective breeding, and ... scrupulous attention to aquarium management (filtration etc.), including a 90% water change each week!

Betta breeders are aware that most of the people who have what are considered superior strains also put in a lot of time doing exactly the same things those swordtail breeders do. Only with Bettas it means changing water and cleaning jars regularly ... meaning weekly or even more often.

One always hears about the toughness of Bettas. They can be kept in small containers and shipped in even smaller ones. They supposedly come from the polluted water of small puddles or rice paddies in Southeast Asia and thus find jars of bad water similar to their natural habitats. Rubbish! It's not so much that they thrive in such conditions as it is that they survive in spite of them!

Well, knowing what happens or what can be tolerated doesn't solve any problems for breeders, dealers, buyers or hobbyists who ship Bettas to shows. After I had studied the nature and maturation of filtering systems, the cycling of nitrogen compounds and the tolerance ranges fish have to various

International Betta Congress

(continued)

things, I finally sorted out some ideas which integrated the various factors and seemed to explain what our problems might be. I am providing some idealized graphs which will illustrate what I am talking about (Figures 1, 2 and 3). I have generalized the label on the left to "polluted" but any parameter could be introduced in its place, for example:

1. Progressive rise in temperature.
2. Progressive drop in temperature.
3. Progressive rise in pH.
4. Progressive drop in pH.
5. Progressive increase in hardness.
6. Progressive drop in hardness.
7. Progressive increase in ammonia levels.
8. Progressive increase in nitrite levels.
9. Progressive increase in nitrate levels.
10. Progressive accumulation of undergraded metabolites.
11. Progressive accumulation of medications or their breakdown residues.
12. Progressive increase in the number of oxygen consuming organisms: bacteria, protozoa, algae (in the dark), etc. and so on.

Anyone can see the extremes of any of these could reach lethal levels for the fish. They are in a closed system and have no way to escape. I have labelled these extreme levels "Zone C" on the graphs. At the other extreme "Zone A" indicates the safe range where fish tolerate the conditions present without stress. The middle range, "Zone B" is the one of greatest interest. I have called it the danger zone because fish in this range may be able to tolerate it but are under constant stress while doing so.

The ability of a fish to tolerate stress can vary in many ways. If the changes are brought upon it slowly the fish can, within limits, make gradual physiological adjustments to it. However, sudden exposure to extremely different and stressful conditions may cause immediate death

or stress induced susceptibility to infection and disease. The key to the problem is adjustment ... or lack of it. Fish in the best tended tanks or jars live in conditions illustrated by Figure 2. As conditions begin to deteriorate they are corrected ... before they ever become noticeably stressful. When this is done regularly the fish are not required to respond to stress so are free to expend their energies on growth and development. *Betta* feeding schedules (more food; more kinds; more often) can be intensified since excess foods are not given a chance to build up as pollutants.

To whatever degree care might be reduced environmental parameters will become progressively worse before being corrected. As illustrated in Figure 3, they may become stressful. The fish are then obliged to use some of their energies to counter the stress factor (or factors ... one might expect several to be deteriorating at a time). The worse things get, the more stress they must overcome.

Now, think about the problems mentioned earlier. Fish that have never in their lives had to cope with "Zone B" stresses are suddenly plunged into a shop tank. While water conditions may be fairly good it's hard to imagine them being as good as the "home" situation. In strange surroundings, in presence of new "neighbours" (behaviour stress), parasites, disease organisms, medications and other chemicals used to alter water conditions and being forced to adjust to water conditions they may never have experienced before, they may simply be unable to adjust. Things can even get worse. A new owner may take fish into a home tank which is well into "Zone B" stress condition. Fish there may have been able to make satisfactory adjustment on a longer term basis (perhaps months) and be getting along in seemingly good order. The new arrivals

International Betta Congress

(continued)

are dumped in, even after being floated in bags and having tank water mixed in with them, but are unable to survive the shock. The sequence of capture, transport and final (apt term) shock in the "new" situation is too much for them. They die ... while their tankmates carry on.

Another frequent problem of aquarists can be analyzed the same way. A tank containing "healthy" fish is cleaned. Most, if not all, of the water is changed. The temperature is adjusted carefully, maybe chlorine neutralizer added, and the fish are returned. Most or all of them die. What happened? The fish may have spent weeks in "Zone B" stress. Their gradual journey into it may have permitted their adjustment to it but their sudden return to normality is itself more than they can handle. They die or are weakened and succumb to parasites or disease.

How do your *Bettas* look after you change their water? If you let them sit for weeks between changes you may have trouble. A complete change could kill them. They may be tough enough to clamp their fins and struggle for a few days ... maybe, literally, until water conditions get bad enough again to match what they were acclimatised to! If you bring in outside stocks you buy at a *Betta* auction or from a "Quality Care" breeder you may find the reverse. They may seem fine for a few days but the first time they find themselves in water deteriorating to "Zone B" conditions they will have problems.

Ultimately, the problem, as Pogo once observed, is us. We don't all care for our fish the same way. Most of us do not provide optimum care, which is what I had in mind when I referred to quality care. Those breeders who always have their fish in "Zone A" conditions are our "curse". They are a lot like the guy down the street who never had dandelions in his yard. They show us the best and they tell us how



FIGURE 1
Slope of line indicates change of water parameter over time

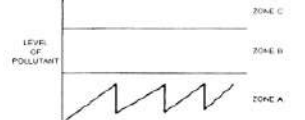


FIGURE 2
In good aquarium or jar management, fish are subjected to minimal stress

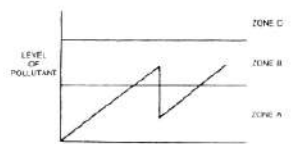


FIGURE 3
In poorer managed systems, fish are regularly forced into stressful range (see text)

International Betta Congress

(continued)

they produce them. They sell us their fish and we dutifully and eagerly take them home and expose them to some good old normal (i.e. "Zone B") conditions. They may survive. They might eventually breed for us. If their stress are too bad they could eventually adjust to our conditions. Don't count on it!

The breeder who expects to take such stock into a "Zone B" fish room with the intention of producing show winners or making a lot of money selling prize *Bettas* had better try a new brand of joy juice! Nurture (or lack of same) will win out over nature (the genetic potential of the stock) almost every time!

As for me ... give me some tough old *Bettas* that can tolerate my conditions. I'm one of those borderline breeders who never seem to be able to maintain a "Zone A" room. Oh, I'm aware of the problems ... but I just never seem to have the time. Maybe that's why I don't win much at the shows. But it may also be why I still enjoy breeding *Bettas* after 20 years. Most of the "Zone A" breeders I have known have "burned out" after 2 or 3 years!!

SO what about the curse, anyhow? I point my finger at those quality care fellows who do so much to make the rest of us feel guilty, lazy or generally inferior. It is their fish that can't tolerate our treatment (they never seem to care much about seeing if our fish can stand theirs!) It's their beautiful *Bettas* beating ours in shows and bringing higher prices at auctions. It's their "pampered pretties" we have the most trouble with. I personally have paid \$30.00 each for three different fish of that ilk at *Betta* auctions ... none of which could ever be induced to spawn. It is "them" who curse "us" with the big challenge ... to do as well as they do. I can only respond with a classic comment ... "Forgive them ... they know not what they do".

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The New LOTTERY Laws

Quite a few of our affiliated Societies and associated organisations run Lotteries (Raffles - Draws), usually in connection with their Open Show or like event ... in which case they should make themselves aware of the alterations in the law governing these. The legislation that gave birth to the National Lottery has also caused changes to be made to Small Lotteries - Club and Society raffles and draws. The main effect is that these can be run on a larger scale than before with protection from the laws that were introduced to govern the National Lottery, but of course there are always stings in the tail.

Basically, this is the situation.

1. A small lottery under the Act is defined as any raffle, draw or lottery where tickets are being sold to the public. Then the lottery must be registered with the Local Authority. The public is defined as anyone who is not a member of your Society. There is an initial registration fee of £35, followed by an annual re-registration fee of £17. (This would apply to all Societies that sell tickets to non-club members).

This is only an outline of the regulations. For complete and detailed information you should send for a copy of 'LOTTERIES AND THE LAW' from the Gaming Board Lotteries Section, 168-173 High Holborn, London WC1V 7AA. Telephone: 0171-306 6279.

Finally, as a plea of ignorance is no protection from any legal action, make sure that you and your Society are conducting your lottery within the regulations.

2. A small lottery is further defined as any raffle, draw or lottery that has less than £20,000 worth of ticket sales, this is twice the old limit, or a total of £250,000 a year if several raffles are run. If a lottery exceeds these limits then it has to be registered with the Gaming Board and a different set of rules apply.
3. The maximum size of a single lottery is now one million pounds in ticket sales, and any registered organisation can run lotteries in any one year that have a total ticket sale limit of 5 million pounds.
4. As far as prizes are concerned, you can give away a maximum of £25,000 or 10% of the ticket sales, whichever is the greater. However not more than 50% of the proceeds can be used to buy prizes.
5. Up to 30% of the proceeds can be used to cover organisation expenses, for ticket sales not exceeding 20,000. For sales above this, then expenses are limited to 15% of the proceeds.
6. The maximum ticket price remain £1. Also the practice of selling books of tickets for less than their face value, i.e. 5 for the price of 4 and the auctioning off of the remaining raffle tickets was and still is illegal. All tickets must be sold at face value no matter the quantity purchased. Whether a private Society raffle or a public lottery.

Motivation or what?

by Shorty

One day in the shop, I idly wondered what motivates people to buy fish. I came to the conclusion that in lots of cases, it could be attributed to none other than the Goldfish.

Think about it. Dads and Mums go out shopping with the kids. If there is a Pet shop in the town they will want to see the rabbits, hamsters, snakes etc. "Dad, can I have a rabbit?" "No, you had one last year and did not look after it." "Can I have a hamster, snake or budgie then?" "Don't be silly, let's get out of here." "What about a goldfish then, they are only 50pence?" "No, I said, they are all too expensive, let's go". Two days later, the same family return to the shop. "Any goldfish bowls and fish food mate?" asks Dad. I enquire if he wants a goldfish. "No," says he "we won one at the fair last night on the Hoop-la stall, mind you it took nineteen throws to get it".

I mentally calculate that at three throws for a £1 the little goldfish has cost him over £6! Then his wife pops up. "Joe, we should buy another one because one on its own will be lonely and there is not much room for two in one of these bowls. We shall get one of these 18" glass tanks." I liked this lady.

Tank, gravel, plastic plants and food went out of the door. Two minutes later Dad is back. "I forgot the Goldfish, one of those black ones will do". The Moor is netted and put in a bag. "£1 please", I said. "Wharf?" queries he. "Is that not expensive for a black goldfish?" I breathe in deeply saying, "This is a Moor, sir, and it is a type of coldwater water fish akin to the common goldfish. It should be quite happy in your tank with the goldfish".

Two weeks later they are back again. "The fairground fish has died and I want something else to go with Snowdrop", says Dad. I raise a quizzical eyebrow. "Snowdrop?" "Yes," he says "Snowdrop the Moor. My wife is one of those politically correct people". I ask

whether he wants another Moor or a twin-tail or what? He settles for a fantail. After another quarter of an hour, he is nibbling at the Tropical fish bait.

"They are a mile more expensive than", he says. I answer that they are but add that so is every other hobby when you start from scratch. I go on to say that if he buys his stuff from me I will give him 5% off. Now he is really interested. "I will have to tell the wife and bring her home tomorrow".

Tomorrow comes and so do they. "Good morning sir, I see you have brought Mrs.....?" "Johnson", she says "but you can call me Molly." "Good", quote I "and you can call me Jim. Now I am not going to embarrass you by asking what you can afford, I shall direct you to this poster which states the prices of all sizes of tanks with everything you will need. Excluding, of course, the fish and water. Of course, if you buy a complete set up I will knock off a massive 10%." "That sounds great!", she says "but I want one to fill a big space. That looks ideal," nodding towards a 4' job. "Tell me, would you could you find the time to set it up for us? We will pay you for your time - and you could give us some hints and tips about keeping tropical fish".

I tell them that it would be no trouble at all and I will call first thing Thursday morning. In the meantime, they will have to make sure that the intended place is really where they want it. The bags of rock and gravel are to be thoroughly washed and waiting. They can also read these Aquarian and Terra leaflets and buy an informative magazine like Fishkeeping Answers or FishWorld.

Another friendship made and another aquarist who is hooked when he comes back a month later for another tank to house another brood of fish that has turned up in his community tank ... and it all started with a goldfish.

Judges' RED and GREEN Pages

Observations on Fish Sizes

The following is repeated without apology. It is as valid today as when the majority of it was first printed in 1972. Although many litres of water have passed through our aquariums in the interim reminding the old hands will not, I trust, come amiss and the more recent devotees to the hobby may have a better understanding of what we are trying to achieve.

It is important for both Judges and Exhibitors alike to appreciate that when addressing size in judging fish the Federation is not stating a maximum size that it is possible for a fish to grow, but rather that which is considered an achievable ideal size to gain maximum points. With fish as with all animals there will be a natural variation of size. What one is seeking is a well grown mature fish not a giant, which is no less a freak than a dwarf. It is also to be noted that the 20 points allotted to size in exhibition terms is only concerned with the body length (from tip of snout to farthest extent of the caudal peduncle) not the fish's girth which must be given consideration in the 20 points allotted to Body.

It is recognised by a large majority of fishkeepers that when growing fish on, it is comparatively easy to grow them to half size, more difficult to grow them on to the three quarters mark and very difficult to achieve the full show size.

It is only logical then to award the points for size in accordance with these facts in mind. All very well but how to turn that information into a pointing system? Fortunately the research information was available. All one had to do was to assemble it and turn it into a system for size assessment. The rate of growth is well documented in a wide range of food fishes Salmon and Trout of course, also Carp, Tilapia, Catfish, Eels and Koi and Goldfish in commercial hatcheries.

Also there are many well documented "wild fishes" that are regularly caught by anglers. These are continuously being photographed, weighed and measured. When the growth rate of each species including these "wild" fishes is charted and all the charts are superimposed one over another, it is quite amazing just how close the growth rates follow exactly the same pattern. From this I was able to produce an average chart from all the results

Judges' Red and Green Pages

(continued)

and turned it into a size pointing graph which having been tested in application over a period of time proved to be a practical judging aid. Therefore the Judges & Standards Committee adopted this graduated pointed system. All that a Judge requires to work the system is a 12" rule, the current Size Sheets and of course the graduated chart.

Size is a feature that is not open to opinion, it is a fact. A fish is either a certain size or it is not. Clearly there will always be a margin of error when measuring a moving fish in a show container. The error of course should be in proportion to the size of the fish and exhibitors must accept this margin of error.

Nevertheless, to reduce this margin to a minimum we have advanced from the days of the Size Chart and 12" rule, The Size

Chart, although still accurate is obsolete. There is available to judges today Refraction Measuring Rules and Size Pointing Discs all to give greater accuracy when measuring and pointing for size and even Graduated Callipers for measuring the small lively fishes. All these aides, together with our annual updated Size Sheets, have improved the quality of judging. We have not forgotten the exhibitor in this. Book 6, the size book is a direct copy of the Size Sheets the Judges use, reduced to A5 to enable the exhibitor to check what size the judges will be looking for. All the above judging aids, rules, discs and size books can be purchased by anyone either direct from the Federation's Merchandising Officer (address in the current YEAR BOOK) or from any of the Open Show Stands.

Any Judge wishing to contribute to these pages for the March issue should send same to The Features Editor, Dick Mills, not later than 1st February 1995.

Influences on FRY growth

by Pat Howard, Southwest Michigan Aquarium Society

Promoting rapid fry growth touches on all aspects of fish keeping. The issues of feeding, water conditions and aquarium size all play a role in the rapidity with which fry grow.

The formula for success begins with healthy fry. The fish I received in the Fry Raising Contest certainly qualified in that area. Maintaining that health should start with adequate space. As I had read that "... fry grow more rapidly and evenly if they are not crowded ...", I placed the 5 contest fish in an established 10 gallon tank.

The tank was furnished with live plants and some rocks, providing numerous areas of shelter. The water temperature was maintained at 80°F and pH and hardness were 7.4 and 13 respectively.

Water quality began with the undergravel filter with which the tank was equipped. I realized that water changes were important but was surprised to read that "the rate at which cichlid fry grow under aquarium conditions is influenced by ... the frequency with which water in the rearing tank is changed. Dissolved metabolites are powerful growth inhibitors and cannot be allowed to accumulate if stunting is to be prevented. Changes of 75 to 85% of the rearing tank volume every 3 to 5 days are by no means excessive". Probably really good advice — my schedule did not allow for water

changes more frequently than once a week. I did exchange approximately 50% of the water weekly, with about 75% replacement monthly, when I also vacuumed the gravel.

Now it was time to turn my attention to feeding. My references told me that cichlid fry need to be fed at least 2 and preferably 3 to 4 times a day. This presented a major problem for me as my schedule only allowed me to be home for short periods during most days. I decided to circumvent the problem by altering the daylight cycle for the fry. Because they were housed in a basement room, I was able to allow them to have "night" during the daylight hours, thus, they were awake and feeding during my night; I simply had to interrupt my sleep to accommodate feeding every 2½ to 3 hours while I was home.

Next attention had to be paid to what to feed. I had read that dried food alone would not provide enough variety to insure continued health and growth in the young fry. Rather, a mixed diet of flake, fresh and live food was recommended.

Influences on Fry growth

(continued)

Novice that I am, I tried to follow that recommendation.

Because these were my first fry, I had nothing small enough on hand to feed them when I brought them home. I therefore began the fry on finely crushed flake food. I soon supplemented this diet with frozen baby brine shrimp, which were eagerly accepted. I found however, that fresh, newly hatched brine shrimp were the preferred food while the fry were small, with fresh black worms becoming the food of choice once the fry were older. (These were first introduced when the fry were approximately 1" - 1½" long). Beef heart met a comparatively indifferent reception. I continued to feed every 3 hours or oftener for the first six weeks, moving to a twice daily schedule when the fry had attained about 1½" in length. Throughout, I varied the food offered, from one feeding to the next, using flake food to supplement the frozen and fresh diet.

I had been told that *Lamprologus brichardi* fry are extremely slow growers. I did not have the experience to realize that this was true when comparing this variety to others. I felt that the initial growth of about ¼" per week was remarkable.

By one month, the fry had added approximately ¾" in length. Then, growth seemed to stop.

L. brichardi have a well-earned reputation for slow growth. The fry

grew to a total of about 2" in length in the 5 months the contest spanned.

What would I do better the next time? I would concentrate on the following:-

1. Move the fry to larger quarters as they grow
2. Larger and more frequent water changes
3. Increasing the number of feedings by spreading them over a longer portion of the day.

It might be interesting to run controlled experiments of these factors to see which changes would have the greatest effect on fry growth — perhaps before the next Fish Growing Contest?

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5. Loistelle, Paul V. The Cichlid Aquarium, Tetra Press, Melle, West Germany 1985.

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Chester Zoo Aquarium

By Peter Burgess,
University of Plymouth

Planning a day's outing for your Society? How about a trip to Chester Zoo and its Aquarium?

The Aquarium of Chester is housed within a rather modest-looking blue building, identified by a brilliant lionfish logo above the entrance. But don't be fooled by appearances, for within lies an aquarist's vision of "Aladdin's cave", with beautiful displays of freshwater, brackish and marine fishes. The aquarium designs are very impressive, and each illustrates a particular type of habitat. For example, there is a South American display (home to some superb *altum* angels, discus and *Corydoras*), an African display (including large characins such as *Arnoldichthys* and *Bryconus*), a New Guinea display and many more. This geographical theme is far preferable to exhibits containing a mish-mash of species representing every corner of the globe. The New Guinea display is especially eye-catching, with its assortment of vividly coloured and conversationally sensitive *Melanotaenia* and *Glossolepis* rainbowfishes, coexisting with large and unusual *Parabassus gulliveri* glassfish (ony fish in that tank would compete well in an open show). The aquarium will greatly appeal to cichlid enthusiasts who will discover a good selection of rift lake species as well as cichlids from other localities such as *Tilapia guinasana*, an endangered species recorded in the wild from just two crater lakes in Namibia. There are also several marine exhibits housing fishes and invertebrates representative of coral reefs, seagrass beds and estuaries. All of the displays are accompanied by well designed information plaques which provide details on the fish's wild habitats and their conservation.

For me, the great attraction of public aquaria is the opportunity to

see unusual species which are not generally encountered within the hobby, and Chester has plenty of these, including rare Lake Victoria cichlids, large African lungfish and Electric Eels, Osteoglossids, Mormyrids (several unusual species including the Angola Elephantfish), and some truly bizarre Cave Cyprinids. The Cave Cyprinid, *Garra barreimiae*, exists in two forms, the normal population which is relatively widespread, and a blind form which has been recorded from a single subterranean cave in the Jabal Akhdahr mountains of Oman.

The blind form might arguably be regarded as a distinct species. Chester Zoo is unique in having successfully bred the blind *Garra* in captivity, resulting in several hundred offspring being distributed to other public aquaria. (More information on the discovery and unusual biology of this fish can be found in July 1992 *Aquarist* and *Pondkeeper* magazine, pp 38-40).

An outstanding feature of Chester Zoo aquarium is its commitment to species conservation. The Zoo is fortunate in having an ichthyologist as its director, namely Dr. Gordon McGregor Reid, and so the fishes get their fair share of attention with regard to captive breeding programmes. The aquarium's off-show area, containing broodstock and their offspring, is a hive of activity, with dozens of tanks housing endangered African rift lake cichlids, rainbowfishes, freshwater stingrays, marine clownfishes and many more, all successfully breeding. The standard of aquarium husbandry is remarkable, the tanks are kept spotless and the fish in glorious health. The captive breeding achievements at Chester are testimony to the skills and dedication of Dr. Reid and the Zoo's

Chester Zoo Aquarium

(continued)

aquarists, Mike Crumpler and Justin Bell. (Top class gardeners are said to be gifted with 'green fingers', perhaps Mike and Justin possess the aquatic equivalent — fish fingers!).

Of course, Chester Zoo is also a great venue for non-aquarists, with its many modern animal enclosures and gardens, and here too it is clearly

playing an important role in species conservation. A few miles away lies the city of Chester, which is also worth a visit (if time permits), being rich in Roman history and fascinating architecture, riverside walks, canal, plus a superb range of high street stores and craft shops (not to mention some fine real ale pubs!).

For more details, call the Chester Zoo information line on **0244 380280**. Book some transport and treat your club members to a superb aquatic and zoological indulgence!



Lionfish (close up)

The New Guinea display with Rainbowfishes and Glassfish.



Scots in the estuarine display

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An overview of NEW imports from Lake Malawi

by Patrick D. McMillan (courtesy of Finfax)

During the preceding 2 years, a number of newly imported Cichlids have come streaming to the forefront of Malawian interest. Most of these new fish have come from the Tanzanian coast and as a result exports from the Malawi coast have slowed dramatically. The purpose of this article is to elucidate these new varieties intimately with respect to size, sociability and breeding behaviour. Hopefully, this article will also stimulate the reader to enjoy the "Malawi Renaissance" by trying his luck with these species.

One species still much in demand from Malawian collectors is *Pseudotropheus saulosi*, a relatively new species. This fish is certainly a gem in the Cichlid community tank. It maintains a very small size even in captivity. The individuals the author has maintained for the past 1 1/2 years have attained a maximum size of 3.5" SL. Sexually mature males display a brilliant blue background colouration with 6-9 black bars. Females are solid gold in colouration. If a mixed group of males and females are raised together only the most dominant male in the community will display sexually mature male colouration. In my experience this is a phenomenon common to most *Pseudotropheus*.

P. saulosi is the most active species of *Pseudotropheus* known to me, seldom slowing down enough for one to get a good look at the male's striking pattern. The males are said to be territorial in the wild (Konings, 1989). However, they seem to be non-territorial in captivity, or perhaps claim the entire tank as their territory. In the aquarium they behave much more like *Melanochromis* species in that they are constantly exploring every nook and cranny of the tank. This is not to say the species is not aggressive, on the contrary even the females are extremely aggressive. In fact these fish would be hard to successfully combine were it not for the fact that they are often the most diminutive members of the Malawi community. Keep these fish with larger Mbuna and Haplochromines, trust me they will do fine!

The dominant male *P. saulosi* seems

to pick a favourite female with whom he breeds with as often as every three to four weeks. Lesser females attract his attention less frequently or not at all. The female seems to carry eggs well if she is from wild stock, however, this species has presented me with the most difficulty I have encountered in obtaining F2 generations. F1 females, especially the most preferred females, seem to always swallow their eggs. My experience has been that the most preferred female is much more aggressive than other females in the school and seem to swallow their brood on the third day post spawn. I lost my first four broods consecutively because of this. The first successful spawn from F1 females was taken 14 days post spawn from one of the lesser females. She became reclusive after spawning unlike the preferred females. I have now observed this behaviour 10 times in lesser females. Spawns have been on the small side, averaging 15 fry. When I stripped one of the preferred females two days post spawn she was carrying 26! The egg tumbler method has so far been unsuccessful.

Pseudotropheus sp. "Tanzanian Deep" was named for its resemblance to a similar species from Likoma Island, "Membe Deep". The two probably represent the same species.

"Tanzanian Deep" is perhaps the most striking of the recent imports. The base colouration of the male is misty blue with purplish overtones. The face, stomach and fins are ebony black. The male has two bright blue interorbital bars which stand out against the dark facial colouration. During periods of intense aggression or stimulation the

An overview of NEW imports

(continued)

male also shows a black stripe from the eye region to the caudal peduncle. The female colouration is gold.

This is another quite small and active species attaining a length of only 3-4" SL. The species is not overly aggressive and if kept with overbearing species such as *Iobretropheus fuellabarti* or *Pseudotropheus lombardoi* the male will not successfully secure his female. It's popularity has been overshadowed by *P. saulosi* which displays similar behaviour and colouration as juveniles (the selling stage). "Tanzanian Deep" is in my opinion more attractively coloured and much easier to breed.

Experience with this fish has shown the females of both wild caught and F1 fish are excellent mothers. The species breeds in three month intervals. Interestingly breeding occurred in a sheltered location with the wild fish and on a flat rock surface with F1 fish in a manner similar to *P. lombardoi*. The time of day which spawnings occur is centered around 3 hours after lights come on in the morning. Broods have been large for such small species between 19 and 32.

Pseudotropheus sp. "daktari" from southern Tanzania is another species which has risen to the top of the Malawi breeders wish list. The male of the species is strikingly patterned with a deep lemon yellow body and fins and black edging on the caudal fin. Females exhibit the black edging on the caudal fin but are otherwise pale brown. The fish attains a length of 3 1/4" in the aquarium. This Tanzanian fish also has its counterpart on the island of Likoma at Membe Point, *Pseudotropheus* sp. Lime (Ribbink et al., 1983). These two species probably represent two geographic races of the same species. Both behave cryptically. (Ribbink et al., 1983).

The species is very aggressive and highly territorial in the aquarium. My wild male has destroyed several large

P. zebra and numerous *Julidochromis*. It should be housed with larger fish or with *Haplochromines*. Keeping it in large groups seems to be the best way to maintain peace amongst each other and also promotes spawning.

P. sp. "daktari" breeds in sheltered recesses in the morning just after the lights are turned on. Mating may occur over an extended period of time, as long as five hours on one occasion. This one is especially fecund and if the female is stripped on the second week post spawn she may breed again as soon as three weeks later! Broods have been the largest I have ever encountered in the genus, numbering 36 to 42 in the larger of my females and 28 to 31 in the smaller. One thing to keep in mind here is that the fry are extremely small. Fry grow quickly but males do not exhibit adult colouration for at least five months. The species has been positively induced to breed by increasing the amount of food available (pellets, spirulina flake and brine shrimp) and by performing weekly water changes using Kent Cichlid Buffer, Chemistry and Trace Elements. I think the real key to keeping Cichlids breeding is in nutrition, the more and better the quality of the diet of any Malawi Cichlid the more often it will breed. Many other fish must be conditioned before breeding but cichlid owners simply expect breeding with no real effort to induce the act.

Four more less popular species of *Pseudotropheus* have made the scene lately. *Pseudotropheus* sp. "Tanzanian acei", *P. sp. "Tanzanian zebra goldbreast"*, *P. sp. "red-top yellow-chin"* zebra, and *P. sp. "Tumbi"*.

P. sp. "Tanzanian acei" is a midnight blue fish with a dorsal fin which is half yellow toward the posterior end. Probably a colour form of the usual "acei" it is not known to the author whether this sp. is a true Mbuna or as in the usual "acei" inhibits

continued on page 33

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Little Giant Pumps

An overview of NEW imports

(continued)

sandy stretches interspersed with fallen tree limbs and vegetation.

At any rate the species is not very territorial or aggressive. Males build elaborate spawning pits. Only one brood has been obtained by the author and that was small, 12 fry with 3 dead.

P. sp. "Tanzanian zebra goldbreast" is similar to the fish described as "*Pseudotropheus lainzilberi*" which the author maintained about 7 years ago (for *P. lainzilberi* see Boensch 1982), the fish great resembles other "goldbreasts" from the Malawi coast and may represent a race of a widespread sps. The fish is a behemoth for an Mbuna, my wild males have all been around six to eight inches SL. The most distinguishing feature of this fish is not its canary yellow breast and typical striking zebra pattern but rather its huge fleshy heavily toothed lips!

In captivity the lips become reduced in size in the F1 generation. Fish of this species are territorial and aggressive which combined with their sizes makes them candidates for only the largest aquaria with other aggressive species. The fish spends most of its time foraging from the rocks and sides of the aquarium, putting its lips to good use.

Breeding requires a large tank and a substantial amount of food. Breeding seems to take place anywhere, and often in different places. Broods are small, around 20 but the fry are the largest I have seen. Males seem to take forever to colour. The fry the author is raising are over 6 months old and still not coloured!

Pseudotropheus sp. "red-top yellow-chin" zebra may be a trade name for a form of *P. xanthostomachus* from Tanzania. It is a large (5-6") fish which is coloured in bright "Carolina" blue with faint to distinct barring and a yellow dorsal. The "yellow-chin" is barely visible as a yellow blotch at the

base of the gills. It is a secretive fish often behaving cryptically. The species is not overly aggressive and will be overpowered by other zebra types. I regret I have not bred this species yet and know of no accounts of its breeding behaviour.

P. sp. "Tumbi" may be the same fish that paraded as "heteropictus-type" about a year and a half ago. It has not become very popular but deserves more attention. The fish is small, up to 4" SL, relatively peaceful and extremely colourful. I think a combination of drab photo in the Cichlid News and lack of availability are the culprits of its unpopularity. Male colouration is bright blue with numerous (approx. 18) black bars radiating from the stomach towards the dorsal. The face is black when the fish is aroused. Females are pinkish-grey. I have recently obtained my first pair and breeding has not been accomplished yet.

Two other distinctive Mbuna have made their way to the U.S. from Tanzania, *Melanochromis similans* and a *Cynathia* sp. sold under the name "Mbamba black".

Melanochromis similans spends most of its time busily foraging from every "nook and cranny" in the tank, on the lookout for small fish and invertebrates. In the aquarium the fish seems to travel in packs and when food is located they act as piranhas. They are not overly aggressive and definitely do not hold any defined territories in the tank. They will make a meal of any new *Melanochromis* additions to the tank but they will ignore previous occupants. The species is one of the liveliest additions you can safely make to your Malawi tank. Maintain them in groups of 5 or so to enjoy their behaviour.

The basic colour pattern is very similar to *M. auratus* but the species has a much more pointed snout and females are not as vibrant yellow.

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An overview of NEW imports

(continued)

Males are dark blue with yellowish white striping. As with *M. vermicoratus* I have observed males reversing their colours at will with blue fading and white becoming black. This usually occurs during aggressive situations.

The species breeds beneath overhangs in a pit prepared by the male. Broods are small and fry are diminutive as well. Amazingly most females continue to feed even while carrying efts.

Cynotilapia sp. "Mbamba Black" is the only "Mbamba" currently available to the hobbyist. The species is striking in colouration being a "reverse zebra". Everywhere the zebra is black, this fish is white, and everywhere the zebra is coloured, the "Mbamba" is black! The main body colour can change with mood from dark blue to very light purple with snow white bars and a white stripe running from the base of the dorsal to the mouth, this is the most radically different of the Tanzanian exports.

Behaviour can be summed in one word, cryptic. The males as well as females seem to find a deep crevice and claim it as their territory and spend much time hidden at first. As time goes on the fish becomes more trusting and will eventually enjoy feeding with gusto on brine shrimp out in the open. The species us a planktivore in nature and in the aquarium it's diet should be based on this as well.

Breeding is very secretive and although the author has been fortunate enough to have two spawns, neither have been observed directly. Breeding probably takes place in the twilight deep in a crevice. Spawns are

smallish, 8-18 fry and are carried well by the mother. Fry have been difficult to wean to prepared food preferring live brine shrimp and not taking flakes for months.

Hopefully you have been inspired by this article to seek out some of these "new" imports and give them a space of their own in your cichlid tanks. The comments made are all based upon over two years of intensive breeding and observation of the cichlids mentioned.

All of the behaviour is based upon fish I have maintained and is supported by accounts given to me by my closest friends and companions as well. The events which take place in the aquarium are very different from those in the wild in many instances and are not meant to convey any generalizations about the species behaviour in the wild, but after all, we are aquarists.

References:

Ribbink, A.J.; B.A. Marsh; A.C. Marsh; A.C. Ribbink; B.J. Sharp (1983). A preliminary survey of the cichlid fishes of rocky habitats in Lake Malawi. South African Journal of Zoology. 18(5):198 Aug 1983.

Boensch, H.A.; Riehl, R. (1982) Aquarium Atlas. Tetra Press pp 758-759.

Konings, A. (1989). Malawi cichlids in their natural habitat. Verdriijn Cichlids and Lake Fish Movies 99,98 and 227.

Book Reviews

When there is 2,074 species to cover, then that should mean a pretty big coffee-table type book. However, **CORAL REEF FISHES, Indo-Pacific & Caribbean**, by Ewald Lieske and Robert Myers (Harper Collins £12.99) manages to contain all the relevant information into 400 pages.

It doesn't take much of a mathematical brain to figure out that that means around 12 fish per page (every other page is text), so illustrating them is by means of artwork rather than photographs. Despite this, the system has advantages for nearly whole families, or groups, of fishes can be covered 'at a glance' — an ideal situation where various very similar colour forms are to be compared. Using photographs of live animals, either in the wild or in aquaria would not have provided such uniform illustrations. Again, with artwork, it is simplicity itself to pinpoint differences between species with an annotation line.

The first 25 pages are given over to examination of the reef environment, the different habitats for the fish. Social interactions, reproduction, protective resemblance and mimicry, symbiotic relationships, reef fish as a resource and its conservation (aquarium keeping gets a good mention!), dangerous fishes, classification, physiology and senses are all thoroughly discussed and the total knowledge prepares the reader for the dazzling display of species which follow.

Very much an identification guide, there is no information with regard to any fish's suitability (or otherwise) for the aquarium, although the sizes given for the species should give some guidance as to their necessary tank requirements. Notwithstanding, within each introductory heading to each family or group, it is usual to find a brief note where such family members are kept in aquaria.

Many years ago, the Collins Field

Guide to Coral Reef Fishes of the Indian and West Pacific Oceans by R.H. Carrozzon (Collins 1977) set the style, however, the illustrations in that volume were en bloc and generally divorced from their associated text. This work is far more easier to use with text and illustrations facing each other. The geographical scope of this new book is worldwide, armed with this Collins Pocket Guide divers, snorkellers and aquarists too can identify almost any fish they come across. I suppose the only drawback of this book is that it's not waterproof — otherwise you could make positive identifications on the reefs themselves.

SYSTEM FOR A PROBLEM-FREE AQUARIUM

is a splendid booklet from DENNERLE NATURE AQUARISTIC.

It is divided into 2 parts - SETTING-UP (and understanding the workings of) the aquarium and a comprehensive PLANT ENCYCLOPEDIA. The first part gives 15 excellent examples of furnishing schemes for various fish collections (it's a pity these aren't arranged in one place) and explains the techniques required for maintaining these tanks in optimum and luxuriant conditions. However, over-technical language is not used, the extremely clear diagrams fully explain all the necessary 'technical' points without the need for it. If you're puzzled by the mysterious ways of the various forms of filtration, for instance, all is revealed here in words you can easily understand.

The Plant Encyclopedia is not an overstated title for there is much to be found in such a compact space. No less than 185 aquarium plants, 15 floating plants and 25 decorative plants (their descriptions, not mine) are included. Each species, excellently illustrated by a colour photograph has comprehensive notes, clear abbreviations and pictograms to give all the practical advice on cultivation from where to plant to how to light. Whilst many manufacturers

Book Reviews

(continued)

produce leaflets outlining basic aquarium-keeping principles. Dennerle are to be congratulated on making this type of work available for whilst this is naturally based around Dennerle's own products this should not deter readers from taking on board the abundance of knowledge found between the covers. A delightful book of real practical help — you may

even allow yourself a smile at some of the translation too.

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The Grapefruit Plant

reprinted from Fin Fun

An interesting experiment can provide you with a very beautiful plant for your aquarium. There are probably some hobbyists who will frown on the use of a Grapefruit Plant in the aquarium, however, this plant is equally as beautiful as any of the prized aquatic plants available to the hobbyist.

To start your Grapefruit Plant, you will require a flower pot, earth, the seeds of a Grapefruit and a little patience. In approximately one month you should be the proud owner of a Grapefruit Plant. When the plant is about two inches high, remove it from the flower pot, wash the roots and then place it in your aquarium. The Grapefruit Plant thrives in the aquarium, has a rich dark green colour, is fairly bushy and has thick leaves similar to *Ludwigia mullertii*.

The plant has been in my aquarium for six months now and has grown approximately six inches each month.

Anon.

1994 SUPREME FESTIVAL OF FISHKEEPING

★ ROLL OF HONOUR ★

Interpet Man of the Year: Dieter Vogt

Chairman's Award: Colin Richards

Award for Services to FBAS: Richard Burton, Alan Benson

Best Trade Stand: Coral Reef Technology

Best Trade Furnished Aquarium: Water Marque

Society Furnished Aquarium Race: Silktown A.S.

Trade Invitation Furnished Aquarium Race:

Pontins, Sand Bay

Best in Show: Class C - *Pseudochalceus kyburzi* (85 pts)
owned by T. Roberts, Valley A.C.

1994 Aquarian Aquachamp: David Gamble, Aberdeen A.S.
(Conservation of Fishes in Lake Tanganyika) 13 points (4 + 9)

Colin Tweddle *Cramlington* A.S.

(*Corydoras*) 12 points (7 + 5)

Chris Cheswright *Southend Leigh* A.S.

(South American Killifish) 11 points (5 + 6)

David Goodwin, *Deal* A.S.

(Nomenclature) 10 points (4 + 6)

Dave Marshall *Ryedale* A.S.

(*Aspidoras*) 8 points (3 + 5)

Bob White *Grangemouth* A.S.

(Breeding) 5 points (4 + 1)



1994 FBAS Supreme Championship



The 1994 Supreme Championship was judged by D.V. Jones of Southampton A.S., who kindly provided the following comments upon his findings. As usual, we thank the Judges & Standards Committee for allowing this courtesy, for the benefit of those who may wish to study the results in more detail than the brief time at Weston allowed.

| ENTRY | PTS. | JUDGE'S COMMENTS |
|---|------|---|
| 1. <i>Rhodeus tabira</i> | 83 | One or two scales lifted, colour down, not departing. |
| 2. <i>Poecilia reticulata</i> | 75 | Overgravid, small. |
| 3. <i>Rasbora pauciperforata</i> | 76 | Down on colour and size. Tail damage. |
| 4. <i>Lamprologus brichardi</i> | 83 | Little down on size, department could be better. |
| 5. <i>Corydoras sodalis</i> | 80 | Down on colour, not departing. |
| 6. <i>Barbus "gelus"</i> | 81 | Colour wrong (for true gelus). |
| 7. <i>Brachydanio rerio</i> | 74 | Poor, getting past ill. |
| 8. <i>Phallichthys pitteri</i> | 79 | Body poor. |
| 9. <i>Phallichthys pitteri</i> | 83 | Nice fish little down in size/colour. |
| 10. <i>Nannostomus trisfasciatus</i> | 80 | Very nice fish but small. |
| 11 | | NO ENTRY |
| 12. <i>Barbus odesse</i> | 79 | Some scales lifted, colour patchy. |
| 13. <i>Botia sidhimunki</i> | 87 | Very nice fish, oversize but down on colour. |
| 14. <i>Poecilichthys sphenops</i> | 75 | Not departing, colour very poor. |
| 15. <i>Paraproteodon axelrodi</i> | 78 | Down on size, flattened ventral area. |
| 16. <i>Corydoras bolivianus</i> | 88 | Slightly down on size. |
| 6TH PLACE JOHN PELL, STROOD A.S. | | |
| 17. <i>Corydoras bolivianus</i> | 87 | Nice fish. |
| 18. <i>Brochis splendens</i> | 88½ | Very nice fish. |
| 5TH PLACE ALAN BEST, STROOD A.S. | | |

1994 FBAS SUPREME CHAMPIONSHIP (continued)

| | | |
|-----------------------------------|----|-----------------------------------|
| 19. <i>Glyptothorax telchitta</i> | 87 | Colour down, could depart better. |
| 20 | | NO ENTRY |
| 21 | | NO ENTRY |
| 22. <i>Nannostomus marginatus</i> | 72 | Small, no colour. |
| 23. <i>Barbus odesse</i> | 77 | Colour, department poor. |
| 24. <i>Rasbora elegans</i> | 82 | Well down on size and colour. |
| 25. <i>Hemigrammus bellotti</i> | 80 | Down on colour. |
| 26. <i>Betta pugnax</i> | 79 | Down on colour and size. |
| 27. <i>Labeo bicolor</i> | 86 | Extremely nice but down on size. |

1994 FBAS SUPREME CHAMPION

owned by Mark Irvine North Bucks A.S.

| | | |
|-------------------------------|----|--|
| 26. <i>Synodontis microps</i> | 93 | Very nice clean fish, well up in quality in all departments. |
|-------------------------------|----|--|

Points Awarded:

Size:20 Body:18 Colour:18 Fins:19 Condition & Department:18

| | | |
|---------------------------------------|----|-----------------------------|
| 29. <i>Neolamprologus cylindricus</i> | 83 | Not departing, poor colour. |
|---------------------------------------|----|-----------------------------|

| | | |
|----|--|----------|
| 30 | | NO ENTRY |
|----|--|----------|

31. *Polypterus endlicheri* 90 Very slight damage to right-hand side of head, near eye.

3RD PLACE TOM WEBZELL EAST KENT A.S.

32. *Ctenopoma kingsleyae* 90½ Very, very slight damage to head, otherwise very nice fish.

2ND PLACE KEN LAWN, SILKTOWN A.S.

| | | |
|----|--|----------|
| 33 | | NO ENTRY |
|----|--|----------|

34. *Auchenoglanis occidentalis* 86 Stuck its head in corner and wouldn't come out to be judged!

35. *Synodontis budgetti* 87 Nice fish but down on size a little.

36. *Labeo variegata* 89 Well over size, very nice body.

4TH PLACE EDDIE MABEY A.S. WEST CORNWALL F.K.

37. *Leiocassis simamensis* 86 Well over size but fins closed, not departing.

38. *Synodontis angelicus* 87½ Very nice fish.

39. *Corydoras narcissus* 84 Department, colour poor.

40. Green Molly 68 Need I say more?

41. Bleeding Heart Tetra 77 Small, lacked colour.

Spawning *Badis badis*

by Maureen Brockson
(courtesy of Fin Fax,
Delaware County Aquarium Society)

The first thing you should know about *Badis badis* is that they don't like being alone with each other. They get along when they are in a community tank, but keep a pair alone and you will see what a bad marriage is like. *Badis badis* only eat live food. I feed them live, brine shrimp and black worms. To keep them happy, I put a couple of angels in the tank to keep them company. *Badis badis* like a temperature of 80°.

It breeds much like some of the dwarf cichlids, though it definitely is not a cichlid. Put in a cave or an inverted flower pot. It likes to spawn on the undersurface of the pot. Sexes cannot be told positively, but the males are more hollow-bellied and are apt to be darker and larger. I had to take the word of the store owner who had spawned them before. I had them a while before I noticed that the male was in the cave and was chasing the angels away. I looked in the cave and

saw about 100 or more eggs. I took all the fish out, including the female. In about 2 days the eggs hatched. The male *Badis badis* takes care of the babies. The babies can eat brine shrimp. In about a week I took out the male to join his mate in another tank.

Now that I have told you how I spawn the *Badis badis*, let me tell you why. The first time that I saw them, the fish was standing still in the most peculiar positions. It also changes colour and patterns. The colour of this fish is as changeable as its temperament and we find that it is never the same colour in any two minutes. The *Badis badis* gets to about 3" in size and spawn at about 2". Their usual colour is brown with black or red bars in a chain-like pattern. My male *Badis badis* has turquoise firmage. When he is ready to spawn, his whole body turns this colour. So get yourself a couple and good luck!

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Breed Your Fish!

by Peter Burgess, Plymouth & District A.S.

The captive breeding of endangered fishes represents an important aspect of species conservation and forms part of a broader campaign which aims to halt the needless destruction of the World's freshwater and marine habitats.

We aquarists can help by attempting to breed our aquarium fishes. The spawning and rearing of fish is arguably the most fascinating part of the hobby and helps reduce the numbers of fishes which have to be collected from the wild. It is worth remembering that, in terms of the numbers of fish species, the majority of freshwater species and virtually all marine species are wild caught. We should therefore utilise our specialist skills and increase the numbers of fish species being bred in captivity. Otherwise we could easily lose the rich variety of fishes currently available to the hobby, as their natural habitats become destroyed.

I also hope that your Society will follow in the footsteps of Plymouth and District Aquarists Society and join the Aquatic Conservation Network (ACN). The ACN is devoted to involving professional aquarists and hobbyists (that's you and me!) in conserving endangered fishes, through captive breeding programmes and the free exchange of information. Members receive the quarterly bulletin, Aquatic Survival, which is written for the aquarist and is packed with useful information on fishes and their habitats, as well as news and views plus forthcoming aquatic events throughout the world. The annual subscription is a bargain at just \$25 (USA or Canadian currency).

Write to the
Aquatic Conservation Network
 540 Roosevelt Avenue,
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Please support the ACN and rest assured that your society is doing something very positive about saving the World's fishes.

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MAGAZINE

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CHAIRMAN'S Farewell Dinner



To commemorate Joe Nethersell's Chairmanship and Services to the Federation, a Special Dinner has been arranged.

It will be the ideal opportunity of showing our appreciation to Joe who, as Chairman for the past eight years, has done so much to put the Federation on the map as the aquatic hobby organisation bar none.

We have been encouraged by the number of our Trade friends who have indicated their intention to come along, and we hope that there will be around 150 people making this an evening to remember.

It will be held at

Royal Holloway University of London's Kingswood Hall, Egham, Surrey

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(7.30pm for 8pm, Jacket and Ties please).

Tickets are £20.00 per person.

Accommodation, including breakfast, can be arranged at an extra cost of £16.50 per person for those travelling long distances but, being normally suited for student use, it is of a more basic nature than usual.

Twin-bedded accommodation is therefore severely limited and only available on a "first-come, first served" basis.

Please book by **10th December 1994**, as time is short.

Send booking requirements and Cheques (made payable to FBAS please) to:

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For advice on any fishkeeping topic write to: Dr David Ford, AQUARIAN ADVISORY SERVICE, PO Box 67, Elland, West Yorkshire LS13 0SJ

Microworm Culture

by John Jackson,
(reprinted from Fish Forum)

Microworms are a very handy addition to the diet of fry in their early stages and, in some cases, older fish. A great advantage is that they are easy and cheap to cultivate.

The container for the culture is not critical, but must be airtight and preferably with small air holes or a fine mesh grill in the lid which will keep out unwanted flies.

The medium I use is "Reedy Brek", mixed into a paste with water. This was recommended by one of the speakers at one of the club meetings, namely Derek Jones of Southampton A.S. I had previously used porridge oats cooked and then cooled, but I find "Reedy Brek" is just as good and saves time.

All that is required now is a starter from an existing culture. To acquire some I should ask around. If anyone has any I'm sure they will get you started.

The temperature required is about 70°F. Care must be taken where you keep the culture as sometimes you get an unpleasant odour from it. A darkened or shaded place is preferable, but not necessary.

If you also keep whiteworms, take care not to contaminate it with the microworm, as they seem to dominate and ruin it (I found out the hard way).

To part the microworms from the culture:

1. Use a small dampened point brush, taking them from the side of the container.
2. Use a brush again but put them in a glass or jar of water to separate them from some of the mixture, then feed with a tube or dropper.
3. Use a matchstick raft, soaking well before use, and lay the matches in the form of a double cross. The worms will climb onto the upper ones which can be lifted off with a pair of tweezers and dipped into the tank requiring them and returned to the culture as long as the tank is free from whitespot, etc. (It happens to us all sometimes, especially on Notho's).

If too much of the mixture gets into your rearing tank it can cause large amounts of infusoria, which could be detrimental to the well being of your brood.

A Look at Corydoras

PART I

by John Edwards (FBAS Senior Judge)

Most fishkeepers have a *Corydoras* species in their tank, probably sold to them as a fish that will keep the bottom of the tank clean. This fallacy is based on the idea that just because they are bottom-feeders they will eat all the unwanted food but what if there is no unwanted food, the fast swimming danios or Characins pick off the food before it reaches the bottom? Or, other more robust fish drive the *Corydoras* away. These fish may lead a life bordering on near starvation. Their owner will not be aware of the problem because the body of a *Corydoras* does not show signs of emaciation. Why? The first hint may be in the family's name *Callichthyidae* (Armoured Catfish). *Corydoras* have their sides completely covered in plates. To see this fully, allow a dead *Corydoras* to dry out, you will find that the body does not reduce in size. The shape stays the same, this is because the body is all bone.

Now, what if along with the *Corydoras* the fishkeeper has some dwarf cichlids? These fish will also compete for food on the bottom, in fact they will drive off the poor *Corydoras* inflicting fin damage. This may lead to infection and death.

So, can *Corydoras* be kept in a community tank... the answer is yes, BUT! The following rules can be applied, not only to *Corydoras* but to any fish you may wish to purchase.

1. Never buy a fish that you know nothing about. Go home and read up about it, it may not fit into your set up.
2. Never buy a fish that has arrived in the past few days, leave it for a week.
3. Observe your fish, get to know their little ways. This way you will see early on if any problems occur.

So, what can we learn from observing *Corydoras* apart from the fact that they are armoured? Well, they are not all the same size, they range from the very small *Corydoras pygmaeus* 35mm to *Corydoras barbatus* 85mm. You may find identification a problem. There are many species that look the same, for instance, *C. arcuatus* and *C. narsissus*. This problem is not helped when the same species of fish is given a different name in aquatic literature. The picture shown is the same fish looking the other way, it contains the same plant but on the other side. Sometimes an exporter may find orders on a certain *Corydoras* dropping, so to clear this stock he may change the name on his list to a rarer species.

How may we, Aquarists, pick our way through the minefield of identification of the 125 *Corydoras* on the FBAS size sheet plus the 20 new species not yet named which are now on sale. Well, I use a key consisting of the following features (*Corydoras* species may contain up to 3 or 4 of these key markings).

- 1) eye mask; 2) snout length; 3) dorsal fin patch; 4) dorsal fin patch extending into body; 5) body pattern whether spotted or; 6) patching in fringe; 7) caudal spot; 8) orange spot on upper head/dorsal fin (the supraocipital).

There are two more points that we should consider. Mimicry or colour pattern sharing and those *Corydoras* which come from the same area but because of a different diet have formed longer snouts.

An example of mimicry but with longer snouts is *Corydoras adolfi* a round nose species and *Corydoras imitator* a long snout species, both with the same colour patterning and both from Rio Negro in Brazil. To continue, may only confuse the reader, but by looking again at *Corydoras* species in general, and using the key identification should be easier.

QUESTIONS ON FISHKEEPING?

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