

JANUARY 1971

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PetFish

Monthly 38

Vol. 5 No. 9

January 1971

Subscription rates: £2.25 for 12 issues; £1.25 for 6 issues (U.S.A. and Canada \$5.50)

Editor: Anthony Evans

In This Issue

	Page
Comments and Quotes	369
Meetings and Changes of Officers	370
Letters	375
A Guppy Breeder in California	376
Personal Comment	379
What's New?	380
Transatlantic Topics	381
Snakeheads: Adaptable Oddballs	382
Feeding Marine Fishes	384
A Logical Approach to Standards for Goldfish	385
Hints and Tips with Surplus Plastics	386
The Roxy Barb	387
Readers' Queries Answered	389
Guppy World	390
An Unusual Catfish of the Old World	392
Don't Misuse Your Live Foods	393
Club News	394
In Brief	396
Dates for Your Diary	397

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PetFish Publications

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554 Garratt Lane
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Comments and Quotes

- What can be done when the juice goes off
- Tax on foods

The Power Game

AT the time of preparation of this issue, major cuts in electric power are taking place all over the country. It is to be hoped that some remedy for the situation will have been found by the time readers see this paragraph, but in view of the gloomy forecasts about the general availability of fuel it could well be that power-cuts will still be very much a matter of concern to aquarists throughout this winter.

Comments on the subject might possibly be thought to be unprintable, unless of the kind that reader Mr Phil Hickley of Bournemouth felt constrained to deliver to RSM's offices on a visit to London—a delightful drawing showing a very disgruntled angel fish in a tank that is being serviced by a Heath-Robinson contraption producing warm water via a Bunsen burner and laboratory flasks and condensers, with an air supply powered by a mouse in a revolving wheel. However, cuts such as we are now suffering are a serious menace on all counts and give rise to much anxiety for fishkeepers, perhaps specially for those with fish houses, in Britain.

Taking the risk of receiving the brunt of the wrath brewing up on the topic, we made a quick survey of the fortunes of some of the major fish establishments. This revealed, we are glad to report, a fairly satisfactory situation on the trade front. A serene 'not yet affected' was given at Tachbrook Tropicals Ltd, and generally reports indicated a state of calm and efficiency engendered by advance preparations. Buildings designed to retain heat were saving the day for many. South Coast Aquatic Nurseries are in an area of Buckinghamshire well used to coping with power-cuts and the heat in their well-insulated fish houses can be

maintained in emergencies with butane gas heaters. Keith Barraclough's establishment was also using butane gas for emergency working. Inter-Pet's fish farm, situated in the highest and coldest part of Surrey, was reaping the fruits of four years' work on the part of Dr N. Carrington and Mr A. C. Lambert on the design of their new completely insulated buildings. Hot air from oil-fired equipment, working only at night, raises the temperature sufficiently by morning to allow for a 3-4°F drop during the day.

Lack of air supply is possibly the greater danger to commercial suppliers. Hayes Aquatics in Middlesex, who had suffered a 9-hour power cut without worry because their tanks are completely enclosed within a wooden framework, were dealing with the problem of air maintenance by using portable battery-operated aerators. Inter-Pet use blowers of large output, made for them by a vacuum-cleaner manufacturer, that run continuously and are unaffected by fall in voltage. These can be powered from a petrol engine.

As we shivered in candlelight watching over our blanketed aquaria, it was no consolation at all to know that in other countries failures of power supply through breakdown may be more frequent than here. Reminiscing on the subject of power-cuts that have been lived through, a professional aquarist recalled for us an occasion when, as curator of a large public aquarium in a city in the tropics, he was called from his bed one night because the city's power supply had failed. The emergency that then arose in the aquarium was not from loss of heat but from failure of the water-circulating pumps. Display aquaria were overcrowded with fishes in terms of the safe limits for static water conditions; despite strenuous efforts to maintain aeration by all the aquarium's staff some deaths occurred and the losses would

have been much more serious but for the fairly quick arrival of a lorry with a generator. After that an auxiliary generator was very soon installed as a permanent item of the aquarium's equipment.

What can the fishkeeping hobbyist do to protect his fish? We did, in fact, print the following paragraphs in our February issue of last year as an answer to a query, but as the information cannot be less relevant this winter than in 1970 it will, we hope, be of service to readers to repeat it, adding only the reminder that tanks receiving artificial aeration or filtration should not be overstocked with fish when power-cuts are likely.

Emergency Measures

IN the event of power failure during cold weather the steps to be taken to delay cooling of an aquarium can be listed under two headings: (1) insulating the aquarium against loss of heat; (2) supplying heat to the tank, as necessary, from an external (non-electric) source.

(1) The back, ends and base of

the aquarium can with advantage be covered with insulating material—expanded polystyrene (e.g. ceiling tiles) in as thick a layer as can be obtained, even before there is risk of power cuts. Then (at night or when a power cut occurs, or when the house is going to be left for several hours and power cuts are likely), all that needs to be done is to cover the tank (top and front) with further insulation—a thick blanket or an eiderdown (make sure that the lighting is switched off) is probably the most readily available. With such coverings the rate of cooling of the tank should be delayed to well within the danger point. Do not remove any coverings to check the temperature for about four hours unless power is restored.

(2) In very cold weather in an unheated room a power cut of several hours' duration could cause dangerous cooling even with the precautions outlined above. Then the placing of a paraffin convective heater beneath the tank, the floating of a large saucepan of very hot water in the tank (renewed every 2-3 hours) or even the (cautious) addition of a kettle of boiling water every few hours are ways in which the

tank temperature can be kept up.

With provisions of these kinds we think that you will not experience losses of fish from power cuts. The biggest danger would be if you should have to be away from home for a lengthy period during cold weather. Most fishes will survive quite a long period at 65°F and well-insulated tanks (24 in. by 12 in. by 12 in.), starting at 75°F, take quite a time to fall even to this level when unheated at average room temperatures.

Tax on Foods

IT is easy to forget that when a packet of fish food is bought the price you pay includes 22% purchase tax, as all prepared pet foods. A renewal of a campaign against this tax by the Pet Food Manufacturers Association has now commenced, and owners of all kinds of pets who think that these foods should carry less tax, or no tax at all, can make their own protest with additional advantage at this time by writing to their M.P.

Meetings and Changes of Officers

BASINGSTOKE & D. A.S. Officers: president, Mr R. Ridley; vice-president, Mr T. Ermy; chairman, Mr H. Gough; vice-chairman, Mr G. Clew; secretary, Mr D. J. Part (13 Hazel Green, Basingstoke, Hants.); treasurer, Mr J. Lovings; show secretary, Mr M. Strange; show manager, Mr H. Walls.

CRESSWELL & D. A.S. Officers: chairman, Mr T. Broadfield; treasurer, Mr J. Fletcher; secretary, Mr A. M. Denkin (31 Stival Road, Woking, Notts.).

DIDCOT & D. A.S. Officers: chairman, Mr A. Whitson; secretary, Mr D. Charles; treasurer, Mr P. Trinder; show secretary, Mr J. Trinder; P.O., Mr J. Davidson (50 Gainsborough Green, Abingdon, Berks.). New members or visitors welcome at the next meeting (1st January), at East Research Centre (on the A34 near Steventon), 8.0 p.m.

GUILDFORD & D. A.S. Meetings: Leboe Club, The Mount, Guildford, second and fourth Wednesdays, 7.45 p.m.

HOUNSLOW & D. A.S. Officers: chairman, Mr Ray Scory; secretary, Mr D. J. Woodward (28 Uxbridge Road, Hareworth, Middlesex); treasurer, Mr H. Woodward; show secretary, Mr D. Brookes; press secretary, Mrs R. M. Brewer; librarian, Mr E. Sheppard; P.R.O., Mr B. Pratt; social secretary, Mr R. Nelms. Meetings: The Public Hall, Isleworth, alternate Wednesdays, 8 p.m.

MEDWAY A.S. Chairman, Mr R. A. Mayne; vice-chairman, Mr C. Elliott;

secretary, Mr L. Laming (107 Maidstone Road, Chatham, Kent); treasurer, Mr C. Elliott, Inc; show secretary, Mr J. Marshall (17 Dergens Road, Widdowdale, Chatham, Kent); Press, Mrs W. Empert; librarian, Mr R. Simpson. Meetings: second and fourth Wednesday of month, Dane Court School, Watling Street, Gillingham, Kent.

MIDLAND AQUARIST LEAGUE. Reformed. President, Mr W. Devson (B.K.A.); vice-president, Mr R. Todd (Bodworth); chairman, Mr R. Upton (Bodworth); secretary, Mr S. Woolridge (Coventry); treasurer, Mr D. Tunicliffe (Nuneaton); Press Officer, Mr M. Carter (Bodworth); 1 Cubworth Court, Folshill, Coventry).

NORTHWICH & D. A.S. Chairman, Mr P. Hyland; treasurer, Mr B. Pearson; show chairman, Mr L. Thorne; show secretary, Mrs D. Thorne (28 Whitegate Road, Winford); assistant, Mr R. Knowles; P.R.O., Mr H. Buckley; secretary, Mr J. Bradley (4 Ash Road, Sandroy, CW6 2NV, Cheshire); assistant, Mr J. Bailey; table show secretary, Mr R. Antonio.

SOUTH DERBYSHIRE & D. A.S. Meetings: The Railway Inn, Midway Road, Swadlowcote, 7.0 p.m. New members welcome; please contact secretary, Mr T. Clarke (14 Vale Road, Midway, nr. Burton-on-Trent).

SOUTHEND, LEIGH & D. A.S. Officers: president, Mr D. Finch; vice-president, Mr D. Edwards; secretary, Mrs J. Norris (25 Leigh Cliff Road, Leigh-on-Sea, Essex); treasurer, Mr D. Cheswright;

journal editor, Mr P. F. Capon; assistant, Mr R. D. Oxford; librarian, Mr L. Mitchell; assistant, Mr E. Joyce; P.R.O., Mr T. Russell; table show secretary, Mr K. Adams. Meetings: St Andrew's Hall, Electric Avenue, Westcliff (entrance in Westborough Road), first and third Tuesday of month. New members welcome.

TOTTENHAM & D. A.S. Secretary, Mr R. Massey (72 Wearwood Road, South Chingford, London E.4); show secretary, Mr S. Thornton (5, Reynolds Court, High Road, Tottenham, London N.17).

UNBRIDGE & D. A.S. Meetings: The Parish Rooms, Unbride Road, Hillingdon Heath, Hillingdon, Middlesex, alternate Wednesdays, 8.0 p.m. New members welcome.

WEST CUMBERLAND A.C. Meetings are held alternate Tuesdays, 7.30 p.m., in the Whitehaven Constituency Labour Party Rooms, Roper Street (entry off Coates Lane).

WYMOUTH & D. A.S. New venue: Sidney Hall Council Room. Old and new members welcome; secretary, Mr D. Rogers (149 Dorchester Road, Weymouth).

WOLVERHAMPTON & D. A.S. Meetings: St Peter and Paul's School, Redcross Street, Wolverhampton, third Tuesday of month, 7.30 p.m.

YATE & D. A.S. Chairman, Mr D. Noble; secretary, Mr M. Emery. Change of venue, January's meeting will be held at Stanhams Court Hotel, Yate.

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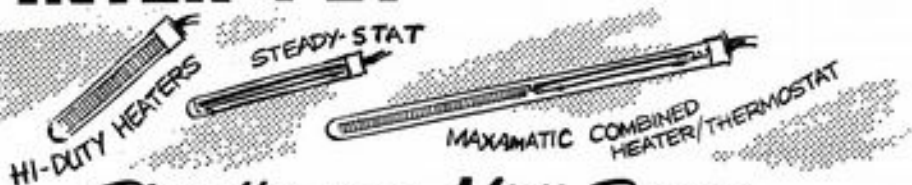
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LETTERS

The Aquarium Show '70

ON behalf of Hemel Hempstead A.S. I would like to thank and congratulate you on what one felt was a very successful AQUARIUM SHOW. It was very gratifying to see standards go up and I can only hope that this trend is maintained. Let's hope that The AQUARIUM SHOW 1971 will be even bigger and better than 1970.

A. TUFFS

Show secretary Hemel Hempstead A.S.

MAY I say that my wife and I thoroughly enjoyed The AQUARIUM SHOW and considered the journey from South Wales to be worth while. It is difficult to get fish from here to London for a four-day Show, but I am trying to stir interest in our club to do a take-over bid in 1971. As you are well aware there are some excellent fish in South Wales. This was my second trip to your Show and on both occasions the variety and quality of trade exhibits has managed to coax a considerable sum from my pocket!

Barry, Glamorgan

B. S. IRELAND

MAY I on behalf of my Society thank you, the show secretary and the show manager and all who assisted us in benching and de-benching at The AQUARIUM SHOW and enabled us to get away on time. We had a very pleasant day up at the Show and we look forward to the next. (The only thing that went wrong was that we had a puncture on the way back which lost us 45 minutes so we had to dash all the way to catch the ferry on time.) So you see with the help you gave us we really appreciated it; it made it possible to get home in good time and put our fishes to bed.

E. T. DAVIDSON

Secretary, Isle of Wight A.S.

WE had a wonderful time for the third year running—once again congratulations for putting on such a good Show and getting all the interested aquarists together at least once a year.

Munchengladbach, Germany

GEORGE CATTANACH

Spiney Eels

WITH reference to J. P. Chorley's letter about spiney eels (November, 1970), I too have trouble in catching them and I have found that the best way is to drop a piece of rubber hose pipe in the tank about an hour before the fish is needed. When the eel is in the pipe (nine times out of ten it is), gently lower your hands into the tank, finger over each end of the pipe and, hey presto!—one spiney eel.

Cventry

JOHN MILES

Your comments and views on all topics of interest to aquarists are welcomed. Address letters to PFM Letters, 554 Garratt Lane, London S.W.17

REGARDING the article about the spiney eel in the August issue of PFM, in the November issue Jim Kelly makes reference to the spawning of these fish in the States, in his 'Transatlantic Topics'. I would like to draw attention to the fact that in the book *ALL ABOUT TROPICAL FISH* by Derek McInerney and G. Gerard, 3rd edition, 1967-69, pp. 325-326, is given a description of the spawning of this fish. Furthermore, the authors claim to be the first to spawn this fish in captivity, thanks to Wing-Commander Lynn. Some of the information they give is: pH 7.0-7.2, hardness 150-180 p.p.m., temperature 80°F. The fish spawns in floating plants and deposits adhesive eggs; eggs number 50-100 and hatch in 3 days. The fry hang on for 2 days and are free-swimming on the sixth day. I would recommend that all those who are interested in this fish might find the passage in the above-named book very interesting and informative.

Marcelltown, Dundee

A. DONOVAN

A Show in the North

MUCH as I appreciated reading about The AQUARIUM SHOW held in London in your December issue I want to protest about your neglect of your readers in the north. We had a show up here in October but no one could find what happened at B.A.F. by reading your magazine. You could at least print the results—or are you only interested in what southern clubs do?

Manchester

G. FERNLEY

We are glad to have an opportunity of publishing an answer on this topic. The lack of information about the B.A.F. is not a matter of our editorial policy; it arises through failure on the part of those who run the B.A.F. to supply the necessary information. We complained about this to the Federation of Northern Aquarium Societies in 1969 but this has not produced results in 1970. Since normal Press facilities are not offered to us there is no other action we can take. A perusal of our Club News pages should convince you that PFM gives coverage of events in all parts of the U.K. We are very interested in what northern clubs do; since northern clubs are the F.N.A.S. perhaps they might have something to say about that body's sorry lack of public relations.—EDITOR.

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A Guppy Breeder in California

By M. H. DELINGPOLE

Photographs by the author



Some of the trophies available to the American guppy breeders. This collection represents awards made to Paul Gorski



After the International Guppy Show in Long Beach, California, all the 'shipped-in' entries were auctioned off to breeders at the Show

ALTHOUGH we very soon found that there are plenty of good things to see and do in and around Los Angeles, the trip by my wife and myself to the States was rather more concerned with seeing how the Californians approach the guppy hobby. In staying at the Edgewater Hyatt House at Long Beach we were right in the centre of things, as the South California Guppy Association were holding their annual International Show at this particular venue.

We were greeted at the Airport by Helen Bishop, Secretary of the S.C.G.A., along with Arnie and Terri Setz, respectively chairman of the club and editor of its excellent magazine; and also by Kathy Woolf, editor of 'Guppy Gossip', who had flown all the way from the far side of the United States to be at the Show. Kathy, besides being very active in the guppy world generally, is the S.C.G.A. representative in the International Fancy Guppy Association, which has headquarters near her home in Cleveland, Ohio. Kathy, incidentally, thinks nothing of doing a 600 mile round trip to a guppy show by herself in her Mustang, which makes our occasional sortie from Birmingham to London look like a trip down to the 'local'!

The Show had been planned in the minutest detail, even to the extent that all potential overseas exhibitors had received, well in advance, a little booklet entitled 'Welcome to the Winners Circle', which told us everything we needed to know about the Show, down to how to judge the various classes and how to ship our fish half way across the world. At American guppy shows the exhibits are brought to the benching table by enthusiasts from far and near, but they do have an added problem in that their exhibitors do not generally seem to bring their own containers.

The show rules say that for single entries the container must be a 2 quart drum bowl of uniform manufacture, and in this an optional female may be placed with the male. Additional classes are for two matched males, which must be in at least a 1 gallon tank where, once more, a female is optional. Again they have larger classes for five matched males where a 5 gallon tank is recommended.

The S.C.G.A. were fortunate in that plenty of members turned up to help stage the Show and, as the exhibitors arrived with their fish, members of the

show staff were placing drum bowls containing water, that had previously been aerated, in front of the show secretary ready for the new arrivals to be dropped in. The various bowls and tanks were then placed on the tops of platforms rather similar to those used over here and all this was staged in a large and very beautiful hotel room with a thick carpet under foot. I am told that the cost of hiring the room was high but that the raffle alone more than covered all the costs. Apparently local manufacturers and dealers are only too eager to present their products as prizes and many of these were of very high quality.

After a briefing by the judge chairman, Dr Victor Schultz, the ten judges were formed into groups of three, with one to spare, to attack various classes on the bench, and I was honoured by being included in one of these teams. The same team, of course, could not judge every class as many of the judges were themselves exhibitors, and so as each completed its allotted task members were regrouped to ensure that, where possible, nobody judged his own fish. I was privileged actually to be in a team headed by Dr Eugene Larr, author of *THE GENETICS AND BREEDING OF GUPPIES*, and I enjoyed this experience immensely. Other judges included Midge Hill, editor of the 'Guppy Round Table', an excellent club magazine of the Pan Pacific Guppy Association. Also amongst the judges were Paul Gorski, Rennie Johnston and Dale Marteeny, three of the top breeders in the Pan Pacific Guppy Association, the first of whom later took best in the show. In addition there was Andy Anderson, John Parrot and Lee Paulin, all experienced and successful guppy breeders and members of the S.C.G.A. The panel was rounded off by Kathy Woolf whose infectious good humour spread to all those present.

The judging was carried out by the 'gate method'. This means that all the entries are scrutinised closely and the best half dozen placed on the top shelf in the probable order in which they will ultimately appear. Each judge, in turn, then passes comment on the selected guppies and makes sure none has been missed out of the final placing. By this means any fault that may have been overlooked by one judge is invariably picked up by one of the others and in most cases the final order is unanimous. In the event that this is not so, either the judge chairman is called in to pass an opinion, or the two disputed entries are pointed up to see which would be the leader.

For those who understand the British guppy pointing systems, I think I should mention that in the States they give 25 points for body, 25 points for dorsal and no less than 40 for caudal, with the remaining 10 points equally divided between deportment and symmetry. The caudal points are broken down into 13 for size, 5 for condition, 10 for shape and 12 for colour, an emphasis that we could well consider emulating, as our system, though it has served us well for many years, does often give undue emphasis to the dorsal when most of us are breeding for caudal shape and colour.

To all intents and purposes there is really only one guppy outline in America and this is the deltatail male. Over there he has the equilateral triangular caudal, to which we are accustomed, but a dorsal fin that is in the shape of a parallelogram in the proportions of three units of lengths to one unit of height. He is generally a very pretty fish as so many classes are open to him.



Dale Marteeny in his fish house showing a fine netful of newly hatched brine shrimps. In the background is seen the brine shrimp production plant

He can be red, blue, green, black, multicolour, bicolour or any other colour and he will find separate classes open to him. The colour in each case refers to the caudal, so you will see that there is very considerable emphasis on a single-coloured caudal guppy, which we do not see over here owing to our desire to put as many colours as possible on to one single fish.

Although I have said that there is virtually only one guppy outline, I must admit that the veiltail guppy has almost as many classes, but he is but a pale shadow of the deltatail, and his caudal must meet the body at an angle of less than 60 degrees. Nobody really breeds the veiltails if they can possibly get deltas out of a particular strain, so it is probably true to say that his class is on the way out. If it was not for the fact that so many veiltails do crop up this outline would have been ditched long ago.

Along with these two guppies there is an outline for swordtail guppies, though unfortunately this refers to a fish which is almost invariably a 'sport' thrown by deltatail guppies and bears little relation to the rather more delicately defined fish which we have on British show benches. This swordtail can be topsword, bottom-sword or doublesword, but the heavy finned, flamboyant fish invariably take the honours.

Females also are catered for at some shows and there are outlines for roundtail females, deltatail females and sharktail females, but although many of the females accompanying the males at this particular Show would have won prizes over here the classes for single females were not, on this occasion, broken down into any particular caudal shape. The emphasis was, however, on size and colour without any particular reference to outlines at all. Unfortunately the class for breeders' females had been dropped this year, which was a big disappointment to me personally.

Under the I.F.G.A. rules there is also a somewhat complicated system whereby the Show itself is awarded certain points and there are severe limitations on the number of 'high point' shows that any club may stage within a given time.

When the results of the show were declared the

winners from each class of male single fish were brought together and the winner of each class of two fish was brought up to the judges' table. It was found that Paul Gorski had had quite a successful day, in fact his magnificent red deltetail was best single fish in the show, with Rennie Johnson's multi-coloured deltetail second, Ng Yoong Min's cobra veiltail third and Glen Parrish's blue deltetail fourth.

In the final award for best of show-tank Paul Gorski had taken first and fourth with his red and blue deltas and Dale Marteeny second and third. There were only four female classes to select from for best of the show, and this was won by Joe Scialdone with a blue-green female, Joe Krader was second with a half-black female, Bud Turner third with A.O.C. female and Jack Wilson fourth with a red female. The Master Breeders' class for 10 matched males was won by Glen Parrish and a Breeders' Tank class for five matched males was won by Leo Hiang Muan.



Paul Gorski with some of the standard containers (drum bowls) used for single fish entries in U.S.A. shows. One bowl holds Paul's red deltetail that was best guppy in the Show

All in all some very pretty fish were benched, and seeing this emphasis on the most beautiful guppy of all (the deltetail male) in all his various hues has made me wonder seriously whether our emphasis in Britain on some of the less popular outlines has meant that we are no longer giving the average guppy breeder in this country what he really wants. It does seem questionable, when you get 90 deltas all in a single show (as we did here at the F.G.A. International) and the eighth or ninth fish is a vastly better specimen than say, for example, the winning roundtail or scartail male, whether we should not subdivide the deltas class to give some of the different colour types a fair crack at the whip.

Having crawled off to bed early that night after the Show I felt quite guilty next morning to find Helen Bishop and her staff had worked through the night to produce printed show results, which were available to the public as they visited the Show on the following day. Every credit must go to this amazing lady for the amount of energy she puts into the organisation and running of a single guppy show. Although Helen still had reams of paper work to sort out for out-of-State exhibitors, particularly on the very complex financial

side, she still found plenty of time to show Kathy Woolf and my wife and I around the sights of the Los Angeles basin. Along with Arnie and Terry Setz there is a pretty formidable team there when it comes to organising a guppy show.

As our stay was for two weeks I had the opportunity along with Kathy Woolf to visit one or two of the major breeders in the area, and Dale Marteeny collected Kathy and I and took us first to see Paul Gorski's fish house.

Paul is a navigator in the U.S. Air Force, so cannot be expected to be stationed in any one place for very long, but his guppy house is a real model of what we should all like our own guppy sheds to be. Spotlessly clean tanks, devoid of plants or gravel, each had a bottom filter merrily working away in it with some of the most magnificent guppies you have ever seen sporting themselves. If you can imagine 70 tanks, all containing guppies, all of which are deltetail guppies and virtually all of which are red deltetail guppies, then you can get some idea of Paul Gorski's set-up. His compressor hums away quietly in a box by the door and his brine shrimp jars are bubbling away near by. A comfortable red armchair is situated in the middle of the fish house and, believe it or not, a television set is mounted just by the door! Whether it is the cleanliness or the brine shrimp or the enthusiasm, Paul Gorski has the secret of producing good show guppies.

From there we went back with Dale to his own house where, surprisingly, the formula was repeated almost exactly but this time with green deltetail guppies and even more activity in his brine shrimp jars. There was no room for an armchair this time, but again a television set was in evidence. Dale told me he likes to watch a 'ball game' while working on his fish and he also has the telephone handy. So apart from eating and sleeping, etc., Dale could almost stay in his fish house for ever.

On the subject of eating, Dale is not only a keen fish breeder he is also a keen fisherman and he had been out the previous day deep sea fishing for yellowtail, which is a member of the tuna fish family, and we were treated to a most magnificent supper on his back porch of barbecued yellowtail. It was the first time he had cooked this fish over a barbecue but the taste was absolutely superb and one which Kathy and I will never forget. Any visitor to that part of the world can count himself lucky if a visit to Dale's Golden Gate guppy farm is on the agenda and luckier still if a meal of barbecued yellowtail accompanies it.

On our last day in Southern California, my wife and I visited John and Janet Parrot's fish house and when I tell you that this time the fish house formula was repeated once more, but this time with cobra deltas, you will by now be beginning to believe that this had proved to be a unique experience.

All these extremely kind friendly people gave me breeding stock from their top strains, and I came home with no less than 13 different types of top American guppies, from which I am now breeding. So watch out all you English guppy breeders—I should have some really first rate stuff to put on the bench in 4 or 5 months' time. Thank you, all you guppy breeders in Southern California who showed us so much kindness and were so ready to entertain us and part with your top breeding guppies.



Personal COMMENT

by
ARPEE

DR R. O. B. LIST reopens the matter of cryptocoryne 'disease' (Letters, *PFM* August). He may find something of interest in *PFM* of December, 1968, and March, 1969, and in associated correspondence. My conclusions were very much in line with his belief that this condition, characterised by a rapid 'wilt' and disintegration of the plant foliage, is a readjustment of the plant to its environment rather than a malady *per se*. It struck me that a gradual build-up of dissolved salts in old-established aquaria could result in a form of reverse osmotic action in the plant leaves, causing their collapse, and this was strengthened by the tendency for afflicted plants to respond fairly rapidly to a water change.

My observations since then, coupled with comments from readers, do not conflict seriously with the proposition. Certainly I have come to believe even more strongly than ever I did that disease, as commonly conceived, is not to blame. This is because the introduction of new plants appears to have no significant effect on plants already growing well, and, further, that well-established aquaria containing show-class plants which were all planted at the same time have frequently been devastated by this curious phenomenon in the total absence of any external stimulus.

Plant diseases usually result in some visible unhealthy-looking feature of the victims, and more often than not death of the plant is the final outcome. Cryptocorynes, however, seem to pass from robust good health to a sudden state of collapse for no obvious reason, and this makes it difficult to accept organic disease as a likely cause, especially when, several days after apparent total eclipse, regeneration may often be seen. Surely if a disease were at work the central core of the plant would succumb at this stage when it would theoretically be at its weakest and most vulnerable. This state of affairs may be compared with an equally puzzling situation above water.

Wilt of the popular garden clematis, especially in the large flowered forms, has baffled horticulturists for many years. There are some features common to both situations. In both cases the plants seem to be really flourishing before the onset of the calamity. The breakdown is sudden and dramatic and comes when least expected. Regeneration usually follows the attack. Less usually the plants become weaker and weaker and succumb totally after a struggle. In the clematis, wilt was originally attributed to a fungal disease but it is now thought that it may be no more than a bursting healthy plant suddenly protesting that it is in the wrong environment and asking for a sunnier, shadier, wetter or drier spot.

In the cryptocoryne I rather think it is doing much

the same. There may have built up a superabundance of this or that element or a particular salt to which it has a fundamental dislike, so it shuts up shop until either conditions improve or it pushes forth new leaves, which remain rather meagre and dwarfed, to carry on the struggle for survival under barely tolerable conditions. So long as these conditions prevail the plant will adapt itself to them grudgingly, yet remaining willing to return to a normal life if agreeable changes subsequently come about. I don't somehow think that the size or condition of a newly introduced plant is any guarantee against cryptocoryne vapours, though it may well be true that exceptionally good specimens take longer to upset than weakly ones: such seems to be true of most plants.

I think it most important that we should define this ailment correctly, and to recognise it when we meet it. The average aquarist who buys a cryptocoryne will find that it will die back in whole or in part during its early days in new waters. This is a familiar adaptation process common to many plants, which divest themselves of top growth until their roots become adequate to support the demands of the whole entity. This, however, is not what we have been discussing. The breakdown of cryptocorynes presents to the onlooker a scene of drooping slimy leaves which disintegrate at the merest touch. In severe cases you can cause a huge clump to disappear before your eyes by swirling the water vigorously.

I join Dr List in the hope that readers will debate this matter most thoroughly. In particular I should be interested to hear whether aquarists who practise frequent and fundamental water changes have been bothered by this irritation, which is both frustrating and costly. It would be to very great general benefit if some counter-measures could be validated because whatever may be said in mitigation your tank never looks quite the same after a severe visitation of this mystery despoiler and there is always the uneasy feeling that it may happen again and yet again.



My recent campaigning for more information on tropical marines has been answered in part by Ron Turnbull's most interesting series and in part by 15 year old Huw Collingbourne, whose letter in the November issue of *PFM* was both encouraging and stimulating. The latter must have commanded considerable respect from readers, as it did from me, because Huw has obviously achieved his target painstakingly, on a limited budget, and has deservedly been successful. I wish him lots more enjoyment from similar enterprises in the future: certainly, time is on his side.

I am on his side, too, sceptical though I may have been on the subject of tropical marines in the home in my recent articles. Like proven marinists I believe that I, too, could keep a tank going without too much

trouble and without very much more than the average sort of luck which attends the tropical freshwater enthusiast. On the other hand, there are a number of doubts which keep cropping up and which cannot be disposed of without the personal intervention of practical people like Ron and Huw. The purpose of my comments was to open a debate on the subject in which people who knew what they were talking about would help dispel some of the gloomy superstitions but at the same time point out the commonest and most serious pitfalls which lie ahead of the real beginner.

I am certainly setting up a marine tank some time within the next year with the intention of reporting progress to readers, but since this is a most expensive process it would be madness for me to do so at least until the present fascinating series has ended, and from the look of my budget I think I shall have to prolong the debate, too, in order that I may have a ready excuse for procrastination. (It is hard to write this as the fever has already set in!) I can only console myself that Huw went this way as well.

Two points have emerged from the correspondence so far which are likely to give cause for anxiety. The first is the assertion that marines should not be left to their own devices. I assume that this means that they need constant day-to-day attention in terms of feeding and in terms of checking the state of the water. From the point of view of the average aquarium-keeper this is likely to be just that factor that prevents him from taking the plunge. There will be weekends when he is not at home, there may be business or pleasure trips demanding an absence of several days, annual holidays etc., which cannot be bridged by the obliging neighbour. What, in these circumstances, is the parameter of acceptable neglect?

I suggest that it is pretty narrow and that if this is indeed so it is highly important to find a solution before you cross the threshold rather than afterwards. As all writers on the subject will agree, the outlay is high and the fishes are valuable and it is irresponsible of us to suggest that absences don't matter if in fact it is a matter of life or death for the creatures involved.

One of the most reiterated questions in this magazine is the holiday treatment for freshwater tropicals, and although we know that we can take a number of liberties in this direction without disaster overtaking us, few fishkeepers will actually admit to their charges or their tanks looking better after the summer holiday: pride and prestige quite apart, the depressing facts usually speak for themselves, however hard we attempt to fool ourselves before we take the annual break. If this is so with freshwater, how do the marinists fare?

The other rather worrying feature is that of maintaining clinical cleanliness, whatever this means. I find it difficult to define the standard here because what may look clinically clean may in fact be a nitrate-ridden death bath in which even your dip-tube will doubtfully survive. It may well be tempting to state that it is not expensive in actual money to keep a tropical marine tank going, but is it expensive in maintenance time? The answer, of course, is likely to be subjective. The enthusiast will resent time spent on having his own dinner or in going to work and will regard daily or even hourly chores as a labour of love. Most of us are less attracted to duties than to enjoyment of the spectacle, so we should get this in focus, too, before we get committed.

A final feature that may or may not be true is my impression that dealers have a 'Do as I say, not as I do' attitude to this branch of fishkeeping. How many of them maintain a marine tank in their own homes as proof of their faith? I am inclined to the view that they are few and far between. I think this is not because they are necessarily guilty of any form of dishonesty but because they have used their intelligence and judgement to form a decision that their dedication falls that much short of what is required, for perfectly understandable domestic and business reasons. My assessment, to date, therefore is that tropical marines are straightforward for the dedicated with all available time but a decided risk for even the expert who cannot be dedicated in terms of time. I am open to be shot at on these propositions and remain hopeful of being influenced away from them.

What's New?

Neat Control Unit

ANYONE able to use a small screw-driver can quickly connect the aerator, heater and thermostat and

lights for an aquarium to the **K.G. Multi-Con** Aquarium Distribution Unit. This unit incorporates push-button switches for aerator and lighting to be controlled independently and provides a means of dealing neatly with the aquarium wiring. It is of black rigid plastic construction, approximately 6 in. long by 1 in. wide, and has bendable metal strips for fixing it to the top of the aquarium, or these strips can be removed if the unit is to be fixed by screwing or bolting to a flat surface (fixing holes provided). Price 18s 6d.

Combined Heater-Stat

THE new **Maxamatic** Combined

Heater and Thermostat by Inter-Pet is a slim-tube instrument about 11 in. in length (150 watts). The heater element is a single coil winding and the contacts of the thermostat are silver. The **Maxamatic** is completely submersible and if it is required to alter the factory-set working temperature of 75°F (24°C) this can be done by turning a screw after removal of the bung from the glass tube. Best service is given when the heater-stat is used in the vertical position, say the makers, who also claim that combination of heater and thermostat in the same tube gives a more accurate aquarium temperature control than with the use of separate instruments. Price 27s 6d.

Transatlantic TOPICS

NORMAL people 'spring clean' in the spring, but not this guy. I usually do the rounds of my office just after Christmas. The odd pieces of stale cake and half-empty port wine glasses one finds is amazing.

In my recent sort-out I came across a small plastic box full of sand. Not the ordinary light brown stuff one brings home by the bucketful from that day's outing but a coarse, dull red variety. It had been sent me by an aquarist in Florida along with an envelope full of sunshine. Sent to emphasise the fact that when an American hobbyist says 'sand' in their tanks they don't mean 'sand' (seashore) but sand-gravel-compost to you!

So as there won't be any doubt about what I mean, for sand read small stones. With so many of the cheaper-priced beginner's books hailing from across the Atlantic it must cause confusion to the early fish-keeper in these shores. His European interpretation of this word could cause quite a mess, especially if he had also set his heart on sub-gravel filtration.

* * *

The columns of Pet Chatter, PET SUPPLIES MARKETING, one of the coloured glossy magazines devoted to the U.S. pet trade, carries a letter from an aquatic dealer under the heading 'Can Coal Be Labelled Activated Carbon?'

The correspondent asks what has happened to the highly porous bone charcoal and super-porous activated carbon he used to be able to buy for freshwater and marine customers respectively. The dealer claims that he is receiving 'coal' under the packaging of activated carbon. He admits that it does filter but has no more absorptive effect than silica sand or aquarium gravel.

'Could it be that some manufacturers think we retailers are naive?' he asks, 'or are they making that much more profit on substituting coal—or both?' A good question. I look forward to the answers with interest.

* * *

'Cures' for the tiny 'worms' that affect the heads of discus fish are as numerous as treatments for the

By JIM KELLY

common cold. None more so than in the U.S., where these magnificent exotics are more plentiful. Latest, somewhat drastic suggested treatment is to place the affected fish in sea water, specific gravity 1.025. The discus is left in this solution for from 3 to 5 minutes, certainly no longer, and is removed before then if it shows any signs of distress.

The reverse of this treatment is often resorted to by marine sharks, who regularly swim into freshwater, the change of water ridding them of any skin or gill parasites they have collected in the sea.

* * *

From an American hobbyists' magazine: 'These are the needs of growing great aquarium plants: 1 ... 2 ... 3 ... 4 ... 5 Plastic plants to keep the tank looking natural during experimentation and growth periods.' How plants ever got on so well before the age of plastics we'll never know.

* * *

The front covers of U.S. aquarium society bulletins take many forms. Some merely display the society legend, others utilise all the artist's skills and reproduce excellent pictures of fish, usually high-lighting one of that month's articles. Some even take a leaf from the commercial magazines and make the cover so tempting that we cannot wait to read the contents.

Now 'Calquarium', journal of the Calgary A.S., Canada, have taken their lives in their hands and printed on a recent cover a pencil sketch of a British fish-keeper—well known to yours truly because it bears a remarkable resemblance to the phisog that stares back at me from my mirror each morning.

I doubt whether my features will tempt any readers (might even have the reverse effect!). Still, it is very flattering to be honoured thus. My congratulations to the unknown

artist—poor chap must have had his work cut out.

* * *

The Name of the Game, or 'What should we call our fish', is a continuing problem. Latest barrage in this war of correct nomenclature comes from Bob Goldstein in the U.S., who warns that some scribblers have been using the name 'Microgeophagus' when describing *Apistogramma* species, the former certainly not appearing in any scientific literature.

From the American Museum of Natural History, Dr James Atz suggests that the offending writers used it in the descriptive sense ('micro-Geophagus') and that it has appeared often enough for it to have been taken as a real generic name. Both gentlemen recommend that the practice, like the proverbial hot potato, should be dropped forthwith.

* * *

Most of us have been amused when watching the antics of *Corydoras* catfish to see them make a sudden, hurried trip to the water surface, returning equally fast to the bottom of the aquarium trailing a fine stream of bubbles. But it isn't only the *Corydoras* species that do this. The Callichthyidae, those heavily armoured catfishes from the New World, along with the Cobitidae, also indulge in the taking in of atmospheric oxygen.

After gulping the air above the water surface they pass it via their intestines to the hind gut where the oxygen is absorbed. If you do keep any of these specimens then keep a cover on the aquarium. These fish like gulping atmospheric air but not for too long!

* * *

John A. Stevens sent us a brochure describing a new tank his company is manufacturing especially for use when photographing fish. This 'studio' aquarium has been custom-built and designed with the fish hobbyist in mind. For full details please contact Mr Stevens at 9624 Forrest Drive, Highland, Indiana 46322, U.S.A.

* * *

Definition: Misery consists of spilling some water accidentally into your newly purchased tin of brine shrimp eggs.

Snakeheads: Adaptable Oddballs



Striped snakehead (*Channa striata*)

THE beauty of many of our tropicals belies the harshness of conditions under which they must survive. Not only are the smaller members of the aquatic realm subject to constant predation by their larger brethren, the larger ones are often in their turn to become the victims of the two-legged predator. Man, however, in his mere stewardship of earth, can hardly approach in the temporary pressures that he might apply against aquatic creatures the countless and seemingly impossible obstacles to survival which have been mastered in the past. Not the least of these is the ability of some fishes to live in water unfit for living, or even to leave the water if conditions become intolerable.

One strange family, known as snakeheads or serpent-head fishes, are not only remarkably equipped for living under bad conditions, their stamina and reluctance to give up life has made them almost legendary. Scientifically they form the family Channidae, and so great is their vitality that in the Far East, where most species are found, larger specimens are often taken to market alive and displayed in baskets or other facilities obviously not conducive to their added longevity. If a customer demands fresh fish, pieces may be chopped from the still-living creature and because of their heavy, cylindrical bodies the snakeheads are popular food items.

Among the number of species of *Channa*, some of which are wrongly called *Ophicephalus* in the case of those species possessing ventral fins, there is probably not a species that could be generally classed as a good

By BRAZ WALKER

Photographs by the author

aquarium fish for the average fish-keeper. They are tremendous jumpers, requiring that the aquarium always be covered; they usually grow to a larger size than most aquarists appreciate and they are viciously predacious, usually devouring or killing any would-be tank-mates, even their own kind. What could possibly be found attractive about such beasts when the stores are full of more colourful and gentle creatures? One point is that they are wonderful and fascinating show fishes in larger sizes. They are hardy and long-lived, and quite intelligent.

One of the more common snakeheads that is sometimes available is *Channa striata* (Bloch). Native to India, Burma, Ceylon, China and Malaysia as well as the Philippines, *C. striata*, the striped snakehead, is common in swamps and grassy tanks, canals and other waterways. Like other snakeheads, if the water hole or swamp in which the fish lives should begin to dry up, becoming eventually so stagnant that the other fishes die, the snakehead suffers little because of an efficient accessory breathing organ, which allows the breathing of atmospheric oxygen. This accessory breathing organ is simpler in form than the labyrinth organ utilised by the family Anabantidae (which includes bettas and gouramis), but in function it is admirable, since in combination with the snake-style motion of the fish

sided by powerful pectoral fins, if the water conditions do finally become intolerable or the food supply gives out, it enables the snakehead simply to leave. While the plodding pace is somewhat less than that of the average gazelle, it allows survival where less resourceful creatures perish. Having a facility for making the most of nearly every situation, the overland voyager usually arrives at its new habitat a bit dried from the trip, perhaps, but fat and well fleshed from having glutted on the dead and dying before it left the other situation.

The air-breathing organ is located in branchial cavities on each side just above the gill chambers, to which they are connected. These cavities are lined with folds of a thick, puckered membrane having numerous surface blood vessels available that make the vital gas exchange possible.

In THE STATES OF INDIA, Day speaks of an interesting ceremony involving *Channa striata*. Sickness will supposedly be 'cured' by the patient's promise of propitiation to the spirit that has been offended. The patient must run a string through the nostrils of a striped snakehead, in the same way as is done to a bullock, after which all the relatives form a circle and dance around the fish, also pulling it after them by the string. Other offerings are also made.

Channa striata, as well as other snakeheads, can be kept in significantly smaller quarters than, for instance, a cichlid or large characid of the same size. Depending on conditions and even on individual nature, however, some are less active than others after a period of adjustment to close confinement, requiring not only less nourishment to sustain them, but better adapting themselves to the limitations of living within aquarium restrictions. Some species become rather sedentary and may become over-obese in small aquaria, whereas others retain their enthusiasm for life, and especially for feeding. For the latter they are generally well-equipped, as the accompanying photograph indicates with its exposure of the dental equipment of *Channa micropetites*, the red-striped snakehead.

Feeding Schedule

Water conditions seem not to matter greatly for either African or Asian snakeheads. Warm water is preferable, and an aquarium of 15 gallons or more is required for single specimens. They all prefer live food although some will accept substitutes such as chunks of meat or fish. Live fishes such as minnows are the best food, although some aquarists will object to this form of feeding. They might be reminded that this is the basis of the channid diet in Nature and that even most aquarists are fond of an occasional beefsteak or other non-vegetarian item! For those who still find the personal administration of a live fish's demise distasteful, large earthworms, crawfish, tadpoles, mealworms, etc., are all excellent food for these fish. Snails will also be eaten, especially ramshorns. For all but young fish, dried food is impractical and for the most part will be left.

If regular feeding schedules are maintained, most specimens rather quickly learn the routine and their restlessness or even impatience may become evident if there should be a delay of some sort. One species I



Teeth of the red-striped snakehead (*Channa micropetites*) revealed in a dead specimen

have kept, *Channa micropetites*, is not only the most beautiful I have seen with its broad, scarlet stripe edged in black running the length of its body, but also the largest *Channa*. Reaching reported lengths of 5 feet or more in Nature, this fish showed displays of 'temper' when feeding was delayed. The fish would indicate his irritation by frantically ramming his head into the end of the aquarium or even hanging against the cover glass. This invariably occurred in the evening, when feeding was customary, and would cease as soon as the fish was fed.

This species is a favourite game fish in Thailand because of its great strength and ability to jump when hooked. Males, as with other snakeheads, guard nests which they clear in the vegetation, and this species will reportedly attack even humans who invade their spawning locations.

Snakeheads, including *C. striata*, have spawned in the aquarium, but perhaps the greatest value to the aquarist is in their value as single show fish. The large eggs float and are guarded by the male parent. If spawning occurs in the aquarium it is probably best to remove both parents immediately. Free-swimming babies will be large enough to eat brine shrimp.

Snakeheads have powerful jaws and numerous large, very sharp teeth. For this reason they must be handled with care and respect, especially larger specimens. On one occasion of which I am aware, a careless aquarist almost lost a finger while cleaning the aquarium occupied by a huge *Channa*. The strike was due to fear and not viciousness, but this did little to stop the bleeding.

Few more interesting opportunities present themselves to keepers of unusual fishes. In their native lands, snakeheads are subjects of mystery and even taboo, and jugglers in India and China display them for their 'walking' ability. While in most areas they are prized as food, some people refuse to eat them because of their serpentine appearance. Legend in India portrays them as descending with the falling rain. Perhaps their great point of interest, however, is that here the aquarist has opportunity to observe a piece in the puzzle of evolution; a fish in the process of learning to leave the water voluntarily. The first time it happened, only God was watching.

One Man's Marine Aquarium—4

Feeding Marine Fishes

ONE of the most common misconceptions aquarists tend to have about marines is that although the clowns and damselfishes and gobies are very attractive to look at they provide their owner with the headache of trying to satisfy very finicky appetites. Experience has taught me that these fishes are not in the least bit choosy and will accept and enjoy a wide variety of easily obtainable foods.

An aquarist friend of mine who for a long time admired marines hesitated to take the plunge because he held the belief that all marines must be fed with live guppies and mollies. Being an ardent guppy fan he just could not bring himself to the idea.

When I say that I have kept marines that have more than doubled in size since their date of purchase, and I have never put a live fish of any kind as food into their tank, you will realize what can be done.

As with freshwater tropicals, food for marines can be either live or dead. Their diet should in fact consist of both forms. Experts tell us that ideally marine fish should be fed at least four times a day. They base this on the fact that freshwater fishes can, if they are hungry, nibble away on plants found in the aquarium. This the marine fish cannot do and it is entirely dependent on you for food.

I feed my marines twice a day: in the morning and at night. In the morning I feed with a proprietary dried food, or some freeze-dried tubifex or frozen shrimp. In the evening when I have more time I spend at least 15 minutes feeding my marines with live food, white-worm, tubifex, brine shrimp and the occasional small chopped garden worm.

All marine fishkeepers will stress to you that cleanliness in the tank is absolutely essential. Therefore it is vitally important not to overfeed, as uneaten food particles lodge in

By RON TURNBULL

the coral and decay there causing pollution, which can be fatal in a short space of time.

Equally important is not to under-feed. Many a marine hobbyist has lost fish because he has been so afraid of overfeeding that he has actually starved his fish to death.

New fish in your aquarium may be very reluctant to feed. For two days, until they become accustomed to their surroundings, they should not be offered food at all. After they have settled in you will find that certain species, like the sergeant major, beau gregory and the domino, will readily take dried food, which should be a coarse grade. Provided that you have some of the bolder species in the community the less brave members will soon catch on to what is food and what is not. Once you establish regular feeding times you will find that, as with freshwater fishes, your marine community will actually be waiting for you to arrive.

When your marines have consumed all they require the feeding time procedure is still not complete. It is of paramount importance that all uneaten food should be siphoned from the bottom of the tank. I use a siphon attached to my air pump, which enables the bottom to be cleaned in about five minutes.

Without doubt this is one of the most important exercises in keeping

marine tropicals. With almost frightening rapidity, even a small quantity of uneaten food can decay and result in poisoned fish.

Like most other fishes, tropical marines like the occasional tidbit. Almost any kind of meat, provided that it is not greasy or fatty, will be taken eagerly. A small piece of liver, beef, heart, crab, white fish, etc., tied on a thread and suspended in the tank, will be accepted gratefully. The fish usually lose interest after about half an hour and then it is a simple matter to discard the remains.

If your fishes are feeding well then it is almost 100 per cent certain that they are in good health. Should they go off food, however, there will be a good reason and the cause must be found.

Obviously all the common faults in technique will put your fishes off their food. Insufficiently cleaned coral in a new tank, which sets off bacterial growth, is one common cause. Overcrowding could set up a chain reaction leading to pollution. If one fish dies its decaying body could easily set up a similar chain reaction overnight. Incompatible fishes in the same tank will cause the weaker members to live in constant fear, and they certainly won't feel like eating!

Inadequate aeration is also a reason for poor appetite. Most marines need plenty of aeration and a couple of aerator stones are essential in a small tank.

Outside filters should be cleaned out regularly as they can be a source of contamination.

Provided that the commonsense rules which all fishkeepers must obey regarding feeding and maintenance are observed, the discerning aquarist will soon discover that marine fishes are little different from their freshwater counterparts, except in the fact that whereas some freshwater fishes can withstand dirty conditions, a clinically clean tank is essential for the well-being of marine tropicals.

'I want that
sad-looking one'



A Logical Approach to Standards for Goldfish

By M. D. CLUSE

MANY coldwater breeders are concerned about the future availability of goldfish varieties for whose supply we are still dependent on Asiatic sources. The Goldfish Society of Great Britain is seeking to develop breeding programmes that will safeguard the most important fancy types for aquarists. In this article a vice-president of the G.S.G.B. gives the reasons for the choice of types and describes the way in which the new Standards are being prepared.

OVER many hundreds of years the Chinese goldfish-keeping fraternity noticed many mutations in the shape of their fish, and by selective breeding were able to accentuate these new forms and to produce many of the varieties now known to the hobby. The Goldfish Society of Great Britain believes that most of these special characteristics are worth preserving in the same way that many wild species of other animals are being saved from extinction by being bred in captivity, specimens then being returned to their original, natural habitat. With the Orient in an uproar, chaos could assume such proportions that cultural activities such as breeding goldfish could entirely cease.

The special characteristics to be borne in mind, and which are variations from the normal (the common goldfish being accepted as the norm), are deep rounded body, exceptionally thin body, long fins, pointed fins, rounded fins, forked caudal fin, square cut caudal fin, divided caudal fins, double anal fins, absence of dorsal fin, protruding eyes, upward pointing eyes, hump-like growth on head, domed scales, enlarged nasal septa, sacs under eyes. By permutating these characteristics it is obviously possible to produce thousands of different varieties. The policy therefore has been to select for breeding and standardization only a limited number of varieties.

By concentrating upon these all our goldfish-keeping time, it is hoped to establish strains in this country that will make us eventually independent of foreign imports. Each variety must be separate and distinct from each other and not capable of being produced from throw-outs or throw-backs, or even by first-crosses between the varieties. All the accepted special characteristics must be found in the approved range. No variety must be so overloaded with special characteristics that it becomes almost impossible to breed to produce a fair proportion of the young resembling the parents. For genetic reasons, it is best that each special characteristic should be encouraged in its extreme form. This is not always carried to its logical conclusion, however, because the results might be distasteful aesthetically, e.g. a single-tailed fish with an exceptionally long tail would be a "draggie-tail".

In addition to these selected varieties upon which it is hoped G.S.G.B. members will concentrate, standards have also been prepared for the common goldfish (the

normal type from which all varieties sprung), the fantail (which can be produced from other varieties and which has fins of intermediate size), the oranda and the broad-tail moor (which are indeed fancy fishes, but whose characteristics are covered by other varieties).

The G.S.G.B. therefore now recognises 13 varieties in all:

Basic varieties

- Singletail (possibly a version of the Bristol shubunkin)
- Twintail (in future to be called the veiltail)
- Bramblehead (also known as lionhead)
- Globe-eye (sometimes called telescopes)
- Pearlscale
- Celestial
- Pompon
- Bubble-eye

Popular varieties

- Comet
- Common goldfish
- Fantail
- Oranda
- Broadtail moor

So much for shapes; but that leaves 'shine' and colour. The normal fish, such as the common goldfish, has reflecting tissue under the scales and underlying layer that makes them shine. A mutation occurred in which the substance called guanine was absent or nearly absent. When these two groups are interbred an intermediate type is produced which does not breed true. This intermediate group shows some shine and can have some attractive blue colouring, which is black pigment deep in the body. This group is particularly valued by aquarists who aim for orange, black and blue colourings.

For breeding purposes it is desirable and even necessary to recognise these differences and consequently to name them. The G.S.G.B. calls the normal, shining group 'metalic'. The group with no shine is called 'matr' and the intermediate group is named 'nacreous'—looking like mother of pearl. The last two groups have, in the past, been classed together as calicos, and the single-tailed fish as shubunkins, London or Bristol. The

G.S.G.B. names for the groups have been accepted in the U.S.A. and other countries. Thus a book on nishiki koi published in Hawaii, which of necessity went into genetics, used the terms 'metallic', 'nacreous' and 'matt'.

Thus we have 13 varieties with three groups recognised in each (except for the broadtail moor and comet, which are shown in the metallic group only). As regards competitive shows, if entries are sufficient separate classes are made for metallic groups. Show secretaries for clubs can select any of these varieties for inclusion in show schedules according to expected entries. They can also select whether the class should be for, say, metallic or nacreous, or whether mixed. In any case the G.S.G.B. Standards booklet will give guidance. Where mixed classes are necessary, the single-tailed varieties could be separated from the double-tailed varieties. A separate class for varieties without the dorsal fin is also possible.

Having decided upon the varieties for breeding or showing, consideration has been given as to how they should be presented in the Standards booklet. There has been a logic in the G.S.G.B.'s way of selecting varieties. There must also be a system and an order applicable to

all varieties. Outline drawings have been used, showing body outline upon which the shape of the fins will be added. The eyes, the mouth and gill opening will be shown, also such special characteristics as bubble-eyes or pompons. To guide judges and breeders, the text describes what the various proportions of the body and fins should be—based on body length, e.g. a twintail (or veiltail) should have a depth of body three-quarters of body length. A Type test is provided to ensure qualification or disqualification, e.g. (again the twintail), minimum length of caudal fin, three-quarters of body length. A points table is furnished for judging. Out of 100, allocations of points are: 24 for body, which is considered most important; 19 for fins; 19 for colour; 19 for condition and deportment (which rewards the skill and care of the aquarist); 19 for special characteristic which must be encouraged, e.g. domed scales or pearlscales. Also there is much more detailed analysis relating to other matters. Every drawing has been reviewed over the past two years, with consultations with many specialist breeders and references to currently available fish. The revised Standards booklet will be published early in 1972.

Hints and Tips with Surplus Plastics

By H. J. GILBERT

DEPENDING on one's point of view plastics are either the boon or curse of this age. True, the latter view is held mainly by the authorities who are responsible for clearing up our countryside and beaches after holidays and weekends in the summer.

A recent news item gives an unusual story about plastic cups used in drink-dispensing machines. A number of cod being cleaned after anglers had caught them in the Solent were found to contain these cups. The cross-Channel ferry boats use hot drink dispensers and it is thought that the cups had been thrown overboard from these vessels, only to be swallowed by the cod in mistake for the similarly coloured squid which are used as winter bait.

The indestructible characteristics of plastic have been turned to good use by the manufacturers of equipment for the aquarist, and now we have a vast range of corrosion-free, non-toxic devices to make our fish-keeping easier. Additionally the rapidly expanding marine aquarium branch of the hobby is being helped by nylon-coated tanks as well as those made of hard plastic and fibre glass. With all this expertise available the average aquarist is likely to overlook a lot of plastic items, which

having served their original purpose, or which may be surplus to requirements for other jobs, could with a little ingenuity be very useful to him and indeed save money.

The first to come to mind are those polystyrene tiles left over from the bathroom ceiling. Stuck over the ends and back of an exposed aquarium they will provide considerable insulation against heat loss and thereby bring about a saving in electricity consumption. The outside of the tiles may be decorated with a suitably coloured emulsion paint. If no tiles are available this same type of expanded polystyrene used as packing for numerous products can be reduced to suitable thickness and size with the aid of a sharp knife. Shortage of the special adhesive for fixing polystyrene need be no drawback to the project if you have a supply of the cellulose type of wallpaper paste; mixed rather thick, a coat of this can be applied to surfaces to be joined. Allow the coat to dry before applying a second coat and bringing them together.

Another use for sheet polystyrene is the insulation of square-sided jars for carrying or exhibiting fishes. Cut to size and held in place by rubber bands, the sheets will be effective and yet be easily detachable when necessary. From this it is a short step to renewing the insulation in your 'multiple jar' carrying case. The original insulation is probably kapoc or felt, damaged by moths and water; polystyrene tiles cut to shape are ideal replacements for these linings.

Large tiles or sheets of polystyrene hung in the fish house or room make very suitable boards on which to pin notes or information sheets. Small offcuts may be used to clean the algae film from the inside of plastic tanks without any danger of scratching the comparatively soft surfaces (provided, of course, that one does not inadvertently pick up a grain of compost with it).

Just a word of warning: make sure the polystyrene is never used where it comes into contact with extreme heat, i.e. cigarette ends, electric light bulbs, electric fires or naked flames. As it melts rather than flaring up, it can be extremely dangerous.

To be continued

The Rosy Barb



Barbus conchonus (Hamilton-Buchanan)

THIS barb from northern India, Bengal and Assam, which is bred in many aquaria, is a 'top ten' inhabitant of the fish world on many counts. Were I not afraid that many advanced aquarists might feel insulted, I would say that this was an ideal fish for beginners.

It was in 1903 that the rosy barb first delighted the eyes of tropical fish enthusiasts—delighted them not only because of its coloration but also because it is such an active fish in the aquarium, continually swimming around on the look-out for food; and this, together with its undemanding disposition, makes it the 'fish of fish'.

Its carp-shaped body is a greenish, silvery colour with gold-bordered black flecks at the root of its tail. The back is olive green, and the sides and belly are a silvery white with a reddish bloom. The scales are fairly large and glittering. In the female, the fins are colourless, only very occasionally having a golden tinge. She is also more rounded and paler in colour than the male, who is pink or red with pinkish fins.

A large, well-lit, planted tank is ideal for these fish. The tank bottom should be covered with coarse sand or gravel and normal water can be used, kept at a temperature above 65°F (18°C). The fish is omnivorous and continually hungry, and

By **RUDOLPH ZUKAL**

Photographs by the author

Translation by F. MARSH

occasionally it should be ensured that a vegetable diet is available.

Above all, the rosy barb is a sociable, undemanding, peace-loving fish. It will benefit from an occasional partial change of water, or the water can be well aerated. It has quite a reasonable life span, up to about five years, and grows to 2-2½ in. in length.

For breeding purposes, a medium-sized tank (of at least 6 gallons) is required, kept at a temperature of 75°F (24°C). It is not necessary to plant the tank, which can be quite bare except for some fine-leaved plants, floating on the surface of the water, in which the fish will spawn. If the sexes have been kept apart for 10-14 days and are then put together in the spawning tank, violent spawning will take place quite quickly.



During the courtship and chasing of the female by the male the excitement causes her egg tube opening to become relaxed. The male (right) nudges the female's abdomen with his head and stays close by her side as she swims into the planted part of the aquarium.

After the mating, the parent fish should be removed without delay.

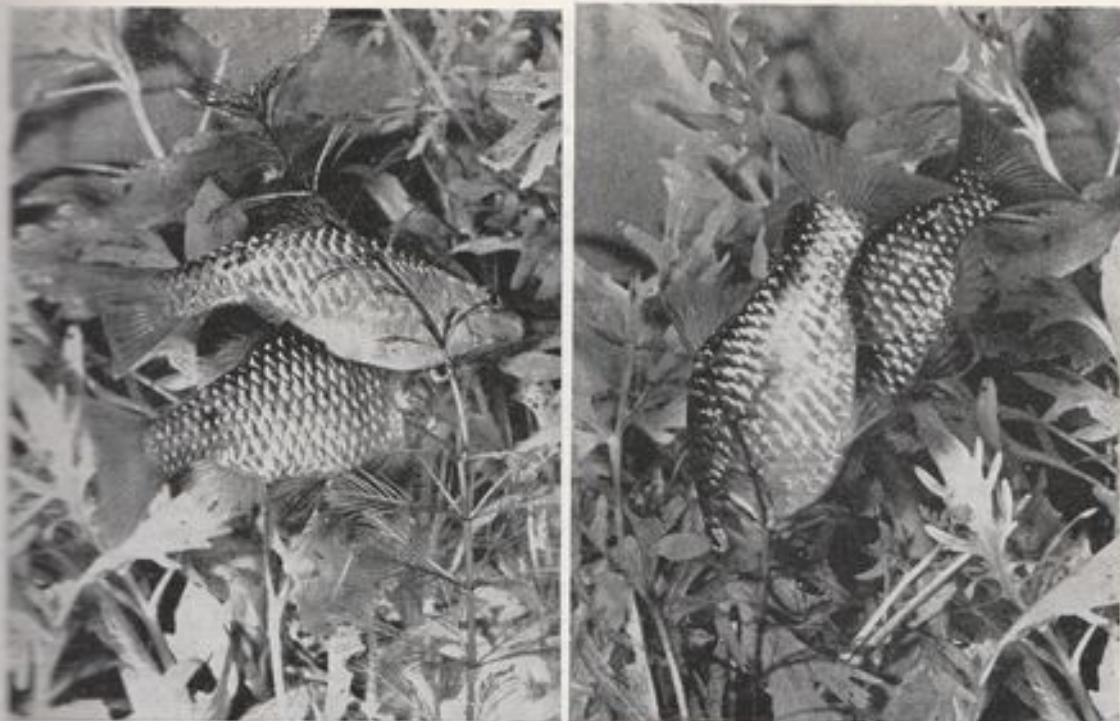
There can be up to 500 eggs, but the usual count is about 200. The brood hatches in about 48 hours and as soon as they are free-swimming they can be given fine dry food or tiny living food. At about 6 weeks old they should be sorted according to size and given increased living room.

The prelude to the act of spawning, or the courtship, has an important role in the ritual as while the female is hunted her cloaca, through which the eggs will drop, becomes relaxed and loose. During this hunt the female will swim into the plants while the male follows, trying to ram her.

The pair of fish I have photographed introduced one or two rather unusual actions into the prelude to the spawning. At one point, the female turned on her side in an attitude of submission, and the male looked on at a complete loss as to his next move. Then, when the first attempt at spawning took place, the female, who was a particularly agile fish, tried to reverse the usual roles by placing her tail fin over the male's body. Normally, of course, this is an action of the male. When this male tried to get his dorsal and tail fin over the female's body he was not nearly as successful! During the spawning the fish are continually swimming about, sometimes racing up to the water's surface, sometimes swimming close together and strewing the eggs in the plants. The dropping and fertilising of the eggs takes place again and again at short intervals and continues for about 2 hours.



An unusual response of the female occurred during this pair's courtship: she turned completely on to her side as if in submission and as seen above the male appeared somewhat nonplussed.



Reversal of the normal male and female roles in pre-spawning was observed in this pair of rosy barbs: the female appeared to be the more agile partner and tried to wrap her tail fin around the male (left) just as males do during spawning. Spawning occurs in various positions including the head-down attitude (right).

Readers' Queries Answered



Tiger Fish

Can you give me any information concerning the Siamese tiger fish? I obtained two of this species from the local aquatics but they can give me no other information than that they are 'tiger fish'. At present they are in a community tank, but I have noticed that they have eaten three small black mollies, four platys and two zebras. If possible, I would like to know their adult size, and also their breeding habits; in colour they are similar to angelfish but bolder. This week one of the fish has changed colour to an overall charcoal. Is it ill?

The photograph you enclosed

enabled identification of the fish as *Datnoides microlepis*. This fish becomes very large in its natural surroundings and although unlikely to grow to anything like the maximum length (15 in.) in an aquarium it will still become a large-sized fish and quite unsuitable for a community tank that contains any fishes smaller than itself. It is not a particularly vicious fish but it has a large mouth and it will eat smaller fishes. It must have a diet of garden worms, raw meat, shrimp, etc. The colour change in the one fish does point to the fact that all is not well with it. *Datnoides* prefer a neutral to slightly acid water at a tempera-

ture of 75-78°F (24-25°C), and it is possible that your fish has not been receiving enough meaty food; but a fish will also lose its normal coloration and turn black if it is being bullied by its mate (and when two fish only of one species are kept together this frequently happens). If so, it will be necessary to watch that both fish are feeding well and to provide some places where the underdog can take refuge.

Swordplant Problem

Could you please give me information on growing *Echinodorus cordifolius*. I bought a plant about 6 months ago as a submerged aquatic about 3 in. high. At first it seemed to do well, then seemed reluctant to support more than about four leaves, as the old leaf died as each new one appeared. Next it sent up only surface leaves, like a lily, and all the submerged leaves died. After that it sent up aerial leaves about 5 in. above the surface and the floating leaves died. The plant is now about 18 in. high and will still keep only

three leaves, new ones appearing from the base about every two weeks and rising above the water in only a few days. Can you please advise suitable conditions for growing?

Answer supplied by Mr R. Forder:
I grow these plants emersed most of the time, wintering them at 50-60°F (10-15°C) and gradually raising the temperature to 77°F (25°C) by April with relative humidity at about 60. They grow very quickly in early spring to a height of 32 in., with leaves of 4½ in. or more. The flowers are on spikes of a length of 32-40 in. If the flowers fail to set seed, one or more plantlets will develop on the terminal buds. These can be weighted down to a pot of mud to form strong roots, before severing from the old plant. Incidentally, these *Echinodoras* are very susceptible to black fly when grown emersed. If you wish to grow them submersed, start with a young plant if possible, or cut most leaves off an old one. It is a natural thing for leaves of large evergreen plants to make new leaves and shed old ones continuously when in growing season. In the winter, my plants do not grow from December till warming-up time in March. All members of this genus need a lot of nutriment at the roots and as much daylight as possible. I have

found fluorescent light alone to be useless for these plants, but in conjunction with incandescent or daylight it can be very helpful.

Old Guppy

I have a full-grown male veiltail guppy, of unknown age, which, towards night-time through until morning feed, spends his time hovering vertically, head upwards. He acts quite normally after the first feed of each day except when swimming slowly when he tends to drop his tail to about 10-15 degrees from horizontal and also tilts his body a few degrees for short periods.

This guppy is affected by a swim-bladder disorder that is most probably a senile symptom. This is not uncommon in old guppies and unfortunately there is no known remedy.

Food

During the time I kept goldfish I was feeding them on Bemax. I have now started to keep tropical fish instead. Could you please let me know if the Bemax can be fed to tropicals? Also I would like to know if a paraffin heater's fumes are harmful to fish.

Firstly one would like to know which tropical species you are keeping. However, assuming they

are typical community members Bemax, though a nutritious food and certainly one that won't harm tropical fishes, is not sufficient in itself. Today's manufacturers of staple fish foods go to great pains to ensure that their products contain all the fish's requirements. But where possible a diet of suitable proportions of both dried and live foods should be given. In warm water, Bemax tends to form a slight scum on the water surface. This can be removed by sliding a paper tissue or piece of absorbent paper across the top of the water. With regard to paraffin heaters, the question of their fumes being harmful has greatly diminished with today's improved fuels, but the smoke from the wick should be kept to a minimum (one old dodge is to soak a new wick in vinegar, allow it to dry and then use in the normal manner). The heater should also be maintained regularly. If a slight oil scum does appear on the surface of the aquarium water, it should be removed as described above.

A properly maintained paraffin heater in ventilated surroundings should cause no problems. A badly smoking one could be a source of trouble but it is likely that the aquarist himself will react to this before the fish!



GUPPY

World

IT was just one of those nights! There I was, sitting down after the evening meal, ready to enjoy an infrequent session with the 'idiot's lantern' when it happened! The peaceful scene was shattered by an unearthly noise from the fish room.

It sounded like the catastrophic rumble of impending doom, a clanking such as all the armoured

Knights at Agincourt must have made. It jarred the nerves, turned my cat into a trembling psychiatric case, soured the milk and shook the telly until the blood drained from its electronic face.

My fish room fan heater had gone on the blink.

It spoiled my night and ruined my faith in 'electricity'. Yet, readers be warned! It was my fault.

Just because night after night, day after day, my space heater had given unselfish service, I thought it would continue for ever. Forgotten were the maker's instructions to clean and oil it regularly. Like the breeding ability of my guppies, I had taken it for granted.

So all you users of these 'devices' take heed if you wish to avoid the unbearable, hideous grumbling of intolerable profundity. To your fish rooms and start that service now! Like me, you may recover enough fluff to stuff four cushions, find bearings as dry as the Kalahari Desert, a heater element that smelled like a dead turtle and become aware of a piece of machinery crying out for Tender Loving Care. It could happen to the best of us.

With the recent AQUARIUM SHOW in London still fresh in

our minds, perhaps readers will forgive me if I devote some paragraphs to showing—after all, breeding fancy guppies is fun but rather an individual achievement. It is only when we show the results of our prowess on the show bench that we get any indication of whether we have succeeded or not.

Specialist societies have produced many show guides over the three decades of the organised hobby but what must surely be the most ambitious stems from the Singapore Guppy Club. Its 80 pages (in both Chinese and English) are packed with information on their third annual show; it even includes large coloured pictures of the winning entries.

With the S.G.C. still only 2 years old, guppy breeding in this part of the globe has boomed, perhaps because the tropical climate of the island obviates the use of costly heaters and 'stats'.

Under the presidency of Tay Kah Seng, the S.G.C. swept the board at the 1969 Vienna International, taking no less than seven firsts and five minor prizes. Just how prolific the guppy is on the island is summed up by Dr Seng in an article on 'Symptoms and Diseases': 'Fancy guppies are bred in such numerous numbers that the breeder seldom bothers to take time off to treat a few fish. With a sharp, experienced eye, the weaklings and those showing the first signs of sickness are taken off and flushed down the sewer.'

I should be interested to hear what our 'Guppy World' readers have to say to that!

Gate judging is a practice in these islands necessary when one is faced with a large number of entries, few adjudicators and when the time allowed is limited. The judge, after closely examining the exhibitors, discards about 50% of the guppies and points only the remaining fish.

Though all these conditions applied to the guppy classes at The AQUARIUM SHOW 1970 I can assure all concerned that the single appointed judge, George Goodall (Radlett Section, F.G.A.), pointed every exhibit, no enviable task for even such an experienced breeder as this Class A adjudicator.

In conversation with George

By PETER UNWIN

afterwards he told me that though the size and colour of the fish were above average, many of the exhibits lost valuable points because they did not conform to the laid-down outlines as published in the current F.G.A. Standards.

To those who didn't figure in the cards, my commiserations, but please obtain a copy of the current Standards and check each guppy before you take it to any future show. Attention to detail is the sign of genius wrote Edison, and with all the prizes Thomas Alva won he should know!

Postscript: the council member of the F.B.A.S. I spoke to assured me that pointing all the entries was current practice with the Federation, a decision on which they are to be congratulated.

At the time of writing, the guppy has 15 male and seven female types on which to practise his art. Some think this is too many, others not enough. The debate continues.

Now it has been suggested that we British adopt the American system and further subdivide our broadtail classes (deltatail, fantail, etc.) into colour classes (not to be confused with the existing 'colour class' where the guppy receives the majority of the points for colour).

With 90 entries in a short dorsal class, as was the case earlier last year, the case for colour subdivision seems to hold water, but having witnessed the often vehement arguments that can develop between exhibitor and judge (in countries operating the class subdivision), as to whether a certain fish was blue or green, I have my doubts.

The number of prizes and cards now required for even just 22 classes is phenomenal; with extra classes these can reach crippling proportions—a fact that any club treasurer can confirm. Despite this, I forecast that the question of subdivision will still 'divide' guppy breeders for some time to come.

The coveted 'Best in Show' award rarely goes to a *Poecilia reticulata*,

probably for the simple reason that when a guppy judge points a guppy between 75 and 80 he considers it to be a very good fish indeed. It would qualify for a silver or gold award in specialist competitions. Though they seem good marks they are very low when compared with the scale of points usually awarded to other fishes.

Therefore it was refreshing to read that at the Bristol T.F.C. Annual Show Mr J. Wheeler had taken the top award with his guppy. Congratulations, but the affair was somewhat spoiled for me when I went on to read his winning entry was described as a 'long tail guppy'! Regular readers of 'Guppy World' will be able to make a pretty accurate guess about which variety this fish was, but it must be confusing to the beginner.

One doesn't have to be an expert to compare the guppy you wish to identify with the drawings published in the Standards Handbook. It might not exactly fit the illustration, but then we don't expect it to—if it did we would have quite a fish on our hands.

Let us get rid of this slap-happy attitude when identifying a guppy; to split them into two main groups such as broadtail and shorttail is fine for some accounts but not when it comes to describing a show fish. If the judges present cannot help is it too much to ask the show secretary to have copies of the various Standards available? After all, there aren't so many of them.

The Fancy Guppy Association do not require their members to display the date of birth on breeders' teams, unlike the F.B.A.S. and F.N.A.S. who insist that exhibitors under their rules do.

The F.G.A. have abolished d.o.b. because they say growth rate differs, given differing conditions, and that they have found in practice that this date is usually only a shrewd guess on the part of the exhibitor, especially the newcomer to the show bench.

In fairness to the specialists I should add that they advise their members that they must obey this rule if competing under F.B.A.S. or F.N.A.S. show rules and regulations.

Truly a modern concept of 'when in Rome' and a lesson in true co-operation.

An Unusual Catfish of the Old World



Mystus tengera (Hamilton-Buchanan)

THIS very rare fish from the Bagridae family comes from the slow-moving and static waters of northern India and grows to a considerable size, up to about 7 inches even in the aquarium. However, they are quite suitable for keeping in captivity. They differ from the more generally available *Pimelodella* only in the number of their barbels—the pointed jaw of the *Mystus tengera* has four pairs $\frac{1}{2}$ – $1\frac{1}{4}$ in. long.

The extremely large eyes give a clue to the fact that this is a nocturnal fish. The body is elongated and three dark lengthwise stripes stand out on the olive green background. A dark patch can be seen behind the gills, and the belly is pale with a yellow tinge. The first ray of the dorsal as well as the pectoral fin is dark and the tail fin is forked. Sex differences have not yet been recognized in these fish and they have not been bred in captivity, which accounts for the fact that they are not kept by aquarists in great numbers.

In general *Mystus tengera* is an undemanding tank occupant. My own personal observation verifies that it is a nocturnal creature—activity increases as the aquarium is shaded. The fish uses its barbels like a knight with a sword. When it catches sight of food it reaches for it with the help of its barbels. Incidentally, when it is hungry nothing that moves escapes its notice. It will take tubifex worms gratefully, but above all it prefers bloodworms. It is very important to give this fish a varied diet as it takes very badly to a monotonous one, which can cause it to stop growing and take no

By J. ELIAS

Photograph by
RUDOLPH ZUKAL

Translation by F. MARSH

interest in life. And this is a state from which it takes it a long time to recover and get back into good condition.

In our permanent exhibition in Brno, these fish were at first very sensitive to the light. When the light was put on in the morning, we could never see them because they would be in the darkest hiding place they could find. Feeding also proved very difficult. After several months, how-

ever, the tank holding these catfish became quite an attraction—the fish appeared near the front of the glass zealously searching for bits of food (though they do not dredge up or grub about the bottom injuring the plants). They are quite suitable for a community of larger fishes as they are peace-loving and spend a lot of their time cleaning the tank bottom in their thorough hunt for food.

Don't Misuse Your Live Foods

By J. LEE

THE comments and queries about the feeding of live foods in recent issues of PFM interested me. It is very pleasing to be able to get such a variety of opinion and indeed I was more pleased than surprised that so many people took such a great interest in this topic.

I must confess I did not realise there were so many aquarists running around trying to obtain a bag of daphnia—maybe because I've always been richly rewarded with plenty of live foods, as where I live there are abundant pools to choose from. In 25 years I have never had to buy a bag of daphnia, but I do agree that it should be possible to buy other live foods, such as whiteworms, at reasonable prices.

One letter that interested me particularly was from a reader who suspected daphnia of causing many of the unexplained deaths of his fishes and of starting outbreaks of white spot, and tubifex of causing tuberculosis and boils. I can say sincerely that in all my years of fishkeeping and 28 years of fish breeding I have never experienced this. I think any danger in feeding with live foods is more likely to come from their misuse than from the use of them, and I would like to give a warning against some of these malpractices.

For instance, many people store their daphnia, ghost larvae and cyclops in containers or tubs in the garden, garden shed or yard. In winter, these containers are often covered with a thin layer of ice and

yet many aquarists unthinkingly break the ice, take a good dip with the net and transfer the icy daphnia straight to the fish tank. In my opinion this is a very bad practice and can result in the fish becoming chilled. In severe weather, daphnia should always be raised to room temperature.

Feeding with daphnia in hot weather also has its dangers. Daphnia can die very quickly in the summer months after it has been collected and a casual netful will contain many dead ones. If these are put straight from the container into the tank the bodies of the dead daphnia will set up pollution. The daphnia in the container should be strained and the dead masses thrown away.

Tubifex worms are a very good food, if kept correctly (under running water if possible; I thought Arpee's method of keeping tubifex fresh in a container with a large surface area a very effective and safe method), but worms which are not contracting tightly and which look white or grey are not fresh and should not be put in the tank.

Of course, fish can be kept on foods other than live foods and still have a full life. I have fed my stock fishes on scraped meat, liver, shrimp, freshwater mussels, cooked heart and all sorts of flies, insects, fish roe, etc. Indeed I use these foods in between feeding with live foods for a change of diet as, in my opinion, the wider the variety of food the healthier your stock will be.

Over the last 28 years I've bred a wide variety of fishes and when conditioning them for breeding have used only live foods such as white-worms, which I think are a good, solid food, and daphnia, which in my opinion is a good conditioner. Daphnia possibly has not a lasting food value, but with other crustaceans it does contain valuable dietary adjuncts. Earthworms are most probably one of the richest foods but if not used in moderation even they can poison the water.

We do not know what sensation a fish receives when it dives into a ball of writhing tubifex and grabs a mouthful, but having observed fishes in our lakes and streams—the trout swimming motionless against the current waiting sometimes for hours for a nice big worm to snap up and dart under the bank with—it seems to me that the fish's sensation is one of sheer delight.

Recently I have been following a heavy breeding programme and successes with tetras have included lemon, emperor, black-phantom, costella, neon and, more lately, two batches of cardinal tetra fry. As usual, all these breeding fishes have been conditioned on live foods: daphnia, ghost larvae, tubifex, white-worms, cyclops, mosquito larvae and Grindal worms. I think this sums up the value of live foods. If live foods are kept clean and used correctly it is my belief that the chances of fish contracting any disease from their use are very, very slim.



THE MID-SUSSEX A.S. held its annual inter-club show in November, and for the second consecutive year gained first place. This time, unfortunately, the competition was only four-cornered, as Crawley A.S., who have entered in previous years, were unable to attend. Each Society is allowed to enter three fish from each class in the competition, and 58 fishes were exhibited for judging. This was done by the newly appointed vice-president of the home society, Mr J. Stillwell. President Mr Croucher presented the Exhibitor of the Year and the Home Aquaria, awards. Detailed results are:

Barbs: 1, Mr K. Williams (Brighton A.S., cherry barb); 2, Mr G. Taylor (Redhill & Baggate A.S., half-banded barb); 3, Mr H. Maddison (Littlehampton & Bognor A.S., albino barb). **Characins:** 1, Mr D. Soper (M.S., *Melipotis*); 2, Mrs D. Wykes (Brighton, *harissini*); 3, Mr A. Davies (Brighton, blind cave tetra). **Livebearers:** 1, Mr N. Short (M.S., *Lepidogaster molly*); 2, Mr A. Kwasniewski (M.S., *moonlight*); 3, Mr Q. Taylor (Redhill & Baggate, *Lemna vitata*). **Labyrinth:** 1, Mr K. Mungler (Littlehampton & Bognor, leeri gourami); 2, Mr D. Soper (M.S., *moonlight gourami*); 3, Mr C. Corbin (M.S., dwarf gourami). **Rasbora:** 1, Mr R. Smith (Littlehampton & Bognor, *desmirensis*); 2, Mr M. Paul (Brighton, barlequin); 3, Mr H. Maddison (Littlehampton & Bognor, blackline).

Exhibitor of the Year, senior award: 1, Mr D. Soper; 2, Mr J. Walker; 3, Mr C. West. **Exhibitor of the Year, junior award:** 1, Mr S. Caulderbank; 2, Mr D. Ransom. **Home Aquaria award, senior:** 1, Mr N. Short; 2, Mr A. Saunders; 3, Mr D. Soper. **Home Aquaria award, junior:** 1, Mr D. Ransom; 2, Mr P. Johnson; 3, Miss L. Temple.

Any further information about the Society can be obtained from the secretary, Mr J. Reeve (56 Rumbolds Lane, Haywards Heath, Sussex).

MERSEYSIDE A.S. members have been enjoying many varied activities in the last few months, with specially heroic activities at the B.A.F. Club Auction Night saw loads of fishes, plants and equipment change hands and the throngs of members and visitors included Mr and Mrs Bill Wood, parents of Mr Graham Wood of Calgary, Canada. A fascinating talk by Mr Payne of the City Water Board started with an historical account of the growth of water supplies to the City and

finished with a question and answer session on the effect of this water on members' fishes. Club member Mrs Shirley Taylor gave a most informative talk at very short notice on keeping and breeding coldwater fishes; and an inter-society show was held with Stretford A.S. Came the B.A.F. and the Society received eight awards with 27 entries. Two trophy winners were Mr D. Thomalla (loaches) and Mr K. Parkes (barbs) and other award winners were Mr F. Mulla, Master D. Moorcroft and Mr J. Faulkner. The thanks of all went in particular to Mr Bill Smith, Mr Bill Kelly, Mr Fred Mulla and Mr Ken Parkes, who not only put in an unbelievable amount of time and work to have everything ready for the big day but were largely instrumental in having the champions stand ready in time at the Show itself.

BRADFORD & D. A.S. have enjoyed many interesting meetings throughout the last 12 months, and the range of topics covered illustrates clearly how helpful club life can be to the new fishkeeper. Apart from a lecture specifically entitled 'Fishkeeping for beginners', speakers have dealt with fish foods and feeding, marines, killifish, elementary genetics, fish house construction, aquatic plants, furnished aquaria, breeding egg-layers, water chemistry and so on. These have mostly been full-length lectures often supported by film and slides; but the 10-minute talk has also proved a recent winner, when one of the November meetings was entitled 'Ten Minutes Please' and several committee members talked about some of their personal fish-keeping interests, which included *Neotobranchius gantneri*, the European minnow and koi. Those who would like to join in should go along to a Society meeting on the first Wednesday of the month in Room 5 or the third Wednesday of the month in Room 4 of the Unity Hall, Rawson Square, Bradford at 7.45 p.m.

JUST in case members of **LEAMINGTON & D. A.S.** felt like sinking into a doze with the coming of winter, they were provided with two mind-shakers in the form of quizzes during November. The first was unintentional when Mr Ken Russell saved the day with his 'criss-cross quiz' after the advertised film show failed to materialise. Everyone enjoyed this; new members who had not been present at a criss-cross quiz before, old members who had forgotten the answers and junior members who knew all the

answers. Table show winners were: anabantids, Mr J. Atkins; a.v. breeders teams, Mrs M. Gunthorpe. Then at the second November meeting, Mrs Pam Markham presented a slide picture quiz, which was won by John and Chris Beard. The table show at this meeting was for pet fish and was won by Mr F. Underwood's 'Fascist', which was awarded 73 points (*Hemichromis fasciata*). Other entries included Spotty, Sylvia (a silver hatcher), Hoover (Corydoras) and Biro (a pencil fish).

A NEW venture was tried by members at the November meeting of **BELLE VUE A.S.** They staged a 'Trial by Jury' and on trial were under-gravel filters, the question being 'Do they or do they not kill plants?' Society chairman, Mr S. Taylor, took the bench as judge; counsel for the prosecution was Mr R. Davies; counsel for the defence was Mr S. A. Heap. Apart from the witnesses the rest of the members at the meeting formed the jury. Each side put up a very good case, but the verdict was a majority decision in favour of under-gravel filters. Members thoroughly enjoyed the evening and hope to repeat the idea with other topics under fire. Table show results were: Seniors: 1, Mr G. Thompson; 2, Mr F. Cobb; 3, Mrs W. Heap. Juniors: 1, Master I. Roberts; 2, Master J. Gee; 3, Master Woodfinden.

AT the **HALIFAX A.S.** Open Show judges Mr B. Pengilly and Mr H. Leder presented the award for the best fish in the show to a Carapo knife fish entered by Mr D. Kennedy of Bradford A.S.

The Show was well supported and detailed results were:

(Halifax, H; Ainsborough, A; Oldham, O; Bradford, Br; Top Ten, TT; York, Y; Middles, M; Nelson, N; Runcorn, R; Kingley, K).
Guppies: 1 and 2, Mr I. Stephenson (Y); 3, Mr F. Walker (Y). **Swordtails:** 1, M. & N. Burnap (A); 2, Mr N. Turner (M); 3, Mr J. Bruntan (O). **Mollies:** 1, Mr N. Turner (M); 2, Mr H. Gardner (A); 3, Mr A. Gregory (N). **Plecos:** 1, Mr R. Williamson (H); 2, H. & R. McKenna (N); 3, Mr M. Willey (Br).
Characins, Small: 1, Mr R. Johnson (A); 2, Mr F. E. Gregory (O); 3, Mr M. Dwyer (A). **Medium:** 1, Mr N. Turner (M); 2, Mr I. Stephenson (Y); 3, H. & R. McKenna (N). **Large:** 1, Mr Hingworth (N); 2, Mr Hingworth (Y). **Barbs, Small:** 1, 2 and 3, Mr F. E. Gregory (O). **Large:** 1, 2 and 3, Mr F. E. Gregory. **Rasbora, daniel, minnows:** 1, Mr D. Kennedy (Br); 2, Mr M. Tonge (O); 3, Mr D. Shields (H). **Sharks, flying foxes:** 1 and 2, M. & V. Pears (S); 3, Mr P. Dwyer (A).
Fighters: 1, Mr J. Faulkner (R); 2, Mr A. Dawson (O); 3, Mr A. E. Whitlock (T). **A.v.v. anabantids:** 1, Mr G. Blaise (R); 2, Mr R. Dawson (O); 3, Mr F. Ledger (T). **Corydoras:** 1, Mr R. Wilkinson (H); 2, Mr Williamson (O); 3, Mr A. Baldwin (N). **A.o.v. catfish:** 1, Mr Hingworth (N).



The Mayor of Brent performed the official opening of the Palace in Wonderland in north London recently.

After the opening ceremony the Mayor (Councillor Jackson) was shown round by the manager Mr Len Smith (left)

1. Mr D. Fryar (HD); 2. Mr J. Blake (HF), Loaches; 3. Mr F. E. Gregory (O); 4. Mr D. Claver (A); 5. Mr G. Smith (Br), Dwarf cichlids; 6. H. & R. McKenna (N); 7. Mr Williams (O); 8. A. & B. Smith (TD), A.O.V. cichlids; 9. M. & M. Howard (H); 10. Mr R. Johnson (A); 11. H. & R. McKenna (N), Tautogids. Bottom spawners: 1, 2

and 3. Mr J. Roberts (N). Top spawners: 1. Mrs Goss (K); 2. Mr M. Fong (O); 3. Mr I. Stephenson (Y), A.O.V. tropical; 4. Mr D. Kennedy (Br); 5. Mr A. E. Whitehead (D); 6. M. & M. Howard (H), Brooders, Egglayers; 7. Mrs Goss (K); 8. Mr H. Naylor (H); 9. Mr F. E. Gregory (O), Livebearers; 1. Mr H. Gardner (A);

2. Mr R. Wilkinson (H); 3. Mr P. Walker (Y), Pairs, Egglayers; 4. Mr F. E. Gregory (O); 5. Mr Williams (O); 6. Mrs Goss (K), Livebearers; 7. Mr S. Hill (A); 8. Mr J. Grundy (H), Goldfish; 9. J. & J. Moorehouse (Br); 10 and 11. Mr S. Hill (A), A.O.V. coldwater; 12. Mr P. Moorehouse (Br); 13 and 14. Mr S. Hill (A), Furnished jars; 15. Mr J. Kovacic (H); 16. Mr P. Moorehouse (Br); 17. Mrs Goss (K).

ALTHOUGH the main competitive season is over, EALING & D. A.S. are managing to keep the pot boiling until the 1971 season begins. Recently the third leg of an inter-club series between EALING, RIVERSIDE and RUNNYMEDE A.S. was held at Ealing. Although Reading won this particular match quite convincingly, Riverside hung on to their early lead to win the series by the close margin of 2 points! This series proved to be very popular with the three Societies and plans are in hand for 1971 to draw up some rules for these encounters to avoid last minute panics! Plans for the Society's tableau entry at The AQUARIUM SHOW 1971 are also already being discussed. The Society's closed show will be held on 17th January.

SHERWOOD A.S.'s first open show was a huge success with 706 entries from 58 societies. The award for the best fish in the show was won by Mr Hans Kuhn of Lincoln A.S. with a dwarf cichlid. The exhibitor with most individual awards was Mr I. Heptinstall of Castleford and the society with most points was Castleford A.S. (2, Alfreton; 3, Doncaster and Bellevue). Results are as follows:

Pairs, Egglayers: 1. Master A. Bull (Derby Ripart); 2. Master D. Sharp (Castleford); 3. Master H. Higginbottom (Sheffield). Livebearers: 1. Miss D. Jordan (L.F.K.); 2. Miss S. Anderson (L.F.K.); 3. G. Thickbroom (Castleford), Guppies: 1. Mr K. Brown (Mid. Trap, A); 2. Mr C. Jupp (Castleford); 3. Mr and Mrs Houghton (Southport), Plaies: 1. Mr I. Heptinstall (Castleford); 2. Mr and Mrs Houghton; 3. Mr Platt (Stockton), Mollies: 1. Mr L. King (Doncaster); 2. Mr and Mrs Carter (Bedworth); 3. Mr J. H. Jordan (L.F.K.), Swordtails: 1. Mr N. R. Gibson (Sheffield); 2. Mr R. Widdowson (Sheffield & Bulwell); 3. Mr and Mrs Hoop (Sheff. Tru). Characins, Small: 1. Mr B. Smith (Worksop); 2. Mr P. Reynolds (Dukeries); 3. Mr M. Allsop (Alfreton), Large: 1. Mr J. A. Wainman (Aylesborough); 2. Mr P. Reynolds (Worksop); 3. Mr P. Reynolds (Worksop), Dwarf: 1. Mr H. Kuhn; 2. Mr I. Heptinstall; 3. Mr G. Thickbroom, Large: 1. Mr and Mrs Ormister (Southport); 2. Mr Goss (Stour); 3. Mr J. A. Whitley, Angels: 1. Mr G. Platt (Grantham); 2. Mr J. Laid (Skagness); 3. Mr M. Allsop, Snails: 1. Mr and Mrs Cohen (Castleford); 2. Mr M. Lindley (Alfreton); 3. Mr J. Jones (Grantham), Large: 1. Mr L. Hill (Alfreton); 2. Mr J. Blisset (Castleford); 3. Mr Hubert (Derby R.).

Killifish: 1. Mr S. Hill; 2. Mr R. Shakespeare (Bedworth); 3. Mr J. A. Bull (Lincoln), Minnows and dawns: 1. Mr I. Heptinstall; 2. Mr M. Allsop; 3. Mr D. Jackson (Dukeries), Sharks and loach: 1 and 2. Mr J. M. Delaney (Loughborough); 3. Mr I. Heptinstall, Rainbow: 1. Mr R. Shakespeare; 2. Mr Whitfield and Mr Massey (Hobury); 3. R. & A. Johnson (Aston), Fighters: 1 and 2. Mr J. R. Rhoads (Scunthorpe); 3. Mr G. Thickbroom, A.O.V. anabantids: 1. Mr I. Heptinstall; 2. Mr L. King (Doncaster); 3. Mr D. Jackson, Brooders, Egglayers: 1. Mr E. Wells (Doncaster); 2. Mr H. Kuhn; 3. Mr M. Lindley (Alfreton), Livebearers: 1. Mr and Mrs Cohen; 2. Mr C. Ward (Doncaster); 3. Mr and Mrs Bessley (Belle Vue), Pairs, Egglayers: 1. Master S. Clowes (Castleford); 2. Mr and Mrs Hough (N.



Mrs B. Buchanan, wife of the president of Sherwood A.S. presented Mr Hans Kuhn (left) with the best fish in the show trophy at the Society's first open show. Chairman Mr J. Igoe announced the presentation

Works); 3. Mr M. Allsop, Livebearers: 1. Mr and Mrs Bessley; 2. Mr Platt; 3. G. Thickbroom, A.O.V. catfish: 1. Mr R. Farnell (Creswell); 2 and 3. Mr F. Goss (Castleford), Corydoras: 1. Mr R. Davies (Belle Vue); 2. Mr C. Cooper (Derby S.G.); 3. Mr P. Anderson (L.F.K.), Loaches: 1. Mr P. Danielson (Huddersfield); 2. Mr and Mrs Hough (N. Works); 3. Mr Hubert (Derby R.), A.O.V. tropical: 1. Mr P. Reynolds; 2. Mr S. Harrison (Huddersfield); 3. Mr C. Cooper (Derby S.G.), A.O.V. tetras: 1. Mr I. Heptinstall; 2. Mr and Mrs Hoop; 3. G. Thickbroom, Goldfish and comets: 1. Mr C. Hill (Nottingham); 2. Mr T. Sands (Boston); 3. Mr M. Shilton (Arboretum), Shubunkin and fancy goldfish: 1. Mr J. Eyres (Aston); 2. Mr C. Pratt (Bedworth); 3. G. Thickbroom, A.O.V. coldwater: 1. Mr T. Sands; 2. Mr C. Shilton; 3. Mr and Mrs Bessley.

In Brief

... AT the A.G.M. of **BASINGSTOKE & D. A.S.**, retiring chairman Mr D. Walls expressed his delight at the success achieved by the Society over the past year, particularly in staging their large open show, and in winning the Three Counties fish league. He said that the high standard maintained by the speakers throughout the year had the effect of sustaining high membership and attendances, and in thanking the retiring secretary, Mr H. Gough, and the retiring show secretary, Mr A. Blake, for their tremendous efforts in making the club so successful, he also thanked the committee for their backing.

... NEW venue for meetings of **WEYMOUTH & D. A.S.** at the Sidney Hall Council Room proved an ideal meeting place, and warm to boot! The programme of the November meeting held there included a film and tape lectures on cichlids, as well as a detailed discussion on the club's participation in the town's Quatercentenary celebrations this year.

... RETIRING chairman of **HOUNSLOW & D. A.S.**, Mr Barry Abbott, commented at the recent

HOW about this then, as you watch your dearly purchased single Oscar? (quote from the OKLAHOMA CITY AQUARIUM SOCIETY (U.S.A.) magazine): 'Earlier this spring Ed and Cookie Turney had placed Oscars, rainbows, Dempseys, convicts, goldfish and catfish in their small pond. The Juniors (club) held a "Wade and Seize In" at the Turney's request and had the fun of seizing the pond and catching the fish. The Oscars were all present and accounted for. The goldfish were all in fine shape. The convicts and Dempseys were not found in the abundance expected. But the rainbows, now that is something else. They had practically taken over the whole pond . . . The Juniors were sure they had captured all the catfish and placed them into the larger pond so the kids all went swimming. It wasn't but a short while until scores of catfish were seen milling around in the pond.'

At their quarterly meeting on the 8th November, 1970, held at Conway Hall, London, members of the **GOLDFISH SOCIETY OF GREAT BRITAIN** voted to add the broadtail moor to the list of popular varieties, so that it can be exhibited at G.S.G.B. shows. The drawing of this variety, and the marking schedule, was prepared for the F.B.A.S. in January, 1968—black is the only admissible colour. Members also agreed that the comet, already included in the G.S.G.B. list of popular varieties, will in future only be recognised in the metallic group. The G.S.G.B. Standards Committee was asked to prepare drawings of alternative shapes and sizes for the caudal fin of the single-tail. It was also unanimously agreed that the G.S.G.B. twin-tail should in future be called the veiltail. These changes, wanted by G.S.G.B. members, fortunately coincide with the wishes of outside organisations with which G.S.G.B. has been in consultation over the past 2 years.

A.G.M. on the success of the club's activities during the past year. The show secretary, Mr Bert Pratt, reported a very busy year, with over 400 entries in the table shows and a highly successful open show in September. Mr Bob Nelhams, as social secretary, came in for much praise for his efforts, as did the well-organised team work of the committee.

... A GOOD year's activities during 1970 were reported at the **UXBRIDGE & D. A.S.** A.G.M. Club activities were well supported, club finances were in a sound condition, the open show had been the best in the club's history, and members had also won many prizes at open shows. The officers and committee were returned unchanged.

... AT the A.G.M. of **SOUTHEND, LEIGH & D. A.S.** held recently, Mrs Hilda Halsey, widow of past president Mr Stan Halsey, presented the cups and awards won by members over the past year. These were: Halsey Memorial Trophy (highest points in table shows), Mr T. Clark; Southchurch Cup (second highest points), Mr R. D. Orford; Abbott Cup (highest points in junior competitions), Master M. Chapman; Brookes shield I (first in mini-tank), Mr A. Russel; Brookes

shield II (second in mini-tank), Mr T. Clark; Barnes-Oak Cup (best breeders egg-layers), Mr G. Coe; Coronation Cup (best breeders livebearers), Mrs V. Burlton; Du-boisson Cup (best characin), Mr T. Clark; Len Willis Memorial trophy (best killifish), Mr B. Dunn; Giles Cup (home-furnished), Mr K. Lane; Jones Cup II (best coldwater fish) and Saunders Cup (second-best coldwater fish), Mr T. Clark. The Jones Cup I (member's best fish) also went to Mr T. Clark.

... MR D. HANCOCK of Reading judged the annual members' show of **DIDCOT & D. A.S.** Results were: barbs, Mr J. F. Davidson; characins, Mr J. F. Davidson; cichlids, Mr A. Wilkinson; labyrinth, Mr J. Trinder; toothcarps, Mr J. Trinder; catfish and loaches, Mr F. Ritson; rasboras, danios, minnows, Mr A. Watts; a.o.v. tropical, Mr D. Whiting; guppies, Mr A. Watts; best livebearer, Mr A. Wilkinson; a.v. coldwater, Mr A. J. Davidson (jr.); breeders egg-layers, Mr A. Wilkinson; breeders livebearers, Mr A. Wilkinson; best fish in the show, Mr J. F. Davidson (Metyusii). Mr A. Wilkinson was voted Aquarist of the Year, and presented with the Money & Friend shield.

... SOCIETY members and visitors at the November meeting of **COVENTRY POOL & A.S.** saw how designs and techniques differ from one pool to the next, when they were shown slides of the Garden Pool Competition. There followed a talk on live foods, given by secretary Mr John Grant, and most of the audience joined in the discussion that followed. Table show winners from the 37 entries were: catfish, Mr S. Woodridge (best fish in the show); killifish, Mr B. and Mr F. Hirst; characins, juniors, Mr B. Hirst; a.v. livebearers, novices, Mr E. Wilkins; a.v. egg-layers, novices, Mr T. Manning.

... AT the November meeting of **SOUTH DERBYSHIRE & D. A.S.**, four new members were welcomed to the Society. The table show for mini furnished aquaria, tropical or coldwater, was judged by Miss Hunt. Results were: 1 and 2, Mr D. Orme; 3, Mr C. Cotton. Anyone interested in joining should contact secretary Mr T. Clarke, 14 Vale Road, Midway, nr. Burton-on-Trent.

... **YEOVIL & D. A.S.** members have decided to hold an open show this year. They recently enjoyed a film show hired from Horsforth A.S. through the good offices of

Mr B. Stidson, who showed the film on his projector and screen.

... **YATE & D. A.S.** report a highly successful year both at outside open shows and at their own, which was the most successful yet. The final inter-club show between the club, **BATH** and **TROWBRIDGE** was won by Bath, who became the overall winners.

... **HEMEL HEMPSTEAD A.S.** are mourning the loss of catering secretary Carol Gardener, who has moved to Derby and to whom they express many thanks for her vital efforts at club meetings.

... **MR B. JAMES** entertained members of **BISHOPS CLEEVE A.S.** to a very interesting talk on cold-water and tropical plants recently. Table show winners were: A.O.V. cichlids: 1, Mr J. Williams; 2, Mr N. W. Dooley. Mollies: 1, Mr L. Gamblen.

... **GUILDFORD & D. A.S.** were hosts at the inter-club show held with **WOKING** and **REIGATE & REDHILL** societies at the end of November. While judging took place a Brains Trust was held with members from all three clubs on the panel. The home team came second in the inter-club competition, being beaten by Reigate & Redhill.

... **MEMBERS** of **MEDWAY A.S.** thank **SITTINGBOURNE A.S.** for a most enjoyable evening at their November inter-club show. Medway came second out of the six clubs competing with the following awards. Anabantids: 1, Mrs W. Empett; 2, Mr J. Marshall. Livebearers: 1, Mr L. Laming; 3, Mr C. Elliott. Barbs, 3, Mr L. Laming. The Society's Committee has compiled an interesting programme for this year, and this can be obtained from show secretary, Mr J. Marshall (97 Dargets Road, Chatham).

... **NOTTINGHAM & D. A.S.** won the first round of their inter-club show with **RAINWORTH A.S.**, but lost the second round, making Rainworth winners of the competition by 24 cards to 15.

... **THE MIDLAND AQUARIST LEAGUE** has been re-formed. At a recent meeting in Coventry delegates from Loughborough, Northampton, Daventry, Rugby, Coventry, Nuneaton and Bedworth societies elected officers (see 'Meetings and Changes of Officers') and enquiries should be directed to the Press Officer, Mr M. Carter, 1 Cadworth Court, Foleshill, Coventry.

MRS D. THORNE, show secretary of NORTHWICH & D.A.S., would like to receive news of open shows from other show secretaries. Please send details to 28 Whitegate Road, Winsford, Cheshire.

... **NORTHWICH & D. A.S.** report a very successful year in 1970, both financially and in show awards, particularly at B.A.F. where their stand was placed second and prize cards were awarded to Mr L. Thorne (2, furnished tropical aquarium) and Mr B. Pearson (3, angel fish).

... **AT the HULL** versus the **YORK & D.A.S.** match in the Ingamells Cup competition the best fish in the show was entered by Mr P. Walker of York. Mr P. Carey achieved 21 points (best York exhibitor) and Mr S. Kirk of Hull 4 points (best Hull exhibitor). York received 55 points for their 45 entries against the 17 points Hull was awarded for 55 entries.

... **100 MEMBERS** and friends at **BEDWORTH A. & P.S.** annual dinner and dance heard Mr Ray Mayer praise members who had helped the club gain major awards during 1970, including the M.A.A.S. shield and the M.A.A.S. block and gavel (jointly with Nuneaton). Members' annual awards were presented as follows: Mayer trophy for decorative aquaria, Mr and Mrs Thomas; Mayer shield for most points in open shows, Mr R. Shakespear; Challenge trophy for most points in club shows, Mr Edkins and Mr Pagett; R. & R. Tedds Rose Bowl (best junior), Kevin Pratt; Horace Coombes Memorial trophy (best anabantid, Mr Colin Pratt).

... **WEST CUMBERLAND A.C.** are already at work on fund-raising activities to help stage their first open show in September of this year. This is the first venture of its kind to be held in Cumberland and the club are naturally hoping for a great success. The show will be held in the New Civic Hall, Whitehaven—a very spacious building with plenty of car-parking space.

Dates for Your Diary

9th January. G.S.G.B. Quarterly meeting. Conway Hall, Red Lion Square, Holborn, London.

14th March. **BELLE VUE A.S.** Open Show. Openshaw Boys Club, Crossley House, Ashton Old Road, Openshaw, Manchester 11.

21st March 1971. **TOP TEN A.S.** Open Show. Huddersfield Town Hall.

3rd April. **THURROCK A.S.** Open Show. Thameside School, Arthur Street, Grays, Essex. Schedules: Mr D. C. M. Durrant, 22 Kingsman Road, Stanford-le-Hope, Essex.

4th April. **HOUGHTON & D. A.S.** Open Show. Schedules available in February 1971 from Mr H. Leighton, 102 Abbey Drive, Houghton-Le-Spring, Durham.

10th April. G.S.G.B. Quarterly meeting. Conway Hall, Red Lion Square, Holborn, London.

18th April. **SHEFFIELD & D. A.S.** Open Show. Meersbrook Vestry Hall, Meersbrook Park Road, Sheffield 8.

25th April 1971. **BURY & D. A.S.** Open Show. Church House, The Wyldes, Bury.

25th April. **FREELANCE A.S.** Open Show. All Sain's Church Hall, Surrey Square, Walworth, London, S.E.17. Details: Mr J. E. Stamp, 72 Redman House, Lant Street, London, S.E.1. Phone 01-407 4066.

25th April. **YORK & D. A.S.** Open Show.

1st May. **TROWBRIDGE & D. A. & P.S.** Open Show. Nelson Haden Girls School, Trowbridge. Show schedules mid-February from Mr C. Penny, 122 Trowbridge Road, Bradford-on-Avon, Wilts.

2nd May. **CROYDON A.S.** Open Show. Stanley Halls, South Norwood Hill, S.E.25. Schedules from Mr A. J. H. Smith, 3 Hindhead Way, Wallington, Surrey.

2nd May. **DUKERIES A.S.** third Open Show. Winifred Portland Technical Grammar School, Sparken Hill, Worksop, Notts. Show secretary, Mr M. Woodley, 56 Silverdales, Dinnington, Nr Sheffield.

9th May. **WORKSOP A. & Z.S.** Open Show. North Notts College of Further Education, Carlton Road, Worksop. Schedules shortly from Mr F. G. Sibson, 17 Clinton Street, Worksop, Notts. Free car park; refreshments available.

9th May. **DERBY REGENT A.S.** Open Show. Sherwood Foresters Recreation Centre (Normanton Barracks), Osbaston Park Road, Derby (follow R.A.C. signs). Schedules from Mr R. T. Bull, 36 Queens Drive, Littleover, Derby.

15th May. **UXBRIDGE & D. A.S.** Open Show. Meadow School, Royal Lane, Hillingdon, Uxbridge. Schedules: Mr N. V. Lee, 46 Airedale Road, Ealing, London, W.5.

16th May. **MERSEYSIDE A.S.** Open Show.

22nd May. **SOUTHEND, LEIGH & D. A.S.** Open Show. Liberal Hall, Clarence Road, Southend (proceed towards sea front from Southend Central Station, first right, first left). Details: Mr R. D. Orford, 8 Blenheim Chase, Leigh-on-Sea, Essex.

23rd May. **COVENTRY POOL & A.S.** Open Show. Foleshill Community Centre, Coventry.

23rd May. **LOYNE A.S.** first Open Show. Gregson Institute, Moor Lane, Lancaster. Schedules from Mrs M. Norris, 70 Wyresdale Road, Lancaster.

29th May. **CATFORD A.S.** Open Show.

29-30th May. **SIXTH INTERNATIONAL GUPPY SHOW (FANCY GUPPY AS-**

SOCIATION). Glebe Farm Community Centre, Stechford, Birmingham. Open to non-F.G.A. members.

30th May. **COVENTRY P. & A.S.** Open Show. Foleshill Road Community Centre, Coventry.

6th June. **ACCRINGTON A.S.** Open Show.

6th June. **BOURNEMOUTH A.S.** Open Show. Kinson Community Centre, Pelham Park, Kinson. Schedules from Mr J. Jeffery, 20 Braemar Avenue, Southbourne, Bournemouth. BH6 4JF, after 1st April.

6th June. **BISHOPS CLEEVE A.S.** Open Show. The Tythe Barn, Bishops Cleeve (on the A418, Cheltenham to Evesham Road). Schedules from Mrs C. F. Scriver, 27 Warden Hill Road, Cheltenham, Glos.

14th June. **LLANTWIT MAJOR A.S.** Open Show. Town Hall, Llantwit Major. Details from Mr A. Ibbertson, 84 St Marys Avenue, Barry, Glam.

15th June. **HIGH WYCOMBE A.S.** Open Show. Details from Mr. B. Leslie, 22 Meadow Walk, Tylers Green, Penn, Bucks.

20th June. **GLOSSOP A.S.** Open Show Glossop Adult Educational Centre, Talbot Street, Glossop (A.M.D.A.S. Show).

20th June. **SWILLINGTON A.S.** Open Show.

27th June. **WEDNESBURY & D. A.S.** Open Show. Boys High School, St Paul's Road, Wednesbury (1 mm. off M4). Schedules from Mr T. Shipton, 9 Gloucester Road, Wednesbury.

27th June. **ALFRETON & D. A.S.** Open Show. Adult Education Centre, Alfreton Hall, Alfreton. Details from Mr B. Hickling, 14 Meadow Close, Eastwood, Nottingham NG25 1BQ.

4th July. **LYTHAM A.S.** Open Show. Lewther Gardens, Lytham, Lancs.

20th July. **BASINGSTOKE & D. A.S.** Open Show. Details from Mr M. Strang, 20 Loddon Court, Neville Close, Basingstoke, Hants.

20th July. **G.S.G.B.** Quarterly Meeting. Conway Hall, Red Lion Square, Holborn, London.

15th August. **NORTH STAFFS A.S.** Open Show.

20th September. **WEST CUMBERLAND A.C.** Open Show. New Civic Hall, Whitehaven.

20th-10th October. **BRITISH AQUARIUM FESTIVAL** at Belle Vue, Manchester.

20th-11th October. **THE AQUARIUM SHOW '79.** Royal Horticultural Society Old Hall, Vincent Square, London S.W.1.

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