

JANUARY 1973

20p

Pet Fish

monthly

The PRACTICAL FISHKEEPING MAGAZINE



Contents include:

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Deep-Bodied Fancy Goldfish
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January 1973

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Comments and Quotes

- New buccaneers of the coral treasures
- Continental aquaria

A Poor Exchange

ONE runs the risk of being called a Dimal Jimmy if the alarm note about a particular subject is sounded too often. We accept that risk in continuing to give space to accounts of current malpractices that threaten the future of marine animals, because the alternative—not to mention them at all and to pretend they will cease if everyone ignores them—is to be a Head-in-the-Sand Harry. On page 450 of this issue there is a hopeful report of promised action in the Philippines against those using unorthodox methods of fish-catching. But only last month a new venture promising violation of Caribbean coral reefs came to light.

Advertisements have appeared in the quality newspapers from a Parisian chemical firm offering to buy the reef animal known as sea whip from yachtsmen pleasure-sailing in the Caribbean, who will act as collectors. Apparently this firm will also subsidise the installation and operation of extraction plants to obtain material from the coral that will be used as a source of the substance prostaglandin, for medical purposes. Profrock of THE SUNDAY TIMES, reporting this new development, had this to say about the scheme: 'The prospect of a new breed of buccaneer on a coral treasure hunt in the Caribbean obviously raises ecological question-marks'. He went on to say, in recording the comment from one drug firm 'that a moderately heavy storm breaks loose more coral than it has collected in its programme': 'Even so, a coral reef is after all a complicated life support system. It seems to me that the potential threat of ruining that on the grounds of cheapness alone is a poor sort of exchange'.

A poor exchange indeed. Nor can we go along with those who take the line that the oceans are vast, that there are millions and millions of

fishes in the sea, that only a minute amount of damage is done by collectors who use blunderbuss techniques. In this they may even be right, but it is countenancing the attitude that favours such operations that is wrong. Technology moves fast. Once no-one thought to question whether there should be a limit to whaling; now some whale species are threatened with extinction. Some coral fishes are apparently quite local in their natural occurrence. What do those who feel complacent have to offer as consolation if only one species even is exploded or poisoned out of existence? When something destructive starts, let us be ever ready to ask where does it stop?

Differently Arranged Elsewhere

TWO articles in this issue call attention to the beautiful furnishing of home aquaria that seems to be such a commonly admired feature in many European countries. The use of larger tanks on the continent than those most usually kept by aquarists in the U.K. is one factor that explains the continentals' apparent greater success in aquarium artistry. Large tanks (although not those of really big aquarium dimensions) permit the full development of water plants and proper employment of rocks and other furnishings to get the right effect. In respect of plants there also seems to be a frugality of approach by U.K. aquarists. Few beginners in particular are willing to spend the amount necessary to give an adequate start to their underwater garden, which is a pity. Sometimes the fault is with their supplier, who does not or cannot have a supply of flourishing plants to offer. There are undoubtedly some lessons here our entry to the European Community will be teaching us!



LETTERS

Your comments and views on all topics of interest to aquarists are welcomed. Address letters to PFM Letters, 554 Garratt Lane, London SW17 0NY

Living Filters

HAVE any PFM readers considered removing unwanted particles by using 'live' filters? *Anodonta cygna* (the swan mussel) is a native freshwater filter feeder that is inexpensive but not often seen in dealers' tanks—perhaps because they are too cheap. Up to 7 in. long they add an unusual touch to a tank and also do a good job of removing suspended particles from the water. Unlike their marine cousins they are not sedentary but often plough their way across the gravel, using their large white foot as a kind of ram. *Ampullaria cuprina* (the apple snail) is another large mollusc, literally the size of a small apple, which unlike other snails does not damage living plants. What they do do, however, is clear up any dead leaves, algae and left-over food—producing Infusoria into the bargain. These two animals can form the basis of a natural filter system. At present we have a 2 ft. tank of baby orange chromides in which *Ampullaria* are breeding and another 2 ft. tank of baby *Pseudotropheus microstomus* living happily with a large swan mussel.

I feel that a combination of the two may be the ideal form of filtering, especially when raising fry, for the Infusoria produced by half a dozen *Ampullaria* not only feeds the young fish but also encourages the mussels to thrive. An added bonus seems to be the observation that the molluscs appear to absorb or counteract the not-so-well-known growth inhibitor secreted by the growing fish. Obviously the snails are not to be trusted with eggs in the tank, but because of their bulk the animals are easy to remove. They can remain 'on station' with livebearers or mouthbrooders. Points to bear in mind are: the oxygen requirements of the mussels; the fact that *Ampullaria* take air from the surface by means of a long extendible 'snorkel' and the snails could be pestered by big greedy fish mistaking their antennae for tasty worms. A dead mussel can foul the water, so give them a tap now and again to see if they are alive. Another native to British waters is the now rare bitterling, which spawns in the smaller painter's mussel, but would probably use the similar swan at a pinch.

I should be pleased to hear from anyone who can throw any light on this subject.

Burgess Hill, Sussex

JIM BURTLES
Mid-Sussex AS

Plants for Marinists

I WAS very interested in your 'Comments and Quotes' in November's PFM, in which you said that marinists did not have any plants in their aquaria. This, however, is not strictly true. Apart from growths of unicellular algae many marinists are now growing various types of multicellular algae, or seaweeds. In particular those belonging to the genus *Caulerpa*. These seaweeds are easy to grow, attractive, and will quickly spread over the floor of an aquarium with their runner-type rhizomes. There are numerous species of this seaweed, as diverse in shape and form as *Vallisneria* and *Cabomba*. With the use of a little more light, and by experimenting with some seaweeds, most marine aquarists could transform their bleached coral deserts into beautiful planted tanks. A sight that is all too rare in marine aquaria.

Aberdeen,
Scotland, AB2 5DH

GRAHAM H. ROBERTSON
B.M.A.A

I NOTE that in your 'Comments and Quotes' page in the November issue of PFM you regret the inability of the tropical marine aquarist to grow plants. This may have been so in the past, but there is now a variety of *Caulerpa* readily available that is very easy to grow, and spreads even more rapidly than the freshwater *Vallisneria*. This plant will grow whether or not an undergravel filter is present. Normal tungsten bulbs give a suitable spectrum, but quite a lot of light is required. I would recommend a minimum of 40 watts per square foot of surface area for about 14 hours per day. I have found the addition of Hilena Integral plant fertiliser beneficial. Of course, there is also the point that if the conditions are suitable for the growth of *Caulerpa* a good growth of red, green and brown algae will be obtained on the rockwork etc. in the tank, and this has the same beneficial effects as the higher plant.

Willington,
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More letters on page 439

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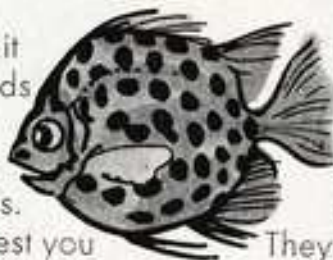
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LETTERS

continued from page 410

Angry Breeders

AS the owner of the zebras concerned in the correspondence on 'Angry Breeders' (PFM, July, September and November, 1972) I am compelled to defend my integrity.

When the class had been judged, Mr R. Dyson went to the steward and not only complained about the judges, but also tried to downgrade my fish. After consulting his date watch he claimed that my fish were 1 day short of being 3 months old. At this point I stepped in and told the steward that if Mr Dyson had looked at his watch carefully he would have found that the fish were 1 day short of being 4 months old. Instead of waiting to receive his card for second place he rushed off in his car. He says that the trouble started after he had left. As he was not there I shall now inform him that the trouble stopped immediately on his exit.

The zebras, as I have already explained, were 4 months old and were not, as he puts it, 'full of spawn'. Since that Show the same zebras have won, in various combinations, on numerous occasions, including the British Aquarists' Festival and Sherwood. At Sherwood they won the pair's section, defeating over 100 pairs, and also they won the Danios and Rasboras section, defeating 42 entries. Since then they have been complimented as some of the best zebras ever seen by a top British judge.

If Mr Dyson wanted to prove his fish were unbeatable why didn't he attend these much larger shows, where there was much more competition? As for the Halifax aquarist; I am informed that he is a top discus expert! I have waited until now to reply because there was no reason for discontent in the first place, as the judges' decision is final. I hope this will prove to be the end of this unsporting complaint.

Huddersfield, Yorks.

A. MOSS

This correspondence is now closed.—EDITOR

National Federation

IT appears from Mr F. Coles' letter (PFM, December) that the idea regarding the formation of a United Kingdom Federation is accepted by aquarists in many areas as an ideal. The question is what form should it take, and how can it come about? Mr D. Dove's 'B for boasting' attitude

certainly will not help to reduce the northerners' suspicion of anything that starts in London.

Let us accept that the FBAS attitude has always been expansionist whereas other federations concentrate on certain areas, the other basic difference appears to me to be that in the FBAS the delegates influence decisions and have a great deal to say in Federation affairs (and I don't mean just the many vocal Ancient Britons that descend upon us from the Welsh hills!). Whereas in some other federations the judges seem to have a dominant influence and appear to make decisions in policy which suit themselves without regard to the competitors' better interests.

London is at the moment the logical meeting point for the majority of the FBAS delegates, but I accept Mr Coles' point about proxies and believe that it is inevitable that more changes will take place to give a more equal voice to those societies in areas further away.

One possibility is that the FBAS could be used as a vehicle in the formation of a National Federation; many changes would have to take place for this to happen, and without doubt local pride would be the barrier to the complete success of this method.

A Federation of United Kingdom Aquatic Societies would have to include all the major bodies in the hobby, and area or district associations would have to be the backbone. The basic question is whether the organisation should be set up first or an attempt at agreements on standards and show rules etc. The former would appear to be more logical so long as there was a general acceptance of the need to rationalise standards and the need to work towards an agreement regarding show rules etc. which would be fair to all those active in the hobby.

Finally, what to call such a national body: Confederation of British Aquatic Societies?

Basingstoke, Hants.

M. STRANGE

National Federation

I WAS most impressed by Mr F. Coles' letter on the above subject, which appeared in your December issue. It would appear that we are kindred spirits, in so far as we both aspire to the same ideals.

I am in full agreement with his views on 'London Government' and we have given the widest possible publicity to the Federation's desire for a decentralised organisation running efficiently throughout the country. To illustrate: we have the Welsh National, Tyne-Tees, East Anglian, Wessex and East Midlands Area Groups, with several others in an embryo stage. I am sure that these organisations will support me when I state our policies have been an unqualified success.

Sadly, I have become aware of northern antipathy. More sadly I cannot see any justification for it! After all, it is our hobby and not our living, so why not pool our resources? It is blatantly obvious that such a course of action must benefit the hobby in dozens of ways; not only on the show benches but in administrative efficiency and publicity as a whole.

I agree that the FBAS Assembly meetings are held in London. All hobbyists are very welcome, but only one delegate from each affiliated society is permitted to vote. Most societies have thrashed out important subjects within their own committees and the delegate is instructed to vote at the Assembly in accordance with the democratic decisions of his club. Proxy delegates have precisely the same responsibility.

I should mention that Mr Coles and I have corresponded on this subject many times. He has stated that there is a feeling that it would be better if there was one national body instead of the many regional bodies at present operating. Furthermore he expresses a local opinion that the FBAS is concerned with southern societies more than with northern ones. Upon receipt of details giving the Federation's affiliated societies by area he suggests that possibly some I had shown as northern were in fact southern, especially the S. Midlands area. I can only say that in Cumberland, Northumberland, Durham, Westmorland, Yorks and Lancs. we have 25 affiliated clubs and in Worcs., Salop, Cheshire, Derby, Notts., Staffs., Leics., Warks., Northampton and Beds. (3) we have a total of 19. This represents about 25% of all known societies in these areas and 25% (approx.) of the total Federation's affiliates.

It would seem that the time is ripe to arrange a meeting of all the societies with a view to some frank discussions, which I feel would disperse most of the northern fears and would lead to full agreement. I should emphasise that the individual societies should voice their opinions in order to ensure a truly democratic solution.

I assure you that this letter is written with all sincerity and I hope that it will be read by those concerned with that in mind.

R. A. DOVE

Treasurer, FBAS

Comments from the U.S.A.

MY subscription to your magazine has furnished me with many enjoyable hours and I have particularly appreciated the Aqua Glossary, having only a minor facility in Latin and Greek and finding too many of the roots omitted from my etymological dictionary.

Apart from the considerable value of your articles on fishes, I have been intrigued by the Letters column. Especially did I enjoy and endorse your editorial reply to Mr Elvin's letter in the June 1972 issue. Assuredly, if every independent business went on a non-profit making basis they would soon be waiting for a government subsidy. Then, who knows, with a favourable ear in the Government, it might even come to pass! What a sad picture would be presented by the great mass of taxpayers supporting the hobby of individuals. No, Mr Elvin, you must solve your problems by your own ingenuity, thrift or plain old shopping around. It's not the province of others to shelter you.

As a transplanted Briton and quondam Houstonian, I was dismayed by the tone of Jim Kelly's Transatlantic Topics in your May issue. Really, Mr Kelly, it's a bit much to indict the whole of a metropolitan area for the questionable activities of one fishkeeper. Would only one be found in London? Certainly I would not support his practices, if these facts are true, but a more successful attack would be to inform the U.S. Post Office and the Greater Houston Better Business Bureau. Their powers are quite extensive. Further, the city of Houston is hardly alone in being built for business; that must be one of the purposes of any city. Why should any citizen try to hide the fact? Is it no longer acceptable to conduct business? This comes from the 'nation of shop-keepers'? Yes, this article really hacked me.

My main interests are the Malawi cichlids. I've not yet tried a community tank but my *Pseudotropheus auratus* are doing surprisingly well with a school of cardinal tetras. In terms of co-existence, not gastronomy! They haven't spawned but seem to be almost ready.

Can any dealer supply Jaeger submersible heaters that could be used with U.S. electrical outlets? I've found them impossible to locate in this country.

Pasadena, Texas, U.S.A.

MRS G. SCHNELL

Formalin and White Spot

IN the article entitled 'A Review of Methods to Control Ichthyophthiriasis' that was published in the

October, 1972 issue of PFM the details given for the use of formalin in white spot control are incorrect. On page 274 the sentence after 'Formalin' should read 'Various authors refer to the use of formalin at concentrations between 0.1 and 0.25 millilitre/litre (100 to 250 p.p.m.) . . . and on

page 275 the first sentence should read 'Allison reports that the application of 0.015 millilitre of formalin/litre . . .'. These errors were regrettably transcribed by PFM from the original publication and unfortunately the author did not receive proofs for checking.

The Orange Chromide Requires Special Care for Breeding Success



Etroplus maculatus (Bloch)

By RUDOLPH ZUKAL

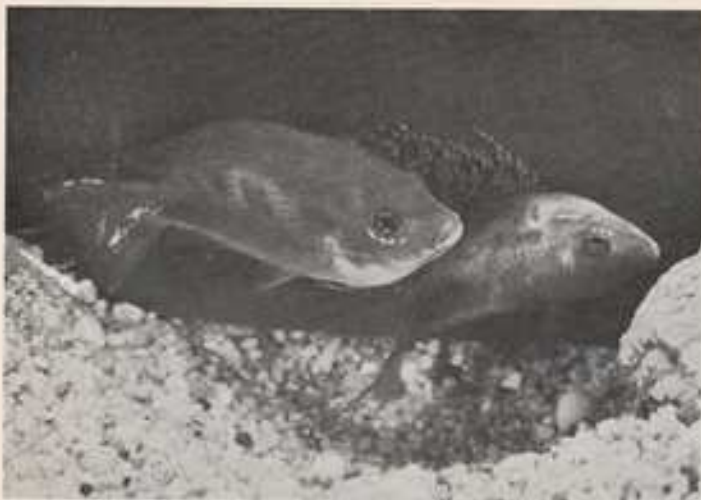
Photographs by the author

BECAUSE the orange chromide is a cichlid with a peaceful disposition and no tendency to dredge up the bottom of a tank, it might be thought that it could be recommended to any fishkeeper as a suitable occupant for a community aquarium. But in fact this is not so; this fish, which grows to a size of about 3 in., is not particularly easy to keep. A sudden change of water, too much fresh water at a time or a temperature below 68°F (20°C) leads to its sickness and possibly its death. At home in the coastal zones of India and Ceylon it lives in fresh or brackish water, but the addition of a little sea salt to the water in the aquarium will make the fish hardier and give better results.

Although the fish have been imported into Europe since 1905 they are not in particularly plentiful supply; apart from the difficulties already mentioned in keeping them, they do tend to destroy fine plants since they require vegetable food as an addition to, and as an important change in, their diet. So the tank intended for them must be furnished with tough, strong plants and the orange chromides should be given a mixed live food and vegetable diet. The latter can be effectively accomplished by supplying the fish with scalded spinach or lettuce leaves.

Etroplus maculatus possesses a deep, strongly compressed body, with long-based dorsal and anal fins. The eyes are large, lively

Translated by F. MARSH



In the picture on the preceding page the male is the fish on the left; the rather short breeding tube of the female can be seen. Here the female is laying eggs on the undersurface of an inclined piece of slate.

and oval. In adult fish the caudal fin is yellow, the belly and throat are orange. On the lower half of the body are blue-black, sometimes indistinct, flecks. In the centre of the body is a large, blue-black bright shining patch. Each scale along the sides has a red spot. The anal fin is yellow, with a black border; the ventral fins are black and the dorsal fin is orange with dark brown or reddish dots.

I kept eight of these beautiful cichlids for 11 months in a community tank holding 40 gallons,

at a temperature of 72-75°F (22-24°C) together with *Apistogramma* species and some barbs. The orange chromides were very peaceful in their behaviour and I only saw a few harmless fights between them. As the sex differences are difficult to recognise I was very pleased when I noticed one day that a pair had segregated themselves. I recognised the male by his yellow-gold colouring, which was somewhat more intense than the female's and she was a little smaller.

I immediately prepared a 14 gallon tank with



Parental care of the developing eggs adhering to the slate was undertaken by both orange chromide parents, who regularly fanned water over them up to hatching time.

After the eggs had hatched the fry were transferred to a pit in the gravel prepared by the female. Here the male is seen guarding the fry at the free-swimming stage.



half the water taken from the community tank and half from the tap, and this was raised to a temperature of 78-80°F (26-27°C). I placed a piece of slate on the bottom, leaning it to make a sloping surface, with a few sharpish stones for the fish to use if preferred. In order to prevent the plants being torn up I placed a piece of glass between these and the main area of the tank.

When the fish were first put into the breeding tank they appeared to be very timid, snatching at their food and immediately attempting to retreat with it to a hiding place. Then after a few days I saw that they were displaying. The acclimatization of the fish in the new tank lasted for about 14 days, and then I could see that the female's rather short laying tube had appeared. The slate was cleaned

in the usual cichlid manner and the female laid her eggs on it. These eggs, about 150 of them, hung on short stalks and were immediately fertilised by the male.

Both parents looked after the eggs, the water being continuously circulated around them by the movement of the fish's fins. While this went on the female also engaged in preparing a hole in the gravel and 2 days later I could see the brood wriggling there. On the seventh day the young fish were free-swimming under the supervision of the parents, and they were given the finest possible live food. After a further 7 days I removed the parents as a precaution and continued to raise the young on their own.

Meetings and Changes of Officers

BASINGSTOKE & DAS. President, Mr T. Wallis; vice-presidents, Mr A. Blake, Mr T. Eery; chairman, Mr A. Marshall; vice-chairman, Mr G. Clow; secretary, Mr A. G. Harmsworth (147 Cranbourne Lane, Basingstoke, Hants.); treasurer, Mr R. Weston; show secretary, Mr B. Rich (53 Polchester Road, Basingstoke, Hants.); show manager, Mr M. Strong.

BRITISH AQUARISTS STUDY SOCIETY. Chairman, Dr G. Coot; vice-chairman, Mr E. Red; secretary, Mr D. Cook; treasurer, Mr F. Raine.

BRITISH MARINE AQUARISTS ASSOCIATION. Chairman, Mr D. Highfield; secretary, Mr J. Vickery; treasurer, Mr E. Hodgson; editor, Mr G. Robertson; show secretary, Mr T. Lewis; chairman

of judging and standards, Mr L. Doolbody; F.R.O., Mr M. Strong (58, Plantation Avenue, Causton, Cardiff, S. Wales).

DORCHESTER & DAS. Meetings second Thursday of month, Youth Club, York Road, Dorchester.

ENFIELD & DAS. Chairman, Mr J. Colston; vice-chairman, Mr Whitaker; show secretary, Mr H. Watts; secretary, Mrs Barker; treasurer, Mr Barker; F.R.O., Mr R. Dewall (27 Ivy Road, Southgate, London, N.14); director & p.m., third Thursday of month, St Andrew's Church Hall, Enfield Town, Middlesex.

ERDIT & DAS. Chairman, Mr R. Roberts; secretary, Mrs M. Cullum (120 Stuard Avenue, Busleyhead, Bath); show secretary, Mr T. King.

GKN F & AS. President, Mr T. Lowe; chairman, Mr N. Stone; vice-chairman, Dr P. Hutton; secretary, Mr A. Hone; treasurer, Mr V. Verrall; show secretary, Mr S. Bowley; assistant, Mr S. Hall; editor, Mr A. Hall; F.R.O., Mr H. Yanks (128 Glen Avenue, Bilson, Bradford).

PORTSMOUTH AS. Meetings: first and third Wednesday of month, 8.00 p.m., Portsmouth Community Centre, Turland Avenue, Mile End, Portsmouth, Hants.

THORNE AS. New Secretary, Mr Barry Hinks (46 Warren Road, 8/Compton Thorne, 1st, Dissington, Yorks. DN5 9PP).

TORBAY AS. Change of venue to: St Andrew's Methodist Church School Hall, Turlidge Avenue, Stepney, Torbay, Devon.

TYNESIDE MARINE AQUARISTS. Secretary, Mr G. D. Beyer (75 Newton Road, Newcastle upon Tyne, NE7 5HQ). Meetings: last Wednesday of month. Prospective new members welcome.

TROPICAL MARINE PROJECT—12

I AM most grateful to readers who have seen fit to comment on my marine series. Their reactions have enabled me to reconsider certain opinions and to attempt to iron out ambiguities. I would reiterate that few of the points I have made are intended as dogma, but after 2 years' experience I can take another, closer, look at what I have written. To date, the following general headings have generated comment of one sort or another; the order in which they appear is purely arbitrary.

Marine Algae

Having seen marine tanks with and without algae I have maintained a personal preference for the latter, purely on aesthetic grounds. I therefore sought in my articles to discourage the growth of the stuff, and the admission aroused a lot of adverse comment, principally for the very sound reason that certain types of algae are the essential diet of some fishes. I should make it clear that I have nothing against discrete quantities of the green type, but the browns and the reds completely ruin the effect, especially if they race away, as they sometimes do. My preference remains for the perhaps starker effect of the unsullied corals and associated formations.

I hope to do some experiments with carefully defined 'seaweeds' (also algae, of course), during the next few months. These are a different proposition from the commonly accepted notion of what algae consist of, and as they possess both shape and potentiality as a fish food, a measure of success would be a highly desirable achievement. Only the green types will feature in this phase. Whilst I have considerably modified my attitude to algae to the extent that controlled culture of certain of them would be beneficial, there seems to be some danger in overestimating the value of an algae-tank. Tangs and some angels have a wonderful time clearing it all away, but what happens when the last bit has disappeared? Unless you have a ready substitute (and this could prove to be highly expensive) you have simply manoeuvred yourself into a pretty impossible sort of position. Nevertheless, I will settle for the proposition that growth of algae, of the right sort, and in the desired quantity and disposition, is a very worthwhile objective, but in the meantime I will continue to protect my own tanks from the overdevelopment of the disfiguring and rather valueless brown and red species.

Native Marines

As I have never kept a native marine aquarium it was foolish of me to state that this is likely to be a dullish affair as compared with its tropical marine counterpart. Those I had seen at the time certainly

Comments on the Project

By ROY PINKS

were so, but I am assured by, for example, Mr Robertson of Aberdeen that the reverse can be achieved without undue difficulty, as he, personally, has established. For many of us this will be most encouraging because of the (at present) much lower cost of native marines, but it also appears that the range of creatures that can be accommodated is really much larger than one would think. The opinion that at least one crab can be counted upon to put most tropical marine invertebrates to shame will put many aquarists on their mettle, and I am trying to persuade Mr Robertson and his fellow aquarists to put their experience on paper, the more to convince us. He was kind enough to offer to send some specimens down to me, and I hope to take advantage of this when time and facilities permit another major project.

I would never denigrate any branch of the hobby but I see the difference between tropical and native marines principally in the immediate and compelling colour impact of the former, embracing almost the entire range of commonly imported fishes. The fact that it is much more difficult to associate invertebrates successfully with tropical marines is scarcely a consideration to the beginner, but it is at this point that native marines, as a subject for long-term study, really comes into its own.

Ultimately, though, the two branches should complement one another, and not compete. Nature, after all, is one, and should be regarded as such; subdivide it, if you will, but only to reach understanding of what it is all about.

Water Seasoning

The Editor of PFM drew my attention to a most interesting book called FISH AND INVERTEBRATE CULTURE by Stephen H. Spotte, published by Wiley-Interscience (1970), which alludes to the fact that the excreta of turtles is often used in the seasoning of water in large public aquariums. Anthony Evans suggests that a like effect might be achieved by the use of measured quantities of pure urea; if successful, this method would by-pass the distressful period spent by the 'starter' fishes

in new marine aquaria with underground filtration. One very attractive consequential of this would be that the actual varieties of fishes that could take up residence in newly established tanks could be less circumscribed than at present.

This is because we tend to use the cheaper and hardier species like damselfish to trigger off the natural cycle, and by the time the system is a going concern we have a half dozen of the most potentially aggressive and difficult-to-catch fishes in the whole repertoire, now quite firmly entrenched. In our eagerness to expand our activities to include some of the choicer species we find we have created quite a significant barrier to this next step, and either have to dismantle the tank to catch the little bounders, or await their ultimate demise. It might well be that the method of pre-loading with a nitrogenous compound such as urea would enable us to avoid all this. Its greatest drawback would seem to lie within the psychological make-up of the aquarist. I doubt whether a method such as this would materially shorten the seasoning period below the 10-12 weeks mark, and if this proved to be so I really cannot visualise the average impetuous being patiently waiting for the go-ahead signal from his nitrite test kit for so long, since a fishless tank for most of us is something that cannot be tolerated for more than a day or so.

That the urea suggestion would be a safer and more humanitarian method is beyond question, and for this reason I hope it will be possible to put this to the test before very long. If any readers have in fact tried such an experiment, any notes on their conclusions would be read with very great interest.

The book referred to above is, incidentally, a fascinating if erudite and rather expensive discourse on water management, and if you think the £4.25 is more than you can afford, your public library may be able to help you. The layman will find it rather heavy going, but there are only about 120 pages, and the non-technical passages deserve to be read several times. It is of equal interest to both fresh- and salt-water enthusiasts.

Copper and Disease

Some anxiety has been expressed about the use of copper sulphate in the treatment of certain diseases of tropical marine fishes, particularly in relation to its toxic potential to the colonies of bacteria which we so carefully nurtured as part of the seasoning process. I have been constantly haunted by the same fear, but as results have been contrary to what one would have supposed we can only assume that copper sulphate, at the concentration at which we use it, is somewhat more selective in its effect than would have been imagined. This being so, it seems that enough

bacteria survive to keep the system at safety level provided that the actual concentration is not exceeded and that the period of use is also most stringently limited. Whatever the explanation may be, it seems established that in a semi-natural system the copper sulphate treatment is compatible with the system itself, whereas other possibilities like ozone are total killers and could cause devastation if wrongly or unintelligently applied.

It may be asked why, to be on the safe side, we should not stick to intelligently regulated ozone systems, as this does at least ensure elimination of everything barring the fishes. No doubt this is true, but one of the aims of my project was to see how far one could get with inexpensive systems, preferably those fairly close to Nature. No-one could claim that the huge outlay on ozonizers allows us to contemplate this method if there are alternatives. It is perfectly true that most of the copper-based medications have limited effectiveness in the successful treatment of disease. My own experience is that copper has been wonderfully effective in cases of externally visible ailments, but beyond this I would make no claims.

Whilst, no doubt, certain internal organisms are killed off by copper, illnesses generated from within do seem to account for a high proportion of fish deaths which occur many months after the initial settling-in period. I wonder whether ozone would be any more effective in this connection? I doubt it very much. Possibly the best tactics in the long run are repeated applications of one's favourite medication at liberally spaced intervals of, say, a month. As I believe in leaving well alone when things seem to be going smoothly, yet have still had losses amongst apparently very fit fishes—something could be said for mistrusting the look of things and taking preventive action as a matter of course. This could be a fruitful field for experiment, and if a weather eye were kept on the amounts of nitrite, it need not be as potentially disastrous as might be supposed.

As regards this matter of disease in tropical marines, I think we should try to be fairer than perhaps we tend to be in practice. Every death seems to be magnified out of all proportion, due no doubt to the initial cost of the subject fish, and because feeling does run rather high when the actual causes of death can be so tantalisingly obscured by outward signs of apparent good health. In frustration therefore we feel entitled to chapter and verse on the death of a butterfly fish, and rather less, perhaps when a domino passes on. The fact that three of our mollies have joined them in the Great Beyond, together with numerous of our guppies, is a point often missed. We should, of course, be equally concerned about the reasons for the deaths of each and every one of them, but scarcely one aquarist in a hundred will rise to

any heights of concern about his freshwater charges.

I must confess to something like despair when it comes to treating sick fishes. Whilst one can do something about the ailments where visible symptoms are evident, I have found the most ominous sign of all is an apparently healthy fish that has suddenly lost its appetite. In only one case within the past year have I succeeded in restoring to health a fish which has done this. All other cases have ultimately proved fatal, though there has been a surprising lack of cross-infection between diseased and fit specimens of fish. In many ways I see close resemblance between the behaviour patterns of ailing freshwater and saltwater fishes, much as many writers will aver to the contrary, and I very much doubt whether—in practical terms—we are more successful in our understanding of disease in relation to the former, as is often claimed.

I doubt whether many of us really know what may have killed the last freshwater fish we lost, old age apart. And I suspect that if the price of tropical marines suddenly plummeted, we should hear very much less about their notorious susceptibility to disease, lack of stamina, and so on. All fishes are extremely delicate and complex creatures and it is a constant wonder to me how they manage to survive their long and hazardous journey from their birthplaces to our tanks. I hope therefore that aquarists who are running both salt- and freshwater aquaria will give this aspect due thought and make some attempt to compare the sickness and loss patterns, with due weighting for the actual numbers of fishes kept in either system. I would conjecture that their broad conclusions will be the same as mine have been.

Oxygen and Nitrites

At one point I made a statement which suggested that tropical marines need less oxygen than freshwater fishes. This, of course, is not so, but what I said was that they are less subservient to the surface area of water per inch of fish ratio than are freshwater fishes if kept in a subgravel system. In these conditions one can use tank shapes which would otherwise be condemned because the air throughput required to sustain the filter bacteria so agitates the surface water and exposes internal water to the rising bubbles of the airstream, that one can think in terms of gallonage per fish, rather than square inches of surface area per fish.

This is not to say that one should push one's luck too far: the important thing is that marines like plenty of space, and this can just as well be space downwards as crosswise. I have in mind something like 3 ft. wide by 4 ft. deep, for example

which would draw scorn from many freshwater enthusiasts. I keep coming across exhortations about allowing marines plenty of room and plenty of oxygen, but am continually amazed by the tolerance shown by fishes in dealers' stock tanks, which are perpetually run well over the safe limit. In fact one could point to many which are habitually quite grossly over-populated. That some fish 'stick' for months and visibly improve in health and girth makes one wonder whether there is one Providence for the dealer and quite another for the customer, but in fairness the dealers can't explain how it works out, either.

One final point in connection with water quality may be helpful. The surface bubble-patch which swirls around in your tank is well worth watching from day to day. In a healthy system the bubbles are quick to burst and disperse quite rapidly as others replace them. They are really very reminiscent of quicksilver. Perhaps even before the fishes begin to show signs of pollution by rapid breathing, a forewarning of trouble is the change of nature of the bubbles from their champagne lightness to a sort of semi-frothing which tends to take longer to disperse. 'Rafts' of foam slowly float to the water's edge and accumulate in the worst cases. Any change of appearance should immediately be challenged by subjecting the water to the nitrite test at frequent intervals until safe conditions have been restored.

So much for the comments and criticisms from readers, though no doubt further exchanges of views will be made in the course of time. My main criticism of my project lies in the general selection of fishes that populated my larger tank. There was a time when I thought the species and sizes selected would stand up to the test of a fairish period, but there were unexpected failures and some problems of compatibility, which have not yet been resolved to my satisfaction. This is not to say that disasters occurred in any way comparable with my earlier ones, but that cleverer combinations could have been arrived at with the hindsight I now possess.

I hope that the Editor will allow me to return to the scene, somewhere in the autumn of 1973, to sketch developments during the two-year trial period. This is written at the halfway mark, and I remain optimistic over the prospects of tropical marines on a shoestring. There are indications from many quarters that plenty of people are interested, but they hesitate to take the plunge. On the whole I think these misgivings are unfounded: if the prospective tropical mariner would just spend a few hours reading up the subject, and if retailers would cut their margins as generously as possible, the resultant reaction could be just what the trade can do with—a shot in the arm and plenty of satisfied customers.



The Plant Called 'Giant Hygro'

By
KAREL RATAJ

Photographs by RUDOLPH ZUKAL



THIS plant, which is one of the most attractive and popular of aquarium plants, is generally known as 'giant *Hygrophila*' but is properly called *Nomophila stricta*, of the family Acanthaceae. The Acanthaceae are plants not generally found in Europe but in the tropics there are about 250 genera with 2650 species and are consequently not at all rare. Only a limited number grow submerge, but it is likely that more and more of them will eventually become popular aquarium plants. The best-known of these already grown in aquaria belong to the genera *Hygrophila*, *Synonema* and *Nomophila*. The members of the genus we are interested in, *Nomophila*, are found in south-east Asia, tropical Africa and Madagascar and altogether seven species are known.

N. stricta comes from Malaysia, where it grows as a robust swamp plant with both submerged and emerse leaves. Above the water level it builds strong stalks with leaves set opposite each other and reaching a length of 4 in. (10 cm.) and a width of 2 in. (5 cm.). These out-of-water leaves are like a broad spear, almost heart-shaped but drawn out into a long point and with saw-like edges.

Specimens of 'giant hygro' (*Nomophila stricta*) growing submerged (top picture) and out of water (emerge: lower picture). The emerse leaves have saw-tooth edges and are different in colour from aquatic leaves.

The whole plant, including the stalk, is a delicate velvety brown or reddish green.

When these clusters of leaves are placed under water they quickly form new roots and lose their hairiness. After a period of between 10 and 20 days they change to a bright-green colour. At the same time they also change shape, becoming narrower (approximately 1 in.) and the saw-edge becomes less distinct. The stem is bright green and has a nodule where the leaves are attached—similar to the bamboo. The topmost leaves are sometimes tinged with red or reddish brown.

The plant can be grown in any kind of water in a fairly rich compost. In an aquarium it needs a well-lit spot although artificial lighting is perfectly adequate; it also grows very quickly and does

best at a temperature of around 68°F (20°C). In winter, plenty of light is essential or else the lower leaves will die: this means being left with just a stubby top-knot of foliage in the following spring. If this does happen, the top-knot can be snipped off and replanted. New *Nomaphila* plants can be produced either from the sprouting tops of the plants or alternatively from the middle part of the stems.

If the aim is to produce a large number of new plants, however, *Nomaphila stricta* can be grown in flower pots as house plants or under glass, though they require daily watering when grown in this manner. In this emerge form, *Nomaphila* flowers without difficulty, producing a mass of bright violet blossom.

A Generous Giant—

By FRED CAMPBELL

IT can often be gratifying, and perhaps necessary, to plough a little of the outlay back into the hobby and, in my experience, the propagation of aquatic plants offers the quickest and least troublesome way of obtaining some reward for our efforts. There are many plants which can be utilised to this end but for sheer speed of reproduction, under certain circumstances, the obliging habits of 'giant hygrophila' place it high on the list.

It has for long been a favourite of mine but only during last summer did I discover its true propensity. As you will know, it is not a true aquatic, its native environment being the bogs, swamps and rice fields of the Indo-Malay Archipelago, but it will adapt itself most engagingly to fully sub-

merged conditions in the aquarium. The initial impulse of the plant is for the main stalk to thrust itself upwards as quickly as possible, any subsequent side shoots being apparently incidental.

A single cutting will soon take root and the tip of the stalk will quickly break the surface of a 12-in. deep aquarium. It can then be nipped off and re-planted to repeat the process, whilst the original plant will send out new shoots from the base, eventually forming a bushy plant, which can be split into two or three individual ones. The continuation of this process curbs the plant's natural



The flowers of *Nomaphila stricta* are seen in this picture taken of a specimen growing out of water. The blooms are bright violet in colour. This picture also reveals the serrated edges of the leaves shown by the emerge form

tendency to spread large leaves over a wide span, resulting in a compactness of growth with smaller and neater leaves.

Under these circumstances I often wondered how it had come to be known as 'giant' *Hygrophila*, but after conducting a little experiment I soon found out. I knocked the end out of a 16 in. by 8 in. by 8 in. tank and glazed the top, standing it upright on what had been one end to take a plant. I selected one which was just breaking the surface of the water and planted it, in about 3 in. of a well-known prepared potting compost, in the same depth of water I had taken it from. I also kept it at its accustomed temperature. It grew 5 in. in a week and the leaves above the water grew larger and took on a deeper shade of green. It was on a high shelf and was touching the roof, so I lowered it on to a stool.

In about a month it had reached the roof again and measured over a yard in height and its branches spanned some 2½ ft., making it difficult for me to move around freely in my 7 ft. by 5 ft. fish house. In desperation I placed it on the floor at the far end where, without going to a lot of trouble, I could not heat it, but as it was July I decided to leave it. The growth rate slowed down but almost immediately it began to produce clusters of small flowers

of a delicate shade of purple and continued to do so until the end of the summer.

When it again reached the roof its overall height was 5 ft. and it measured 4 ft. across, so, not wishing to take up any floorboards, I decided that the experiment must end. Simultaneously, I had been treating another of its kind as one would treat a house plant, keeping the roots moist by standing the pot in about an inch of water. This did not grow so rapidly in height, nor did it flower as profusely, but it produced more shoots from the base and eventually formed a more compact and bushy plant than the other one. I nipped off all the growing ends from both plants, together with all the young shoots which were sprouting from the lower branches, and planted them fully immersed. There was enough to fill three 24 in. by 12 in. by 12 in. tanks, all produced in 8 months. The cuttings quickly adapted to the aquatic conditions and were soon sending out the smaller emerald green leaves characteristic of the plant when grown fully submerged.

Perhaps it is due to the plant's remarkable adaptability that some confusion appears to exist as to its correct scientific name. I have seen it referred to as *Nomaphila stricta*, *Hygrophila corymbosa* and even *Hygrophila stricta*.

The Aquarium Hobby in Ulster

By JAMES DUNBAR

WITH all the adverse news about the people of N. Ireland, which never escapes the newspapers or television, I am sure aquarists across the water wonder if the hobby exists over here. Well, I can assure you that it does, and the keeping of tropical, marine and coldwater fishes is one of the ever-increasing hobbies.

One may ask in what way does the terrorist campaign affect the hobbyist? We can lie in our beds at night and can hear the rattle of gunfire in various parts of the city.

Some nights when sitting quietly in the fish house, mind drifting away to the distant lands where our fishes would be living in the wild, to Africa where the *Aphyosemion* species come from or to South and Central American homes of the tetras—bang! you are brought back to reality as a bomb explodes in some part of Belfast.

We have been really fortunate in that none of our seven dealers'

premises have been damaged by terrorist attacks of bomb or fire. One dealer, however, through shock when a bomb exploded a hundred yards from his shop, lost a beautiful 6 in. powder-blue tang and a magnificent trigger fish. Both fish had been a great attraction in his shop.

We are well catered for in tropical, coldwater and marine, also there is a good variety of plants available. Amongst the more exotic marines our dealers have powder-brown, powder-blue and firemouth tangs supplemented with copper-bands, clownfish, damselfish, wrasses etc.

In the freshwater tropics we have all the usual tetras, guppies and swordfish, with a fair number of Lake Nyasa cichlids including *Labretropheus fülleborni*, *Labretropheus trewavasae*, sometimes called the red-banded cichlids, with the more common cichlids *Pelmatochromis bilineatus*, *Apostogonismma aquarizi*, *Aequidens curviceps*, *Nannochromis*

radiiceps and *Cichlasoma epilurae* in abundance.

The Irish Federation of Aquarist Societies has six clubs in Ulster affiliated to it, most of the clubs being in the Belfast area. We have an inter-club show in May, an inter-club 'knock-out' in September, and the shampiece—our open show, which has been held in August.

Unfortunately we are unable to hold our open show this year, which was to be called 'Aqua '73', owing to all our tanks and stands valued at about £2000 being destroyed by a bomb. The open show in 1972 lasted 5 days. All aquarists looked forward to this show, where we were all able to discuss ideas and meet members of other clubs.

Despite all the troubles we have a very strong body of enthusiastic aquarists who meet at their monthly club meetings or at a local dealers on a Saturday afternoon—where the talk will always be fish!

Reaction from the PHILIPPINES

By ARPEE

THERE has been growing reaction to recent publicity in PFM about the use of poisons in the collection of marine fishes, and Robert P. L. Straughan's letter published in the December issue reminds me that it was he who drew particular attention to the practice some years ago in his book *THE SALT WATER AQUARIUM IN THE HOME*. In a chapter on this very subject he condemned the technique absolutely and made the interesting observation that fishes which he knew to have been collected by this means often displayed enhanced vitality and appetite for some appreciable period after capture, but subsequently deteriorated irreparably. Of all the insidious features of this whole matter, perhaps this is the most alarming to the would-be purchaser of tropical marines, because it now seems that even favourable first impressions can prove to be totally wrong.

Further evidence came to hand during November from Peter Reynolds, of Tunbridge Wells, who has been on a business visit to the Philippines. Before he went he was kind enough to get in touch with me to ask whether there was anything he could do to help—my article in the September issue was thus more timely than I could have imagined. Aided by a few notes from me and a much more thorough briefing from Richard Sankey, he set off with the knowledge that the worst use of sodium cyanide was probably among casual fish catchers, who have ready access to the stuff because it is used as a fungicide in the coconut plantations. A concentration of 5 parts per million is quoted, and it is also noted that substances like rotenone are also used.

Mr Reynolds' own comments opened with something of a bombshell, and the cutting from the *PHILIPPINES DAILY EXPRESS* dated 28th October, 1972, explains why.

Mr Reynolds is hopeful that, with martial law now on our side, matters will improve, especially in the light of the severe penalties. He is still in search of helpful evidence, and has had numerous conversations with local people, the substance of which I shall await with interest. He did, however, get the impression that chemicals are being directed against certain species in particular, like the clown trigger which lock themselves away when danger threatens. Such fish are tempting targets for the tranquillising drugs in which most imports now

FM goes after dynamite fishers

By PRIMITIVO MIJARES
of the Express staff

President Marcos ordered yesterday military authorities to arrest and take into custody notorious dynamite fishers and other persons employing toxic substances to catch fish.

In a new general order addressed to Defense Secretary Juan Ponce Enrile, the Chief Executive directed that the arrest of dynamite fishers be effected immediately and on a nationwide scale.

For this purpose, the President amended General Order No. 2 as amended by General Orders 2-A and 2-B to include dynamite fishing under the listing of crimes triable by military tribunals.

Designating the new directive as General Order No. 2-C, the President added the following provision to General Order No. 2, dated September 22, 1972:

"20. Any person or persons known to be, or caught engaged in fishing by dynamite, other explosives or poisonous substances and any person or persons in possession of, or engaged in the sale or distribution of fish or other aquatic animals stupefied, disabled, or killed by means of explosives or other poisonous or poisonous substances."

The order brings the commission of crimes now triable by military tribunal to 20, the latest under General Order 2-C being the dynamite fishers.

Under this latest amendment to General Order No. 2 not only dynamite fishers are subject to summary trial by military courts but also those persons caught in

possession of or engaged in the sale or distribution of fish caught with the use of dynamite and other explosives and toxic substances.

The President ordered the immediate incarceration of dynamite fishers on being informed that, after paying obedience to martial law during the last four weeks, some persons have become bolder and are back to their old trade of dynamite fishing.

BIGGER CATCH

The same reports pointed out that while the dynamite fishers refrain from pursuing their nefarious activities, the legitimate fishermen reported catching more fish in the traditional fishing grounds.

But with the return of the dynamite fishers, they expressed fear that their catch in the lawful manner would be seriously affected.

In directing the arrest of dynamite fishers, the President said that they should be made to point to the hiding places of their stocks of dynamite and of other persons who might be engaged or have engaged in the past in dynamite fishing.

**KEEP YOUR
SUNSHINEBINGS
CLEAN.**

From the 'Philippines Daily Express' (28th October 1972)

seem to be shipped, and these are generally accepted as being of no long-term detriment to living things, provided that the concentrations are right. We shall all continue to wonder, no doubt, whether the strength applied to the large tang is also right for the little file fish. Mr Reynolds concluded his fascinating letter by suggesting that if we can find evidence of sodium cyanide in fishes from the Philippines, and can also show how its

prior use can be detected, both the Manila shippers and the Philippine Embassy in London would be more than ready to investigate the occurrence with a view to stopping any repetition.

Richard Sankey, to whom I passed the above information, tells me that he has been in touch with the Fisheries authorities in Manila, who have informed him, *inter alia*, that some 5000 people are actively engaged in the fish-collection business throughout the Islands. He calculates that on this basis there is something like 1000 kilos of cyanide entering the sea every day. Clearly, the Army has a real job of work to do if this immense activity is to be controlled effectively, and one can only remain hopeful that President Marcos' campaign will prove to be effective. At any rate, Richard Sankey and I are independently writing to Manila shortly in search of further data, and I hope to be in a position to publish whatever emerges.

Strangely, there are those who remain not greatly impressed by the concern that others feel. Views have been expressed by some, for whom I have the profoundest respect, that the effect of all this poisoning is minimal—that the sea is a vast place and that there are lots of fishes in it. Such poison as is admitted soon gets diluted and broken down and not many fishes actually die, they say. Whilst this is partly true, no doubt, I have visions of layers of poison of varying concentrations moving around the coastal fishing areas in plankton and in 'shelves' of water of differing temperature and salinity. Such means can directly damage individual localities, perhaps beyond ultimate repair, even though elsewhere the input can be effectively dispersed into totally harmless concentrations. But this is just theorising. If it is all so harmless, why does President Marcos bother about it, I wonder?

Readers' Queries Answered



Breeding Problems

I have a tank 42 in. by 12 in. by 15 in. in which I have three firemouths (2 in.), one oscar (4 in.), one Siamese fighter and one 5 in. sucking loach. Could you please tell me if the firemouths will breed in this tank—it has very hard water. Also what plant I can grow in it. The gravel is about 4 in. deep, with an undergravel filter. Could you also suggest why I get strange looks from aquarists when they learn I have six stock tanks and four breeders—mainly for raising my young mollies?

You do not give the figure for the hardness of the water in your tank but from the address of your letter it is unlikely that the hardness of the water in your area would be sufficient to prevent breeding of the firemouths. It is possible that they will spawn in the tank and a broken inverted flower pot should be provided for this purpose. The sucking loach would be better removed from the tank if you wish the firemouths to breed as these

fish have a tendency to graze busily all over a tank and any movement near the flower pot at breeding time will cause all the aggressive tendencies that the firemouths are likely to show at this time to be demonstrated. Plants are not likely to be the main decorative feature in a tank containing an oscar or breeding firemouths, since the latter are likely to pull out any plants in their way when breeding and oscars will uproot plants at all times. You may be successful with large, tougher plants such as *Cryptocoryne blausii*, *C. haertliana* or Amazon swords but it would be advisable to plant with plenty of rockwork between so that the fish cannot easily reach the roots—and the hardness of the water may in itself prevent perfect growth.

The reaction of other aquarists to the details of your stock tanks for raising young mollies is likely to be nothing more than envy. To raise young fish in quantity to good size requires space and yet more space.

Paraffin Heaters

I am trying to obtain an economical heating system for an outside fish house. Can you tell me any snags about the use of paraffin heaters for this purpose?

Any method of heating involving combustion, such as a paraffin burner, will (a) use oxygen from the air and (b) add gaseous products of combustion to the air (in some circumstances carbon particles as well may be added). Paraffin also produces water vapour when burnt. These aspects all mean that good ventilation is required when a burner is in use, not always easy to provide in a draught-free way for a fish house. Placing the heater can be a problem if it is not to take up part of the valuable working space. Regular maintenance of burners is a necessary chore or smelly fumes may develop (it's the aquarist who is most likely to suffer from these—not the fish!) and the regrettable consequences of forgetting to keep the oil reservoir filled are obvious. There is also a fire risk in the use of flammable fuels and burners. These are the snags, but it must be said that many aquarists do not find them insurmountable ones and there is no doubt that paraffin burning is a very economical method of space heating.

Bumble-bee Gobies

I have just lost the third of my four bumble-bee gobies and would like to save the fourth one, though it does

look perfectly healthy. The others gradually lost colour and weight. I have now been told that these are really brackish water fish and should be kept in water with some salt in it.

Except for one species of *Brachy-gobius* that is found in fresh or brackish water, these pretty fishes are brackish water fishes. They will survive in fresh water for quite a time, but for good health they require the addition of a teaspoonful of sea salt (dissolved) per gallon of aquarium water. Although they can themselves be quite belligerent and are fin-nippers, for optimum conditions they require plenty of hiding places, in thickets of plants or in rockwork or in little crevices of bark. Feeding is also a problem with them—you should be feeding them small live foods—daphnia, tubifex or white worm—and care must be taken to check that they are getting their share as they are not avid eaters and by the time they make up their minds to eat something there may be little left by the other tank occupants.

pH Meters

In an article in a back issue of *PFSM*, I saw a reference to the reaction of the water in the breeding aquarium being measured with an 'electric pH meter'. Can you provide me with further information about such an instrument please?

Meters for measurement of pH of solutions are manufactured for laboratory and industrial use. Their cost is such that it is unlikely to be a justifiable outlay for an aquarist, and the degree of accuracy with which pH readings can be obtained with a pH meter is much greater than is required for all practical fishkeeping purposes. Values for water reaction assessed by the use of test papers or indicator solutions, when these are used properly, are quite accurate enough. However, if you require further details about cost and use of pH meters you should approach one of the well-known makers such as Pye Unicam Ltd (Cambridge, U.K.).

'Unheated' Aquarium

Is it possible to keep Australian rainbow fish in an unheated aquarium, as I thought I could use these with guppies and White Cloud Mountain minnows for a tank without a heater?

The word most commonly used in the literature in connection with these fishes is that they 'tolerate' the lower range of temperatures associated with tropical fish, i.e. from 65°F to 70°F (*Melanotaenia nigrum* survives at 60°F) but it is unwise to assume that such temperatures mean that the tank is unheated. In this country in the winter the ambient temperature would have to be permanently very high to keep the water in the tank even at these

lower ranges, and in a tank in an unheated room or one that cools at night the result could be disastrous. A suitably low-wattage heater should be used to keep the tank temperature at a steady 70°F, at which temperature all the fishes will look more colourful, eat better and be much more lively. And then, if a heater is to be used at all, the temperature might just as well be maintained at the usual 75°F.

Incompatible Pair?

I have two *P. unnectens* that I had hoped might turn out to be a pair but they do not seem to be very kindly inclined towards each other. Would this indicate that they must be two males?

Not necessarily. Cichlids do not invariably mate with the partner chosen for them, and your fish are rather more likely to be an incompatible male and female. Sex differences are not too difficult to recognise in the adult fish. The male of a pair is the larger fish and his fins will be the more elongated. When a pair are sexually mature there is no problem of differentiation at all as the female shows a vivid white spot on each side of her vent. The two fishes that you have should be watched as adult fish can inflict harm upon each other and if there is any risk of this then they should be separated.

The Dutch Connection!

OUR 4-day trip to Holland last year began when the FBAS Council received a letter from the Dutch Federation (NBAT—Nederland Bond Aquaterra), inviting two representatives of the Council to attend their Convention or Bondsag, which Tom Glass and myself accepted on behalf of the Council. We were met on Friday evening at Rotterdam Central Station by Mr Smidt, the chairman of the South Rotterdam Region, and his assistant Mr Sentii, and subsequently by our original contact Mr Van Lier. Fortunately for us, their English was excellent, and there began one of the most interesting weekends I have ever spent.

The venue for the Convention and

By ADRIAN BLAKE

Aquarium Exhibition was the Diergaard Zoo. The Aquarium Display was set to one side of a hall normally used for reading and waiting in and consisted of 60 separate display tanks. The exhibition had taken a month to set up and included displays from East Germany, Poland, Czechoslovakia and Belgium as well as numerous set-ups from the host country. The tanks ranged from 18 in. upwards—the smaller ones displaying reptiles—to the 3 ft., 4 ft. and 5 ft. tanks containing the tropical,

marine and coldwater displays. One magnificent 6 ft. by 6 ft. by 3 ft. tank, furnished as an aquascape complete with rubber plants and spider plants, contained a shoal of lovely archer fish. Another beautiful 8 ft. by 15 in. tank was thickly planted and contained a fine assortment of tropical fishes. One all-glass tank, 4 ft. by 2 ft., carried a beautiful selection of marines and corals, and another smaller but very impressive tank contained egg-laying toothcarps from West Africa. Fishes were in abundance in every display and included many varieties not readily available to most aquarists in Britain. The most significant feature I think was that the tropical tanks were so densely and thickly planted

with such a variety of plants, all in excellent condition. The Show presented to the viewing public and aquarist alike a truly living picture and a display of what furnished aquaria should really be.

During our stay we visited the homes of some aquarists in Rotterdam and Amsterdam, and were even more impressed by their individual furnished tanks. The average size of these was approximately 4 ft. by 15 in. by 18 in., glass-fronted angle iron frames with steel panels at sides and back. They all seemed to have power filters working on them and no undergravel filters were in use. Lighting consisted of from four to seven 1 ft. or 4 ft. fluorescent tubes, Warm White and Grolox in a ratio of 2 : 1. They were all built in as part of the furniture in wood or stone and the filters etc. were hidden underneath. The hoods were made by the aquarist himself to house the tubes. Each aquarium was thickly planted and seemed mostly to contain emperor tetras, cardinal tetras, bleeding-heart tetras, small tooth-carp etc. with no large fish prominent. These individual aquarists were very proud of their tanks and told us that lighting was switched on from 9 a.m. to approximately midnight. The plants obviously flourish under such conditions and most of the steel backs and sides of the tanks were covered with thick Java moss. The water apparently is in the acid range, and most of the aquarists had plenty of daphnia hopping about. (Water fleas are in great abundance everywhere and tubifex, imported from London, is widely used.)

The only fish competition we heard about was for home furnished aquaria and last year's entry was 4016 tanks. As one might expect, judging takes a considerable time but eventually a winner is arrived at after the entries have been reduced to a final 60. We visited one aquarist whose tank was absolutely splendid and he only finished eighth!

Foreign visitors held a small meeting with the Dutch representative and discussed mutual topics and ways of achieving closer co-operation between the European nations to learn more about fishkeeping activities outside their home country. Altogether it was a wonderful venture for us and I hope that our next visit to Europe's mainland proves equally successful.

AquaGLOSSARY

No. 5

A PFM guide to the meanings and accepted pronunciation of the scientific names of aquarium subjects, arranged by word-roots in alphabetical order

Albus (Latin): white. Pronounced 'alb-uss'. For example, *Alburnus* ('alb-urn-uss') is the generic (and trivial) name of the bleak (*Alburnus alburnus*), which is silvery-white in colour. In the scientific name of the pearl danio, *Brachydanio albolineatus* ('brak-ee-dan-ee-oh alb-oh-lin-ee-ah-tuss') the trivial part describes the 'white stripe' on the body. The synbranchoid eel *Monopterus alba* ('mon-op-terr-uss alb-ah') has its very pale undersurface noticed in the trivial name. Also in the name of the British native white-bloomed water lily: *Nymphaea alba* ('nim-fee-ah alb-ah').

Aphyo (Greek): small fry. Pronounced 'aff-ee-oh'. Some species of small fishes have this root in their scientific names. For example, the killifish genus *Aphyosemion* ('aff-ee-oh-sem-ee-on') is one of small fishes frequently with banner-like tail fin extensions (*semo*, Greek: banner, standard). The little bloodfin, *Aphyochorax rubripinnis* ('aff-ee-oh-kar-rax roo-bree-pin-iss'), and *Aphyocypris pooni* ('aff-ee-oh-kip-riss poo-nee') are other examples.

Barb (Latin): beard. Pronounced 'barb'. Best known use is in the genus name *Barbus* ('bar-buss'), in reference to the pairs of filamentous mouth barbels typically present in these fishes: two pairs in the barbel (*Barbus barbus*).

Bi (Latin): two. Pronounced 'by'. Frequent use is made of this prefix in the trivial parts of specific names. For example, the glass catfish, *Kryptopterus bicirrhus* ('krip-top-terr-uss by-kir-riss'), where *bicirrhus* refers to the two long filaments ('hairs'; *cirri*, Latin: curl) above the mouth, the two-spot cichlid, *Cichlasoma bimaculatum* ('sick-lah-soh-mah by-mack-yew-lah-tum'; *macula*, Latin: spot), the red lyretail killie, *Aphyosemion bittatum* ('aff-ee-oh-sem-ee-on by-vit-tah-tum'; literally two colour-strips—*vitta*, Latin: strip of colour).

Melano (Greek): black. Pronounced 'mel-lan-oh'. For example, the Australian rainbow fish genus *Melanotaenia* ('mel-lan-oh-teen-nee-ah') is a name meaning literally black band (*taeni*, Greek: band or ribbon). Trivial names involving this prefix are used for the black-spotted catfish, *Corydoras melanistius* ('kor-ree-dor-rass mel-lan-niss-tee-uss'), the blue limia, *Limia melanogaster* ('lim-mee-ah mel-lan-oh-gas-ter'; literally black belly—*gastro*, Greek: stomach), the marine tropical *Pomacentrus melanopterus* ('poh-mah-sent-russ mel-lan-op-terr-uss'; literally black fin—*ptero*, Greek: wing, fin) and the catfish *Synodontis melanostictus* ('si-noh-dont-tiss mel-lan-oh-stik-tuss'; literally black-spotted—*stictis*, Greek: spotted).



An aquarium in the setting of a modern living room, with the tank concealed within an irregular frame.

Making a Living Aquarium

Careful planning and selection of materials do much to



By
J. ELIAS

Photographs by
the author

Plants in this decorative tank are *Myriophyllum ussuriense* (left and right), *Echinodorus argentinensis* (back), and *Microsorium pteropus* and *Echinodorus quadricostatus* (foreground).

THESE are a great many practical instructions available in print on how to set up a room aquarium. These stress the method of setting up the tank, how to care for it and how to achieve the correct water conditions and temperature. But unless we are careful we will finish up with something that has merely a dead appearance. We need to take a step beyond the basic principles and the simple form of a living aquarium that so often is produced in the understandable impatience to achieve something overnight. Of course, some people remain perfectly happy with the sight of a few plants in a tank and a few fish swimming about between them. For others, the creation of a tank decor becomes a completely fascinating occupation and one that draws out a great deal of latent creative talent.

This creativity is composed of two ingredients—presentation and improvisation. Improvisation there must be because we have to make use of materials we have at our disposal. 'Presentation' can be compared, perhaps, to the creation of a living picture and, like an artist, we need to take into account principles of perspective and colour contrast etc. But, unlike the artist, we are working

Picture

create the result desired

with living material. It is not possible to give mathematically precise, all-embracing instructions—and anyway, this is exactly what we do not want. So let us start at the moment when we are standing in front of a tank full of water, on the bottom of which there is only washed gravel thrown in haphazardly. Decorative furnishings such as rocks, stones, natural wood and plants are waiting temporarily in a container nearby.

The first thing we must do is to put in the rocks and arrange the gravel. Unless the plan is to make terraces, the gravel must slope upwards, from the front of the tank to the back. Then we must decide exactly where to arrange our focal point—this might be a large plant, or a cave where the fish can take shelter—but such a focal point must not stand out too obviously from the background; rather, the rest of the picture must be built up towards it. A very unpleasant effect results if we make the middle of the tank the pictorial middle of our 'scene'. It is true that, under certain circumstances, it is possible to make use of such an arrangement, but for all general purposes it should be avoided.

The inanimate objects we are going to use for



Photo: P. Hamrik

A neat bank of aquaria with the adjacent house plant stand providing a living screen blending well with the tanks

our decoration, such as rocks, stones and possibly wood, should not be used in too great quantity, or the whole effect will be spoilt. They should be kept to the background. I personally think that diversity of stone does not contribute anything to the scene. To me, a pattern combination, of e.g., dark slate and white gravel looks absurd. After all, diversity of rock formation and mineral content does not often occur in one area in Nature. Remember also that broken stones with sharp edges not only do not add aesthetically to the picture but are actually harmful to the fish.

I think that a base of dark stones is preferable in every way to a gravel mixture, the contours of which have a tendency to shift about. The size of the additional decorative stone features and the kind of stone used must be decided very early on because this will be the whole basis of our creation. Before I place a rock in its permanent position, I move it around in the tank to make certain that I am placing it in the right place for its shape and size. It is essential to choose the correct place for the stone as it is to choose the correct stone for its colour and shape. Paving stones are certainly a very unproduc-



Wood forms a conspicuous feature of this tank's furnishings. To the left the feathery plant is *Myriophyllum ussuriense*; the more familiar *Cabomba caroliniana* is seen to the right. In the background is *Aponogeton echinatus* and at the front is *Sagittaria subulata* var. *subulata*. Waterworn white stone provides the other furnishing.

tive decorative feature, although I must admit to having used them myself upon occasion. It is much better to choose pieces of natural rock weathered by time.

Wood is a welcome addition to building material for our 'picture'. Brownish-red coloured roots are among the most beautiful forms of natural wood—the sort found in peat soil. These attract less algal growth than those retrieved from ponds and rivers. The colour of the wood must also be considered in our picture and again I feel it is preferable to avoid too startling a colour combination. Don't forget to boil wood thoroughly in salt water before putting pieces in the tank, so that they may be thoroughly disinfected. If they tend to float once they've been put in, bind them to a stone with nylon thread. It is, incidentally, always advisable to check the water condition very carefully after putting roots etc. into a tank as some can have a detrimental effect on the water and poison the fish. This only applies to pieces that tend to float, and they should be carefully checked to see that the wood is not rotting. Pieces used for decoration should be organically sound, straight and branchless. By their careful placing it is possible to make a hiding place for the fish that may eventually turn out to be used by them to spawn in.

Plants are placed in the aquarium when it has been filled with water at the correct temperature. The tallest plants should be used for the background and the smaller ones placed towards the front glass. This, of course, is only a very general rule that can often be successfully relaxed if necessary. For the purpose of our 'picture' we are interested in the shape and colour of the plants, and

another important point to consider is whether they will grow together in similar conditions. I've found that almost all the usual varieties of plant in any combination will live satisfactorily together.

The choice of plants and their placing in the tank must, of course, be a personal one and obviously we are going to use the varieties available to us, whatever they may be. The most ordinary of common water plants look attractive provided that they are fresh, healthy plants that are going to develop well. After all, what is the point of making efforts to get the more unusual and rare varieties if they are broken and ragged?

Many visitors to the permanent aquarium exhibition where I work come to me with plans that they have tried to draw up for planting their tanks. It is possible to set up a tank in this way but it must be realised that such a plan cannot be followed too inflexibly. There is no guarantee that any particular plan on paper will produce the inspiration on which the whole effect must rely. It's usually a case of trial and error.

I begin planting with those plants that form thickets, like *Vallisneria* or *Hygrophila*, and fill up the large 'empty' areas in this way. The strong, individually growing plants go in last, as only then can they be put in special positions. Contrast is achieved by making use of the various shades of green, and I set the tall straight-edged plants against the broad-leaved ones—so, for instance, in front of a growth of *Vallisneria* it is better to put the

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by
ARPEE

Personal COMMENT

WHEN buying a new fish I generally assume, subconsciously, I suppose, that I shall be successful in keeping it alive for at least 2 years, and it may so happen, judging by some of the old-timers around me, that this ultimately becomes the average figure. As my brand of fishkeeping is much the same as anybody else's it would seem to follow that if I bought any of the reputedly 'tougher' species, like most of the livebearers or the commoner egglayers like zebbras, these would help to sustain the overall statistics.

At Christmas, 1971 I bought my daughter a pair of guppies. She had been greatly taken by the gorgeous flowing tails of the little males (aren't we all?) and as the prospects of reproducing them are, for a 12-year old, quite unlimited, this was one Christmas present which really succeeded, especially when a dozen or so offspring were delivered during the festivities. During the ensuing months of 1972 the story was much the same as one would expect, and the embarrassing time came when we had to decide whether to feed the surplus guppies to the minnies, or to let Nature take its own course. I have never subscribed to breeding fish as fodder and therefore agreed with my daughter that we would just sit back and see what happened. Now there was a tale in the *READER'S DIGEST* some time ago that in these circumstances the stock would gradually reduce to nine fishes—I forget quite what the proportion was of males to females. Although the conditions in the tank were not quite as the book had prescribed, the experiment (if such it could be termed) could be put to test.

Some time in July last year the figure had indeed dropped to nine, and there it remained for a while until the remaining numbers gradually reduced the score to one, which is the point now reached. The offspring of the female by a long-forgotten mate deteriorated as quickly and in similar fashion to the two fish which we had bought in such fine colour and condition only a few months earlier. The tank conditions were maintained in tolerably good condition, and there were no management deficiencies other than that of allowing overcrowding.

Thus, in a year, we have reduced from a pair of guppies to one single male. This, apart possibly

from being something of a record, is distinctly depressing. Before the modern fancy guppy was developed we used to let the original 'millions fish' breed away in any old fashion, and though the specialist will shudder at these words, I think the forms and variations possible under this anarchy were every bit as interesting as the curious types we have today. Furthermore, the fish must have been virtually indestructible because I have kept and bred them under the most horrible conditions—as have most aquarists—in a way which simply would not be tolerated by the highly bred varieties now accepted as commonplace.

It saddens me to read that many experts don't reckon the modern guppy to have a life of more than a year, and I believe that many put it at much less than this. Was this always so, I wonder, or has the cultivation of this species introduced a weakening element into its make-up which makes it that much more vulnerable to stress? Theoretically, as well as practically, the answer would seem to be 'Yes'.

Perhaps Fred Campbell can spread the word around that we should like some longer-lived guppies, and it wouldn't surprise me at all if he could provide many of the answers to this end. Presumably this would have to be at the expense of something, and if it had to be those ridiculously unbalancing tails, for me at any rate, the effort would have been worthwhile. I haven't kept the species for years, but I seem to recall it as a robust, twinkling, highly inquisitive and mobile little fish which, over the years, has turned into a sort of fashion model with a perpetual hangover.

How Collingbourne spoke out in the August issue of 1933 about the virtues of 'natural fish', and I wonder how the guppy strikes him, because he will not recall the earlier strains we had in the 'thirties. Many will agree with him that priorities seem to have got muddled up somewhere. Much depends on whether you subscribe to the view that the fish are here for our amusement or for our stewardship. Whether you agree or not with what he said, his (to my mind) very wise words are worth re-reading.

We live in times when aquarium techniques aided by science can produce terrifying consequences, and unless we take stock of our aims and redefine them, we can find ourselves in the position of handing on to the next generation a bag of stunts and party tricks instead of the fascinating hobby of fishkeeping, which has enough in its basics to keep most of us researching for a lifetime.



I sometimes wonder whether, in the process of attempting to perfect our art of keeping exotic fishes, we are not losing—or have lost—that of

doing justice to our own native freshwater species. At one time there was the plea that to keep these successfully in any sort of numbers—as with any other coldwater fishes—a high degree of artificial aeration was necessary. This arose because the size of the average fish made it unwise to keep more than two or three in the 10 to 15 gallons tank without recourse to the freshening effects of an independent air supply. The fishkeeper who knew a thing or two about his subject would nevertheless persist in his pursuit of the native species and would usually prove to be more than satisfied with his lot.

The highly distracting competition, first from fancy goldfish and later from tropicals and salt-water species, is something from which this part of the hobby has never really recovered. This is a most tremendous pity and I wonder whether there is room for a revival of sorts in this area, at which we in this country should be at our very best. Most of us pretend to understand just how a tropical underwater scene should appear, but I fear that our notions are largely fanciful and that many of the standard constructions we accept are far from the natural truth. It doesn't matter greatly in so far as we are not visually offended by the inaccuracies, but in the 'native' sphere we have first-hand experience of what features should be there and which are totally impossible. The assembly of the right components, including plant life, not only makes the viewer feel very much at home, but presumably has a correspondingly agreeable effect on the fishes themselves. Even if this does not contribute especially to their longevity in captivity at least it should encourage them into tip-top condition, sometimes even inducing spawning if they are of the correct age and sex.

It is often argued, again, that one cannot get the best out of native fishes in a normal aquarium, and with this I partly agree. This is because few of them look at home with a goldfish for company in a tank furnished with a pebble bottom, numerous sea-shells and lengths of decaying anacharis. Our fishes really need the bases of reeds and bullrushes to hide in, together with all the other upright growth, grassy outcrops and submerged twiggy commonly found bordering our ponds. It is quite a job to reproduce this in the aquarium, mainly because the reedy bits stick out at the top and this is quite incompatible with overhead lighting. Not everyone wants to have a pond or has the facility for one.

The compromise we used to adopt most successfully was to adapt outcast water storage tanks with which most builders' yards abounded. These are no doubt less plentiful these days, and certainly they won't be had for the taking, but a little careful reconnaissance should show dividends. Being galvanised, these tanks need rendering on the inside with bitumastic paint after all the loose scale and rust has been removed. The power tool

has made this simplicity itself, and could also facilitate the conversion of one of the large panels to an open side, into which a glass viewing panel may be fixed. This should be of $\frac{1}{4}$ in. plate, and correspondingly thicker for very large tanks. I don't altogether recommend this refinement, however, as the tanks are usually placed out of doors in an odd corner, and it is very easy to shatter the panel with a carelessly welded dustbin or an out of control lawnmower, against which hazards the unamended metal side would have been quite adequate protection.

Such tanks can be planted up with reeds and rushes of all sorts, together with plants like water violet, crowfoot etc. A covering of pale-coloured pebbles on the bottom and a few largish rocks in cave formation will complete what is in effect quite a simple organisation, and the restricted area does enable one to see far more of the fishes than a pond usually allows, yet accords a privacy which the aquarium simply cannot achieve.

What should go in the tank depends rather on what space is available, but if there is any possibility of connecting an air supply a small shoal of minnows is a must. I always found that some small crucian carp, gudgeon and roach or rudd completed the picture most satisfactorily. The carp and roach provided some delightful greens, reds and blues and the gudgeon contributed brown or yellowish tones and the most appealing eyes you will meet in the fish world. A little duckweed on the surface of the water would complete the overall setting and this gave us all the opportunities we needed to peer into water during the long days of the summer holidays and participate in all manner of wonderful imaginary adventures with the fishes we had so recently caught, now our fondest companions.

It was not so long ago that there were forecasts that our pond and river fishes were being polluted out of our lives for good, but it now seems that there is hope that the tide is on the turn. Recent reports of quite exciting catches of fish in the Thames make one thankful that the efforts of the untiring conservationists have come to something, and I hope that the return of old friends will induce us to greater appreciation of them. Let us put them on show whenever we can and make people aware of what beautiful creatures they are. Just remember that half of our budding scientists and chemists have grown up in an environment in which they have never even experienced the schoolboy thrill of catching tiddlers. If we can but express our problems to them they have the intelligence to cope with them, and if they are allowed to act as free agents they will do their best, I am quite sure. They are beginning to accept that our natural heritage is more important than a better soap powder.

Photographs
by
CLIFF
HARRISON



Is it New to You?

A small consignment of the *Botia* species pictured above and to the right was imported by Scauco last year. It has been named the 'reckie botia', its yellow and dark-brown markings differing from those of the familiar *Botia strigata* (lower right). More specimens are to be imported but since an air-freight in India is involved for this species as well as the air passage to the U.K. the price is above that of other botias. Size is 2½ to 3 inches and general habits and requirements appear to be typical of the genus members already kept in aquaria.



Right: *Botia strigata*



Positive identification of the toothy specimen pictured above and right is not available (I *Hoplid* species). This specimen, owned by Mr. John Blackwell of Caterham Road AS, is about 8 inches long but can probably attain at least twice this length. Not a community fish!



A Quadruplet of Deep-Bodied Fancy Goldfish

By M. D. CLUSE *President, Goldfish Society of Great Britain*

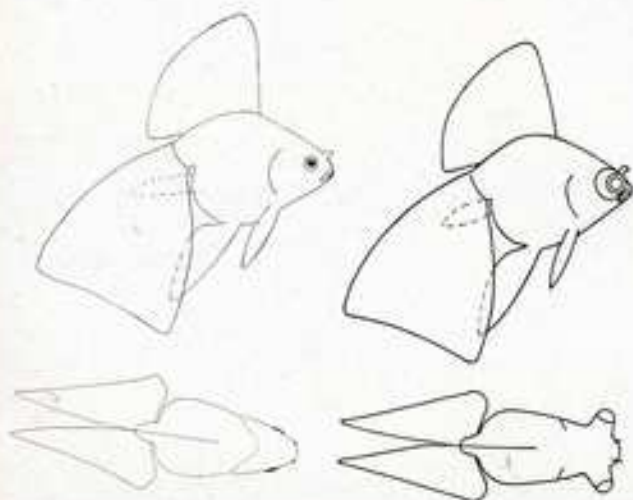
AT some unknown stage in the development in China of goldfish varieties many hundreds of years ago, three new hereditary factors appeared. They were: (a) long finnage; (b) divided tail fin; (c) short, deep, rounded bodies. We do not know which came first, but we do know that they are connected with separate genes. These factors occur singly or in combination.

The short, deep, rounded body, which has evolved from the normal wild-type slim body, is a mutation that seems to be peculiar to *Carassius auratus*. It is not a shape made by feeding porridge or similar food as some aquarists appear to believe, nor is it confined to expectant females as some novices suspect. The number of scales counted along the lateral line of a good common goldfish ranges from 28 to 31, whereas for the short-bodied varieties described below, 25 scales is about the average. Indeed, when combined with long finnage, there is an adaptation of the air-bladder. There are two lobes to this and whereas in the wild-type fish these are approximately equal

in length, it is found that in the short-bodied fish the front lobe is smaller and the hind lobe grows larger. This enables the fish to keep its balance in the water and the large rear part of the bladder compensates for the extra weight of the long caudal fin. The apparent two tail fins are really divided rays and membranes. In fancy fish there appear to be two anal fins also. Only in the case of single-tailed goldfish will a fish with a single anal fin be qualified for competition on the show bench.

As regards the twintailed varieties with long caudal fins, two shapes or contours are approved. There is (a) the long drooping caudal fin, which has pointed lobes and a fork about one-third of its length, and (b) the long drooping caudal fin with almost no forking but with a well spread 'square-cut' contour. Breeders find that the latter is more difficult to achieve and it is regarded as being the more 'fancy' of the two. Incidentally, fins go in sets and this latter fish has a large dorsal fin with a rounded contour.

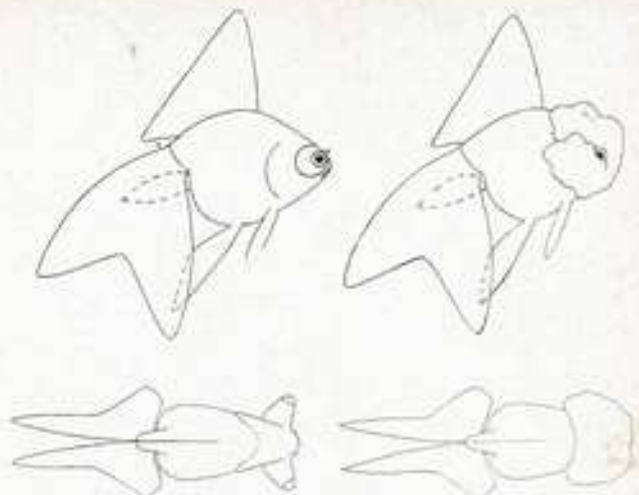
The Goldfish Society of Great Britain recognises



Outline drawings (reproduced, by permission, from the GSGB Standards book) of the veiltail (left) and the broadtail moor (right). The veiltail is without special head characteristics whereas the broadtail moor has protruding eyes.

Illustrations
GSGB Copyright.

Outline drawings (reproduced, by permission, from the GSGB Standards book) of the globe-eye (left) and the oranda (right). The bramble head growth of the latter variety takes years to develop fully.



four varieties with deep identically shaped bodies and with long finnage.

(1) There is the ordinary veiltail, recognised in the metallic, nacreous and matt groups (the two last-named can be called 'calico', being deficient in guanin or 'shine'). This variety has no special characteristic about the head, e.g. protruding eyes or 'hood'.

(2) There is the broadtail moor, which is the same shape as the veiltail except for moderately protruding eyes. Only all-black fish are accepted on the show bench.

(3) There is the globe-eye, which has the more easily achieved forked tail but has protruding eyes in an extreme form. When coloured a self-black it is known as a 'moor'. In the nacreous group it is often very highly coloured with deep orange, blue and black.

(4) Finally there is the oranda, similar in the

shape of body and fins to the globe-eye, but with a 'brambled' growth or 'hood' in the cranial, infra-orbital and opercular regions. This hood takes years to develop fully but then it should entirely cover the head except for the eyes and mouth. Such a highly fancy factor is difficult to breed and so the GSGB does not think that it is advisable to combine this factor with the 'square-cut' tail. Such a fish would be extremely hard to breed. The approved standard drawing therefore shows a forked tail fin for the oranda. The redcap oranda is a popular variety now on the market. It is a silver fish and has only a small area of bramble on the cranium. Although this variety can be admitted to the show bench, it cannot gain full marks for colour or for the bramble.

These four varieties are separate and distinct and should not be interbred, or mongrels will occur.

Living Aquarium Picture

continued from page 456

broad *Echinodorus* or *Cryptocoryne* than *Sagittaria natans* or *Echinodorus tenellus*. As I have already explained, any large plants that are going to form the focal point of the scene are placed away from the geometrical middle of the tank—and this applies also to any hiding place made, for instance, for cichlids, perhaps out of stone.

The answer to the problem of where to site the

aquarium in the room must be dictated mostly by the domestic furnishings, though there are certain considerations that must be taken into account from the aquatic standpoint. The aquarium should not be placed in front of a window in an effort to obtain a 'through-view'. This will result in all the colour effect being lost and it will become merely a shadow play. One very attractive way to deal with a tank is to build it into a piece of furniture or in a niche in the wall.

The aquarium tank is often the first thing that visitors notice in a room. Therefore the creation of its lively beauty deserves a little attention.



FBAS Basic Show Class Letters:

A, furnished aquaria and aquascapes; B, Barb; C, characin; D, cichlid; E, labyrinth; F, egg-laying toothcarp; G, tropical catfish; H, Corydoras and Brechin; J, rasbora; K, danio and W.C.M.A.; L, loach; M, a.o.s. tropical egg-layer; N, pairs of fish; O, guppy male; P, guppy female; Q, swordtail; R, platy; S, mollie; T, a.o.s. livebearer; U, single-tailed goldfish; V, ornamental goldfish; W, a.o.s. coldwater; X, breeders classes; Y, marine fish; Z, plants.

THE best fish in the show award at the **HUCKNALL & BULWELL** AS annual Open Show held at Bulwell Youth Club, Coventry Road, Bulwell, Nottingham, went to Mrs Blades (Cresswell) for a diamond tetra. The rest of the results are as follows:

Guppies: 1, Mr M. Larrow (Sheffield); 2, Mr R. K. Pearson (Worksop); 3, Mr B. J. Rogers (Cresswell); 4, Mrs H. J. Dennis (Dunstable); 5, Mr G. Twydale (York); 6, Mrs J. S. Hall (Aireborough); 7, Mrs Blades; 8, Mr & Mrs James (Worksop); 9, Mr P. Spittlehouse (Widnes); 10, Mr C. Marsden (Worksop); 11, Mr & Mrs Jones.

Small loach (up to 3 in.): 1, Mr J. Swenden (York); 2, Mrs Blades; 3, Mr G. N. Douglas (Piper Street); 4, Mrs L. G. Goss (10 1/2); 5, Mr S. Hill (Aldershot); 6, Mr T. Smith (Sheffield); 7, Mr & Mrs Gibson (Gainsborough); 8, Mrs Charles (up to 3 inch); 9, Mrs Blades; 10, Mr R. K. Pearson; 11, Mr D. Wright (Aldershot); 12, Mrs Charles; 13, Mr & Mrs Emery (Sheffield); 14, Mr B. Bailey (Kilburn); 15, Mr & Mrs Gale (Chatterfield); 16, Mr A. Clouston (Sheffield); 17, Mr J. Dennis (Dunstable); 18, Mrs & Mrs James; 19, Mr G. Milnes; 20, Mr & Mrs Smith; 21, Mr T. Smith (Sheffield); 22, Mr & Mrs South; 23, Mr J. S. Hall; 24, Mr W. Blundell (Bosington); 25, Mrs D. Sewell; 26, Mr N. Kidd (Nottingham & District); 27, Mr & Mrs Downey (Dartford); 28, Mr & Mrs Durrant; 29, Mr J. Buck (Hucknall & Bulwell); 30, Mrs J. S. Hall; 31, Mr & Mrs Gilling; 32, Mr & Mrs Hatfield; 33, Mr G. Thickerson; 34, Mrs S. Hill; 35, Mr & Mrs Davidson; 36, Mrs Lindley (Carlisle); 37, Mr & Mrs Copley (Doncaster); 38, Mr T. South; 39, Mr B. Bailey (Sheffield); 40, Mrs & Mrs Davies (Gainsborough); 41, Mrs Blades; 42, Mr P. Mitchell (Hucknall & Bulwell); 43, Mr & Mrs Taylor; 44, Mr & Mrs Trone; 45, Mr J. S. Hall; 46, Mr A. Marsden; 47, Mrs J. S. Hall; 48, Mr G. Gilling (Worksop); 49, Mr J. S. Hall; 50, Mr & Mrs J. Green (Cresswell); 51, Mrs J. S. Hall; 52, Mr G. Thickerson; 53, Mrs J. S. Hall; 54, Mr J. Dennis (Dunstable); 55, Mr A. Clouston; 56, Mr P. Spittlehouse; 57, Mrs J. S. Hall; 58, Mr J. S. Hall; 59, Mr & Mrs Newfield; 60, Mrs J. S. Hall; 61, Mrs M. Thickerson; 62, Miss A. Dean (Aldershot); 63, Mrs D. Richardson; 64, Mrs J. S. Hall; 65, Mrs J. S. Hall; 66, Mrs J. S. Hall; 67, Mrs J. S. Hall; 68, Mrs J. S. Hall; 69, Mrs J. S. Hall; 70, Mrs J. S. Hall; 71, Mrs J. S. Hall; 72, Mrs J. S. Hall; 73, Mrs J. S. Hall; 74, Mrs J. S. Hall; 75, Mrs J. S. Hall; 76, Mrs J. S. Hall; 77, Mrs J. S. Hall; 78, Mrs J. S. Hall; 79, Mrs J. S. Hall; 80, Mrs J. S. Hall; 81, Mrs J. S. Hall; 82, Mrs J. S. Hall; 83, Mrs J. S. Hall; 84, Mrs J. S. Hall; 85, Mrs J. S. Hall; 86, Mrs J. S. Hall; 87, Mrs J. S. Hall; 88, Mrs J. S. Hall; 89, Mrs J. S. Hall; 90, Mrs J. S. Hall; 91, Mrs J. S. Hall; 92, Mrs J. S. Hall; 93, Mrs J. S. Hall; 94, Mrs J. S. Hall; 95, Mrs J. S. Hall; 96, Mrs J. S. Hall; 97, Mrs J. S. Hall; 98, Mrs J. S. Hall; 99, Mrs J. S. Hall; 100, Mrs J. S. Hall.

Master S. Jones; 2, Master K. Newfield (Worksop); 3, Master P. Smith (Sheffield); 4, Goldfish & corydoras; 1 & 2, Mr J. S. Hall; 3, Mr & Mrs Foster; 4, Mrs J. S. Hall; 5, Mr & Mrs Foster; 6, Mr J. S. Hall; 7, Mr J. S. Hall; 8, Mr J. S. Hall; 9, Mr J. S. Hall; 10, Mr J. S. Hall; 11, Mr J. S. Hall; 12, Mr J. S. Hall; 13, Mr J. S. Hall; 14, Mr J. S. Hall; 15, Mr J. S. Hall; 16, Mr J. S. Hall; 17, Mr J. S. Hall; 18, Mr J. S. Hall; 19, Mr J. S. Hall; 20, Mr J. S. Hall; 21, Mr J. S. Hall; 22, Mr J. S. Hall; 23, Mr J. S. Hall; 24, Mr J. S. Hall; 25, Mr J. S. Hall; 26, Mr J. S. Hall; 27, Mr J. S. Hall; 28, Mr J. S. Hall; 29, Mr J. S. Hall; 30, Mr J. S. Hall; 31, Mr J. S. Hall; 32, Mr J. S. Hall; 33, Mr J. S. Hall; 34, Mr J. S. Hall; 35, Mr J. S. Hall; 36, Mr J. S. Hall; 37, Mr J. S. Hall; 38, Mr J. S. Hall; 39, Mr J. S. Hall; 40, Mr J. S. Hall; 41, Mr J. S. Hall; 42, Mr J. S. Hall; 43, Mr J. S. Hall; 44, Mr J. S. Hall; 45, Mr J. S. Hall; 46, Mr J. S. Hall; 47, Mr J. S. Hall; 48, Mr J. S. Hall; 49, Mr J. S. Hall; 50, Mr J. S. Hall; 51, Mr J. S. Hall; 52, Mr J. S. Hall; 53, Mr J. S. Hall; 54, Mr J. S. Hall; 55, Mr J. S. Hall; 56, Mr J. S. Hall; 57, Mr J. S. Hall; 58, Mr J. S. Hall; 59, Mr J. S. Hall; 60, Mr J. S. Hall; 61, Mr J. S. Hall; 62, Mr J. S. Hall; 63, Mr J. S. Hall; 64, Mr J. S. Hall; 65, Mr J. S. Hall; 66, Mr J. S. Hall; 67, Mr J. S. Hall; 68, Mr J. S. Hall; 69, Mr J. S. Hall; 70, Mr J. S. Hall; 71, Mr J. S. Hall; 72, Mr J. S. Hall; 73, Mr J. S. Hall; 74, Mr J. S. Hall; 75, Mr J. S. Hall; 76, Mr J. S. Hall; 77, Mr J. S. Hall; 78, Mr J. S. Hall; 79, Mr J. S. Hall; 80, Mr J. S. Hall; 81, Mr J. S. Hall; 82, Mr J. S. Hall; 83, Mr J. S. Hall; 84, Mr J. S. Hall; 85, Mr J. S. Hall; 86, Mr J. S. Hall; 87, Mr J. S. Hall; 88, Mr J. S. Hall; 89, Mr J. S. Hall; 90, Mr J. S. Hall; 91, Mr J. S. Hall; 92, Mr J. S. Hall; 93, Mr J. S. Hall; 94, Mr J. S. Hall; 95, Mr J. S. Hall; 96, Mr J. S. Hall; 97, Mr J. S. Hall; 98, Mr J. S. Hall; 99, Mr J. S. Hall; 100, Mr J. S. Hall.

MIR J. W. Tordalson of **CHESTERFIELD & DAS** writes: "Our first Open Show held at the Social Centre, Clay Cross on 1st October was a resounding success. The thanks for this must go especially to Dave Stone, our show secretary, and his wife, Sylvia, who put in a tremendous amount of time and

JUST as for the rest of the country's inhabitants, January is a month of lethargy and recuperation for aquarists who are recovering not only from Christmas activities but also from the exhaustion of the past busy show season. Plans are being made for the coming months but few major aquatic events occur just when there might be time to visit them. The ideal 'happening' for this period is the Grand Aquarist Seminar—no one is being asked to haul tanks and fish about but just to sit comfortably in the Derby Playhouse and share the knowledge of three experts in the hobby—Dr J. N. Carrington of Interpet, Mr Graham Cox of Sea Aquarists and Mr Roy Shinger of the House of Fishes. A whole day of talks, 16 new films and other features has been arranged. A film will be shown until the first lecture at 10.15 a.m. and there is a lunch break from 12.15 to 2.0 p.m. Refreshments and a buffet lunch will be available at reasonable prices. Tickets, price 50p each, may be obtained from Mr J. Bland, 5 Chamberhills Road, Dogfield, Derby DE1 2LL (no children under 14 years of age). The organizers hope that Midland clubs particularly will respond to help make the day the Grand Aquarist Seminar that it planned.

effort in the preparations for the Show, and to the committee and society members and children who really put in a lot of effort on the day. The result of this effort was a show that ran like clockwork, except for the slight mix up with the section winner in the Barbs. Will the persons concerned please accept our apologies for any inconvenience incurred. I think that we at CDAS can feel well pleased with our effort at putting on an Open Show. Call it blowing your own trumpet if you like, but the people

who were directly connected with putting on the show are surely entitled to some praise. The silver Rose Bowl for best fish in the show was won by Mr & Mrs P. D. Copley of Doncaster with a catfish. Out of a total of 333 entries, Aireborough was the Society gaining the most number of points. Mr J. S. Hall won the award for the most entries (34). The remainder of the results are as follows:

Guppies: 1, Mr M. Larrow (Sheffield); 2, Mr R. K. Pearson (Worksop); 3, Mr B. J. Rogers (Cresswell); 4, Mrs H. J. Dennis (Dunstable); 5, Mr G. Twydale (York); 6, Mrs J. S. Hall (Aireborough); 7, Mrs Blades; 8, Mr & Mrs James (Worksop); 9, Mr P. Spittlehouse (Widnes); 10, Mr C. Marsden (Worksop); 11, Mr & Mrs Jones.

Small loach (up to 3 in.): 1, Mr J. Swenden (York); 2, Mrs Blades; 3, Mr G. N. Douglas (Piper Street); 4, Mrs L. G. Goss (10 1/2); 5, Mr S. Hill (Aldershot); 6, Mr T. Smith (Sheffield); 7, Mr & Mrs Gibson (Gainsborough); 8, Mrs Charles (up to 3 inch); 9, Mrs Blades; 10, Mr R. K. Pearson; 11, Mr D. Wright (Aldershot); 12, Mrs Charles; 13, Mr & Mrs Emery (Sheffield); 14, Mr B. Bailey (Kilburn); 15, Mr & Mrs Gale (Chatterfield); 16, Mr A. Clouston (Sheffield); 17, Mr J. Dennis (Dunstable); 18, Mrs & Mrs James; 19, Mr G. Milnes; 20, Mr & Mrs Smith; 21, Mr T. Smith (Sheffield); 22, Mr & Mrs South; 23, Mr J. S. Hall; 24, Mr W. Blundell (Bosington); 25, Mrs D. Sewell; 26, Mr N. Kidd (Nottingham & District); 27, Mr & Mrs Downey (Dartford); 28, Mr & Mrs Durrant; 29, Mr J. Buck (Hucknall & Bulwell); 30, Mrs J. S. Hall; 31, Mr & Mrs Gilling; 32, Mr & Mrs Hatfield; 33, Mr G. Thickerson; 34, Mrs S. Hill; 35, Mr & Mrs Davidson; 36, Mrs Lindley (Carlisle); 37, Mr & Mrs Copley (Doncaster); 38, Mr T. South; 39, Mr B. Bailey (Sheffield); 40, Mrs & Mrs Davies (Gainsborough); 41, Mrs Blades; 42, Mr P. Mitchell (Hucknall & Bulwell); 43, Mr & Mrs Taylor; 44, Mr & Mrs Trone; 45, Mr J. S. Hall; 46, Mr A. Marsden; 47, Mrs J. S. Hall; 48, Mr G. Gilling (Worksop); 49, Mr J. S. Hall; 50, Mr & Mrs J. Green (Cresswell); 51, Mrs J. S. Hall; 52, Mr G. Thickerson; 53, Mrs J. S. Hall; 54, Mr J. Dennis (Dunstable); 55, Mr A. Clouston; 56, Mr P. Spittlehouse; 57, Mrs J. S. Hall; 58, Mr J. S. Hall; 59, Mr & Mrs Newfield; 60, Mrs J. S. Hall; 61, Mrs M. Thickerson; 62, Miss A. Dean (Aldershot); 63, Mrs D. Richardson; 64, Mrs J. S. Hall; 65, Mrs J. S. Hall; 66, Mrs J. S. Hall; 67, Mrs J. S. Hall; 68, Mrs J. S. Hall; 69, Mrs J. S. Hall; 70, Mrs J. S. Hall; 71, Mrs J. S. Hall; 72, Mrs J. S. Hall; 73, Mrs J. S. Hall; 74, Mrs J. S. Hall; 75, Mrs J. S. Hall; 76, Mrs J. S. Hall; 77, Mrs J. S. Hall; 78, Mrs J. S. Hall; 79, Mrs J. S. Hall; 80, Mrs J. S. Hall; 81, Mrs J. S. Hall; 82, Mrs J. S. Hall; 83, Mrs J. S. Hall; 84, Mrs J. S. Hall; 85, Mrs J. S. Hall; 86, Mrs J. S. Hall; 87, Mrs J. S. Hall; 88, Mrs J. S. Hall; 89, Mrs J. S. Hall; 90, Mrs J. S. Hall; 91, Mrs J. S. Hall; 92, Mrs J. S. Hall; 93, Mrs J. S. Hall; 94, Mrs J. S. Hall; 95, Mrs J. S. Hall; 96, Mrs J. S. Hall; 97, Mrs J. S. Hall; 98, Mrs J. S. Hall; 99, Mrs J. S. Hall; 100, Mrs J. S. Hall.

B. & F. HIRST were the winners of the best fish in the show award,

the C. & K. Geary trophy and the Ray Mayer trophy at the first Open Show held by **HINCKLEY & DAS**. The best coldwater award and the Eddie Saint Shield was won by G & S; the best barb, and the Barry Sidwell trophy by Mr D. White; the best cichlid and the M. & R. Mustin Trophy by Mr M. Stringer; the best anabantid and the K. & J. Hill trophy by Mrs Mustin. The Society with the most entries was Nuneaton AS (The Multi-Broadcast Shield), and the Society with the most points was Bedworth AP (the Whithorn trophy). The Best Junior was Master Freeman (G. & B. Hartwell trophy). Mr J. Goodison was the exhibitor with the most points (Bernice Roberts trophy) and also the exhibitor with the most entries (Jack Roberts trophy). The remainder of the results are as follows:

London: 1, Mr Salisbury (Bedworth); 2, Mr I. Shipley (Hinckley); 1, Mr E. Baxter (Hinckley); Dunton & WCMME: 1 & 2, Mr D. Barnes (LPC); 2, G & S (Northants); Staines Aquatics: 1, Mr Thomas (Lower Gornall); 2, B. & A. Faulstich (Dunston); 3, Mr J. Goodison (Wombourne, see Anabantid); 1, Mrs Mustin (Hinckley); 2, Mr Hart (Hinckley); 3, Mr Salisbury (Bedworth), see Tropical; 1, Mr C. Parris (Leopoldsbrough); 2, A. & S. Jeffs (Nuneaton); 3, Mr Hemmer (Leicester FK); Podagrus single-tailed goldfish: 1, G. & S. (Northants); 2, A. & S. Jeffs; 3, Mr C. Mustin, Killesno; 1, B. & F. Hart (Coventry); 2, B. & A. Faulstich; 3, B. & S. Hall (Nuneaton), see Cichlid; 1, Mr Stringer (Nuneaton); 2, Mr K. Bates (Hinckley); 3, Mr S. Harvey (Hinckley); Cichlid: 1, Mr Thomas (Lower Gornall); 2, B. & S. Hall (Nuneaton); 3, G. & S. (Northants); Characins: 1, Mr J. Assott (Nuneaton); 2, Mr S. Hartwell (Hinckley); 3, G. & S. see Characins; 1, B. & F. Hart; 2, Mr D. Burnett (LPC); 3, J. & L. Smith (Ind. & Barbours); 1, G. & S. (Nuneaton); 2, Mr Taylor (Leopoldsbrough); 3, Mr Burnett, Canby; 1, Mr Lindsay; 2, Mr J. Goodison; 3, Mr J. Assott, see Catfish; 1, Mr T. Parry; 2, Mr Salisbury; 3, Mr Taylor. Egg-layer pairs: 1, A & S. Jeffs; 2, P. & A. Hart; 3, Mr J. Goodison, Gogger; 1, Mr S. Hartwell; 2, B. & A. Faulstich; 3, Mr Hill (Hinckley), see Barb; 1, Mr D. White; 2 & 3, K. & J. Bates, Small barbs; 1, Mr S. Mrs Lee (Bedworth); 2, Mr J. Assott; 3, B. & F. Hart, Junior egg trophy; 1 & 2, Master Freeman (LPC); 3, Mr C. Mustin, Livebearer pairs; 1, Mr William (Coventry); 2, Mr & Mrs Lee; 3, B. & F. Hart, Egg-layer heads; 1, Mr Salisbury; 2, Mr Freeman; 3, Mr Lindsay, Livebearer heads; 1 & 2, Mr J. Goodison; 3, J. & L. Smith, Podagrus single-tailed goldfish; 1, B. & R. Commander (Tarnworth Kille); 2 & 3, Mr R. Shakespear (Bedworth), see Livebearer; 1, Mr Salisbury; 2, Mr White; 3, Mr J. Assott.

THERE were 95 fishes hatched at **KEIGHLEY AS's** annual Members Show. Results were as follows:

Livebearer: 1, Mr Dabson; 2, Mrs Eason; 3, Mrs Hoop, Characins: 1 & 2, Mr D. Mosley; 3, Mr Hart, see Breeder; 1, Mrs Gair; 2, Mr J. Mosley; 3, Mr D. Mosley, see Barb; 1 & 2, Mrs Gair; 3, Mr J. Mosley, Barb; 1 & 2, Mr Hart; 3, Mr Dabson, Anabantid: 1, Mr J. Mosley; 2, Mr Dabson; 3, Mr Hoop, see; 1, Mr J. Mosley; 2, Mr J. Lydon, Junior: 1 & 2, Master Hillings-

worth; 2, Miss Sagar, Toothcarp: 1, Mrs Gair; 2 & 3, Mr J. Mosley, Coldwater: 1 & 2, Mr D. Mosley; 3, Mr Jones, Carp & minnow: 1, Mr Hart; 2, Mr Dabson; 3, Mrs Hoop, Catfish & loach: 1, Mr Price; 2, Mr J. Mosley; 3, Mr Jackson, Cichlid: 1, Mr Taylor; 2 & 3, Mr D. Mosley. Each first award winner received a challenge trophy and plaque; second, silver medals; third, bronze medals; each winner also was given a prize of food or equipment very kindly donated by manufacturers. Mrs G. Taylor deeded a coin, which was won by Mr D. Mosley. The fish were judged by Mr Cherry of Grassington. The best in show trophy was won by Mrs Gair, the best Junior trophy by Master Jones.

AT BUXTON & DAS's second Open Show the President's trophy was won by Mr L. Thoren for best fish in the show. Mr Thoren, from Northwich AS, also won the first award in the furnished aquaria class. Detailed results are:

Guppy: 1, 2 & 3, Mr M. Laycock (Sheffield); Mollie: 1 & 2, Mr J. S. Hall (Glossop); 3, J. & S. M. Bower (Sheffield); Platy: 1, Mr G. Nave (Top Ten); 2, Mr P. Spittalhouse (Worksop); 3, Mr & Mrs Conley (Doncaster); Swordtail: 1, Mr M. H. Marshall (Oldham); 2 & 3, Mr & Mrs Buchanan (Oldham); Small guppy: 1, Mr & Mrs Gair (Canby); 2, Mr J. S. Hall (Altrincham); 3, Mr & Mrs Stone (Glossop); Goldfish: 1, Mr & Mrs Bladen (Glossop); 2, Mr W. Day (North Staffs); 3, Mr J. S. Hall, Fishman; 1, Mr S. A. Holland (Sheffield); 2, Mr C. Spittalhouse; 3, Clark Buss (North Staffs); Large Characins: 1, Mr T. Smith (Glossop); 2, Mr D. Geron (Nelson); 3, Mr K. Ankers (North Staffs); Small Characins: 1, Mr & Mrs Williams (North Staffs); 2, Mr & Mrs Bladen (Glossop); 3, Mr E. Robinson (Four Star); Tropical freshwater: 1, Mr & Mrs Bachelor (Glossop); 2, Mr & Mrs Kibington (Doncaster); 3, Mr J. S. Hall. Tropical marine: 1, 2 & 3, Mr J. Ives (Sheffield); Corydoras: 1, Mr & Mrs Waring (Glossop); 2, Mr J. S. Hall; 3, Mr K. Breen (North Staffs); Loach: 1, Mr M. H. Marshall; 2, Mr & Mrs Bachelor; 3, Mr & Mrs Norris (Oldham); see; 1, Mr & Mrs Clapier (Doncaster); 2, Mr T. Smith; 3, Mr L. Kaye, Shiner; 1, Mr L. Thoren (Glossop); 2, Northwich; 3, Mr & Mrs Gair (Chesterfield); Breeder and team egg-layer: 1, Mr J. Lee; 2, Mr & Mrs Toomey (Sheffield); 3, Mr & Mrs Parkin (Ind.); Breeder and team livebearer: 1, Mr J. Ives (Glossop); 2, Mr & Mrs Toomey; 3, Mr & Mrs Dimes (Doncaster); Small barbs: 1, Mr & Mrs Jenks (Glossop); 2, Mr J. Gullane (Buxton); 3, Mr T. Smith (York); Large barbs: 1, Mr T. Smith; 2, Mr C. Goodman (Oldham); 3, Mr & Mrs Dimes (Doncaster); Angelfish: 1, Mr & Mrs Turner (Glossop); 2, Mrs Bree (Valley); Dwarf: 1, Mr L. Toomey; 2, Mr & Mrs Gair; 3, Mr R. Helmer (Derby Regent); see; 1 & 2, Mr J. Gullane (Buxton); 3, Mr & Mrs Gilling (Glossop); Killifish: 1, Mr & Mrs Lothman (DRA); 2, Mr & Mrs Bladen; 3, Mr J. Lee, Shark & lobster; 1, Mr J. Gullane (Glossop); 2, Mr J. S. Hall; 3, Mr B. Harlow (Derby Regent); Barbora, danio & white clouds: 1, Mr & Mrs Gilling; 2, Mr T. Smith; 3, Mr & Mrs Dimes, Fairy, Egg-layer: 1, Mr M. H. Marshall; 2, Mr & Mrs Bachelor; 3, Mr & Mrs Davison, Livebearer: 1, Mr J. Rowden (Glossop); 2, Mr G. Kaye, Common goldfish: 1, Mr & Mrs Bree (Valley); 2, Mr J. S. Hall (Glossop); 3, Mr J. S. Hall, Fancy goldfish: 1, Mr J. S. Hall (Glossop); 2, 2 & 3, Mr J. S. Hall (Glossop); 3, Mr J. S. Hall (Glossop); 1, Mr E. C. Harris (Nelson); 2, Clark Buss.

THE best fish in the show at the **THURROCK AS** annual Club Show was an angel fish belonging to Mr P. O'Bryan; the member with the highest number of points was also Mr P. O'Bryan and the best novice member was Mr H. Jason. The remainder of the results were as follows:

Ang: 1, Mr E. Appleford; 2, Mr P. O'Bryan; 3, Mr J. London; 2, Mr A. Rodden; 3, Mr J. London; 3, Mr P. O'Bryan; D: 1, Mr P. O'Bryan; 2, Mr R. Wright; 3, Mr P. Hinckley; E: 1, Mr J. Turner; 2, Mr R. Wright; 3, Mr P. O'Bryan; F: 1, Mr J. London; 2 & 3, Mr P. O'Bryan; G: 1 & 2, Mr R. Wright; 3, Mr K. Appleford; H: 1 & 2, Mr P. O'Bryan; 3, Mr J. London; M: 1, Mr J. Lloyd; 2, Mr D. Livermore; 3, Mr K. Appleford; N: 1 & 2, Mr P. O'Bryan; 3, Mr R. Wright; O: 1, Mr P. O'Bryan; 2, Mr J. London; Q: 1, Mr J. Furber; 2, Mr P. O'Bryan; 3, Mr K. Appleford; R: 1, 2 & 3, Mr P. O'Bryan; S: 1, Mr P. O'Bryan; 2, Mr K. Appleford; T: 1, Mr K. Appleford; 2, Mr R. Wright, as Coldwater; 1 & 2, Mr H. Jason; 3, Mr K. Appleford; X: 1, Mr H. Jason; 2, Mr P. O'Bryan; 3, Mr J. Furber; Y: 1, Mr P. O'Bryan; 2, Mr H. Jason; 3, Mr P. Hinckley.

MR G. E. HERRING of **SPASS** writes: 'The October meeting of SPASS took the form of a lively discussion centered mainly around the club's activities during the current year, spiced with a few suggestions for further activities for 1973. We had a very interesting visit to the Bristol AS Open Show in an organised party of 12, with one of our members driving the mini-bus. We thank the committee and members of Bristol for making us so welcome. It was suggested that we had a similar visit to the Manchester Open Show, but it had been left a little late to organise this efficiently so we have now made definite plans to make this journey next year. A Memorial Trophy was suggested for Mr R. Dudley and this was unanimously passed with plans to go ahead for this trophy to be awarded to the Novices Class, a section new to SPASS but very dear to Rob Dudley's keen interest in this section of the Club. Our next meeting will be held on the 19th December, 8.0 p.m. at St. Mark's Hall, Compton Road, S.W.19, where friends old and new will be made very welcome.'

THE highlight of **WEYMOUTH AS's** aquatic year was certainly their very successful open show. Entries were 50% up on last year and over a thousand people saw the displays and entries. There were 482 entries showing a total of 595 fishes—and with the fishes in the displays a grand total of 740 fishes were on show to the public. The highest entered class was the barbs with 32 entries; next came the Corydoras with 30,

Mr. Duff (SADD); 2, Mr & Mrs J. Gillen (Nansanton); Cichlid (acc. A): 1 & 2, Mr J. Goodman; 3, Mr & Mrs Green (Hinsley); Angelfish: 2, Mr E. Sladey (Coventry); 3, Mr R. Anders (N. Staffs.); 4, Mr T. Hughes (SASS); acc. Cichlid: 1, Mr R. Trippon (MTA); 2, Mr R. North (Pebble); 3, Mr E. Sherry; Betta (acc. A): 1, Mr & Mrs Hough (MTA); 2 & 3, Mr L. R. Grougou (N. Works.); acc. Betta: 4, Mr R. Harrell (Hinsley); 5, Mr D. White (Bedworth); 6, Mr T. Davis (MTA); Cichlid (acc. A): 1, Mr M. Bates (Hales); 2, Clarka Bros. (N. Staffs.); 3, Mr J. Goodson; acc. Cichlid: 4, Mr E. Pughy (Nansanton); 5, Mr A. Gregory (Hales); 6, Atwood and Williams (Babery); Lanchester: 1, G. & S. (Ind.); 2, Mr K. Thomas (Lans); 3, Clarka Bros. 1 & 2, Mr J. White (Bedworth); 2, 1, R. L. Smith (Ind.); Platy: 1, Mrs D. Crutchbank (Boling); 2, Mr & Mrs Hough; 3, Atwood & Williams; Mollus: 1 & 2, Mr P. Mize (Betchley); 3, G. & S. (Ind.); Guppy: 1, Mr J. Beard; 2 & 3, Mr & Mrs L. Brooks; acc. Lanchester: 1, Mr B. Hargreaves (Goodyrs Ind.); 2, Mr D. White (Bedworth); 3, Mr J. Goodman.

Pairs, Lanchester: 1, B. & F. Hunt (Coventry); 2 & 3, Mr & Mrs Lee (Bedworth); Eggheads: 1, Mr Whitfield (Babery); 2, G. & S. Noble (Chesham); 3, Mr & Mrs Brooks; Babery: 4, Mr Richardson (Loughborough); 5, Mr D. Barnett (Lancaster); 6, Mr & Mrs Cox (Nansanton); Tanager & WCHM: 1, 2 & 3, Mr E. Williams (Chesham); Killies: 1, Mr R. Hughes (Barn); 2, Mr & Mrs S. Hall (Nansanton); 3, B. & F. Hunt (Coventry); acc. Tropical: 1, Mr C. Kubbens (Tarnworth AS); 2, Mr & Mrs A. Jeffs (Nansanton); 3, Mr R. Goodson (Buckampton).

Janus, Eggheads: 1, Master Anders (N. Staffs.); 2, Master C. Peat (Bedworth); 3, Mr G. C. Brookhouse (Lower Gornal); Lanchester: 1, Miss J. Skelton (Babery); 2, Master C. Peat (Bedworth); 3, Adrian Berry (Nansanton); Breeder, Eggheads: 1, Mr R. Trippon; 2, Mr & Mrs Eason (Lancaster FK); 3, Mr B. Hargreaves; Lanchester: 1, Mr D. White (Bedworth); 2, B. & F. Hunt; 3, Mr M. Hughes; 4, Fazer; 1 & 2, Mrs C. Beard (SADD); 5, Miss S. Barwell (Hinsley); Pedigree single (all goldfish): 1, Mr B. Scully (Bedworth); 2, Mr D. Eastwood (Coventry); 3, Mr J. Watts (Coventry); Pedigree (two colour goldfish): 1, Mr & Mrs Balcombe (Bedworth); 2, Mr & Mrs A. Jeffs; 3, B. & F. Hunt; 4, Mr & Mrs Kille; acc. Goldfish: 1, Mr R. Shakespear (Bedworth); 2, G. & S. (Ind.); 3, Skelton and Meyer (Atherston); Ponds and trees fish: 1, Mr J. Salisbury (Bedworth); 2, Skelton & Meyer (Atherston); 3, Clarka Bros. (N. Staffs.); Furnished (acc.): 1, Mr D. White (Bedworth); 2, Mr & Mrs G. Ward (Nansanton); 3, Mrs Cook (Nansanton).

BETHNAL GREEN AS held a very successful Open Show this year. A film by Jacques Cousteau was shown in the afternoon and was well attended and enjoyed. FRAS judges were Mr E. Nicoll, Mr K. Nutt, Mr H. Towell, Mr R. Baker, Mr P. Ginger and Mr R. Eason. The inter-club trophy was won by Southern, Leigh & DAS. Best fish in the show was a *Tilapia mariae* owned by Mr J. Batta of Ealing AS. FRAS Championship Trophy class O (male guppy) was won by Mr A. P. Taylor of Badbury AS. Detailed results are as follows:

As: 1 & 2, United AS; 3, Bethnal Green AS; B: 1, Mrs B. Coyle; 2, Mr D. Fussell; 3, Mr S. Mason; C: 1 & 2, Mr J. E. Connolly; 3, Mrs S. Hodges; Car: 1, Mrs M. Netherell; 2, Mr J. H. Jackson; 3, Mr D.

RHONDDA AS has been invited to run the 2nd National Welsh Open Show for 1973, and arrangements are well under way. Success or failure, however, will depend on the support received from other societies and they are sure that this will be forthcoming. For the benefit of exhibitors the venue has been changed to The Central Hall, Tonypandy, Rhondda, where car parking facilities are excellent. The Show will be held on 22nd-24th May and further details may be obtained from their secretary, Mr M. Williams, 122 Top Trebanog, Trebanog, Rhondda, Glamorgan.

Adams D: 1, Mr J. Batta; 2, Mr K. Adams; 3, Mr D. Bewick (B); 4, Mr B. Fussell; 5, Mr S. Mason; Mr A. J. Day; E: 1, Mrs S. Hodges; 2, Mr P. Coyle; 3, Mr R. Hall; R: 1, Mr F. Gardner; 2, Mr R. A. Ott; 3, Mr A. F. Taylor; K: 1, Mr J. Mann; 2, Mr J. Batta; 3, Mr D. Adams; P: 1, Mr E. J. Harley; 2, Mr K. Apperard; 3, Mr R. Cooper; G: 1, Mrs P. Lambourne; 2, Mr B. Wright; 3, Mr D. Lambourne; H: 2, Mrs M. Netherell; 2, Mr W. Sutton; 3, Mr J. Connolly; F: 1, Mr J. Hunt; 2, Mr K. Mason; 3, Mr K. Adams; K: 1, Mr D. C. M. Durrant; 2, Mr J. Loomis; 3, Mr F. Gardner; L: 1, Mr J. Mann; 2, Mr P. Atwood; 3, Mr J. Batta; M: 1 & 2, Mrs S. Hodges; 3, Mr D. Bewick; N: 2, Mr J. Batta; 3, Mrs P. Lambourne; 3, Mr D. Adams; O: 1, Mr A. P. Coyle; 2 & 3, Mr T. Crutchbank; P: 1, Mr A. F. Taylor; 2, Mr R. A. Ott; 3, Mr & Mrs Bhatnag; Q: 1, Mr P. Coyle; 2, Mr S. Mason; 3, Mr K. Adams; R: 1, Mr J. Batta; 2, Mrs D. Crutchbank; 3, Mr C. Wood; S: 1 & 2, Mrs M. Netherell; 3, Mr R. Newman; T: 1, Mrs B. Cowell; 2, Mr P. Coyle; 3, Mrs D. Crutchbank; U: 1, Mr K. Adams; 2 & 3, Mrs S. Hodges; V: 1, Mr K. Adams; W: 1, 2 & 3, Mrs S. Hodges; X: 1-3, Mr P. Newman; 4, Mr D. Lambourne; 5, Mr A. J. Day; X-1: 1, Mr T. Gillmore; 2, Mr A. J. Day; 3, Mr P. W. Castle; X-2: 1, Mrs S. Hodges; 2, Mr R. Newman; 3, Mr D. C. M. Durrant; Y: 1, Mrs T. Hodges; 2, Mrs R. Coyle; 3, Master S. Adams.

FOLLOWING on Belle Vue and the more recent successful Society stand at The Aquarium Show in London, the **BRITISH KOI KEEPERS SOCIETY** now has 220 members nationwide. Fifty of these members at the autumn meeting held at The Aquarium Show greatly enjoyed the talk by guest speaker Mr Colin Roe, a vice-president of the Society, on keeping and breeding koi, and the lively question-and-answer session that followed. In recent newsletters the BKKS has included several reports of successful koi spawnings by non-professional members and the interest in koi-keeping grows tremendously. For details of membership please write (s.a.e. please) to Mrs H. M. Allen, 1 Anthony Close, Peterborough, PE1 3NU. The Society's new treasurer is Mr Malcolm Waumsley.

THE prizes at the annual Autumn Open Show of the EDMONTON

SECTION OF THE FANCY GUPPY ASSOCIATION, held at the Royal British Legion Hall, Holtwhites Hill, Enfield, Middlesex, were a very pleasant change from the usual run of plaques, ashtrays etc. For each of the Standard classes there was a Tom Tiffany painting of a guppy to the correct Standard outline and for the breeders classes there were paintings of a pair of Standard fish. These paintings, which are much sought after by guppy breeders throughout the country, are painted by Mr Tom Tiffany, one of the section members who paints as a hobby. The afternoon was a very good turnout of members of the FGA from all over the country and also some visitors from outside the guppy fraternity, resulting in a total of 167 entries or 326 guppies in all. Amongst the entries were quite a few albino guppies; considering the difficulties in breeding and raising these to acceptable standards it must have been very rewarding to see over one-sixth of the total entry in this particular strain. Don and Babs Phillimore were once again well to the fore in taking the major awards for best in show, best breeders and best female. The best male award went to Mr Ken Lee, the section treasurer. Whilst the guppies were judged Mr Ken Lee gave an illustrated talk on the layout and running of fish houses of different members throughout the country. Also included were some excellent coloured slides of some of the guppies which were on show at last year's International Show. Anyone interested in the breeding and keeping of guppies is cordially invited to attend meetings on the first Sunday of every month at the Royal British Legion Hall, Holtwhites Hill, Enfield, Middlesex, or to contact Mr Don Phillimore, 103 Wilbury Way, Edmonton, N18 1BN, telephone: 01-853 3512. Don and Babs Phillimore won best in show, breeders males (Aquarist Pin), best breeders, breeders males (rose bowl) and best female, scalloped tail (rose bowl). Mr Ken Lee won best male, lyretail (rose bowl).

The winners of the various classes are as follows: Delta: Mr D. Barker (Radlett); frontal: Mr M. Delapais (Birmingham); long dorsal veil: Mr T. Manning (Edmonton); short dorsal veil: Mr & Mrs Brock (South London); original veil: Mr T. Manning (Atherton); Mr M. Delapais; color male: Mr G. Fletcher (Birmingham); green: Mr K. Lee (Edmonton); ruffled scale: Mr D. Hambrook (Edmonton); spined: Mr G. Fletcher; Topwood: Mr D. O'Brien (Birmingham); bottomwood: Mr R. Harper (Radlett); doublewood: Mr D. Hambrook; colour scale: Mr & Mrs Brock; India scale: Mrs E. Smith; superior Alan Fowler & Henry Vivaldi (South London); scallop: Don & Babs Phillimore; wedgetail: Mr T. Manning; metropolitane: Mr M.

Delongpelle; natural tail female: Mr A. Jones (Luton); color female: Mr G. Goodall (Bradford); color female: Mr D. Beacham (Birmingham); ladies female: Mrs E. Smith; junior female: Master P. Harper (Radlett); breeders female and breeders male: Don & Babs Pullmore; breeders matched pair: Mr T. Manning; junior breeders and advanced master breeders: Mr G. Goodall; ladies breeders: Mrs E. Smith.

WHEN ILFORD & DA & PS held their annual all-classes table show at Fulwell Cross Library, a large number of visitors and members of the public made their way into the Library halls, where, apart from the large entry of fishes, were displays of flowers from the London Borough of Redbridge Parks Department, and a display of reptiles that included an alligator of 12 months, a tegu lizard and a variety of boa constrictors and pythons exhibited by a member of the Society. Taking place were raffles and guessing games organised by Mrs and Miss Berger. In all, a total in excess of 150 exhibits were on show and Mr Baker commented on the good all-round standard of the fishes shown.

Results. Individual furnished aquaria: 1, Mr D. Seaman; 2, Mr J. Hartman; 3, Mr H. Berger, a.v. Barb; 1, Mr W. Rowe (bleeding-heart tiger); 2, Mr B. Barber (guppy barb); 3, Mr J. Frostick (red barb); a.v. Characin; 1, Mr L. Smith (trout); 2, Mr J. Hartman (guppy); 3, Mr J. Rendal (Labeo variatus); a.v. Cichlid; 1, Mr P. Wootle (L. sumatrana); 2, Mr W. Rowe (male fighter); 2 & 3, Mr M. Shadrack (zebra guppies, spot gourami); a.v. Tropical cichlid; 1, Mr B. Barber (Pterapogon); 2, Mr J. Frostick (Betta cat); 3, Mr J. Hartman (two fish sp.); a.v. Rainbow; 1, Mr J. Rendal (P. caudimaculatus); 2 & 3, Mr C. Hackett (Charlequin); White Cloud Mountain minnow & daisy; 1, 2 & 3, Mr J. Frostick (panda danio, pearl danio); Loach; 1, Mr D. Seaman (dwarf loach); 2, Mr R. Bath (Betta smaragdina); 3, Mr W. Rowe (Betta smaragdina); Labo; 1, Mr P. Wootle (black shark); 2, Mr W. Rowe (red-tail black shark); 3, Mr J. Hartman (red-tail black shark); Breeders (Brederer); 1, Mr F. Hartman (female guppy); 2, Mr G. Irish (velvetia male); 3, Mr D. Seaman (black swordtail); Breeders egg-layers; 1 & 2, Mr J. Rendal (ovoviviparous cichlid ray barb); 3, Mr H. Berger (Orbita shubunkin).

a.v. Mollie; 1, Mr J. Frostick (speckled mollie); 2 & 3, Mr J. Hartman (african mollie); a.v. Swordtail; 1, Mr M. Shadrack (Betta sword); 2, Mr J. Frostick (black sword); 3, Mr W. Rowe (black sword); a.v. Platy; 1, Mr J. Frostick (platy); 2, Mr W. Rowe (blue and marigold platy); 3, Mr M. Shadrack (red wag platy); a.v. Guppy (male); 1 & 2, Mr F. Hartman (delusional guppy, color guppy); 3, Mr W. Rowe (red-tail guppy); a.v. Guppy (female); 1, Mr M. Shadrack (1); Mr M. Knott; 2, Mr A. Glascock; a.v. single-tail goldfish; 1, Mrs C. Jones (common goldfish); 2, Mr C. Hackett (common goldfish); 3, Mr H. Berger (Brazil shubunkin); a.v. Tiltail goldfish; 1, 2 & 3, Mr H. Berger (red cap oranda, colorail, fantail); a.v.v. Colibri fish; 1 & 2, Mr W. Rowe (Japanese carp, green tinchi); a.v.v. Tropical fish; 1, Mr W. Rowe (Corydoras); 2 & 3, Mrs P. Rendal (cat, blue lioness); a.v. Tropical plant; 1, Mr M. Shadrack (Hydrophilus); 2 & 3, Mr F. Hartman (Labeo, Calomus); a.v. Colibri plant; 1, Mr M. Knott (horvoti); 2 & 3, Mr H. Berger (Myriophyllum, Elodea

crisp). The best egg-layer in the show was a rousseau entered by Mr J. Smith, his only entry in the fish sector. The best livebearer in the show was a speckled mollie entered by Miss J. Frostick. The most successful entrant in the show was Mr W. Rowe, with 17 awards.

WHILE the judging was in progress at the MANCHESTER SECTION of the FANCY GUPPY ASSOCIATION Open Show the members present, who had travelled from all over the country, were given a very interesting slide show by Mr Alan Charlton, and the children were entertained by a competition devised by Mrs Ann Charlton which kept them all quite busy. There were 166 entries and the bench with a total of 229 fish.

Results were: Juba; 1, Mr J. Hesketh (74); 2, Mr H. M. Delongpelle (74); 3, Mr J. Peck (73). Long dorsal veiled; 1 & 2, Mr A. Charlton (78, 74); 3, Mr J. Peck (73). Short dorsal veiled; 1, Mrs J. Croft (80); 2, Mr J. Hesketh (73); 3, Mr H. Baldwin (74). Fantail; 1, Mr J. Peck (73); 2, Mr H. Baldwin (73); 3, Mr M. H. Delongpelle (72). Topstand; 1 & 2, Mr A. Charlton (73, 73); Bottomstand; 1, Mrs J. Croft (74); 2, Mr T. Hallett (71). Doublestand; 1 & 2, Mr M. H. Delongpelle (80, 80). Colour male; 1, Mr D. Glen (77). Original veiled; 1, Mrs J. Croft (80). Fantail; 1, Mr A. Charlton (73); 2, Mr J. Peck (74). Color male; 1, Mr & Mrs Warburton (74); 2, Mr D. Glen (73). Dorsal; 1, Mr T. Hallett (73); 2, Mr M. H. Delongpelle (73). Scarftail; 1 & 2, Mr J. Hesketh (78, 66). Spurred; 1, Mr & Mrs Swindley (73). Superbia; 1, Mr J. Peck (72); 2, Mrs C. Peck (73); 3, Mrs J. Croft (73). Wedge-tail; 1 & 2, Mr D. R. Beacham (74, 73); 3, Mrs G. Peck (66). Natural female; 1, Mr D. Glen (74); 2, Mr & Mrs Swindley (72); 3, Mr & Mrs Lowe (70). Color female; Mr J. Hesketh (73). Rosetail female; 1, Mr G. Swindley (70). Colour female; 1, Mr D. R. Beacham (70); 2, Mr J. Hesketh (71). Rosetail, male; 1, Mr T. Hallett (74). Breeders female; 1 & 2, Mr M. H. Delongpelle (78, 73); 3, Mr R. Young (74). Matched pair; 1, Mr R. Young (71); 2, Mrs P. Young (70). Master breeders; 1, Mr R. Young (74). Advanced master breeders; 1, Mr M. H. Delongpelle (78). Ladies class; 1, Miss L. Pool (66). Junior class; 1, Master C. M. Warburton (73); 2, Master R. Nicholson (66). Best in Show and Best breeders: Mr M. H. Delongpelle (breeder female). Best male and Best female, Mr J. Peck (fantail and superbia).

The Manchester Section also represented the FGA this year at Belle Vue, winning both the breeders and pairs guppies and staffing the FGA stand where members were kept very busy answering various questions and enquiries about the keeping, breeding and exhibiting of guppies, including one from a visitor from the USA. Of the varieties of guppy on show, the so-called short-tail varieties—the swordtails,

AN interesting development has been the combined show, where two clubs have joined forces. This year Bracknell AS, Didcot AS and Reading of D&S are pooling resources to mount a bigger and better show together (8th September).

coferials, pins and spears, etc.—seemed to draw as much attention as the broadtails. Some new members were enrolled. Meetings are on the first Sunday of month at the Long-sight Hotel, rear entrance to Belle Vue, Manchester, 2.30 p.m., and visitors are most welcome.

MR CLIFF HARRISON reports: October saw the 26th Open Show of the EAST LONDON A & PS held at Barking, Essex. Net results—just 185 entries—however, do not be tempted to judge on numbers alone, for the effort involved on the part of the competitors probably exceeded that for any other society show in the country. Each year the Association concentrates on the most challenging and often most poorly supported in the book—namely breeders' teams and furnished aquaria—and builds them into an attractive display for the public. The furnished aquaria, by skilful use of rockwork, bark and wood to contrast with the bright greens of the plants, formed a particularly impressive advertisement for the hobby. The breeders' teams, each comprising four matched fish bred and raised by the competitor, tended to reflect the strengths and weaknesses found in all competitive showing now, with the rather poor quality of the 'cultivated' livebearers offset by the appearance of some of the more difficult egg-layers, such as *Hoplosternon* and *Callichthys*. Nowadays, with plentiful supplies of inexpensive imported fishes on the market, it is a welcome surprise to find a body with aims as 'old-fashioned' as those of the EAST LONDON ASSOCIATION. Equally welcome, as Mr Cyril Brown pointed out, was the old-fashioned hospitality that the Association extended to him and his fellow judges each year after the completion of their duties.

Results were as follows: A4; 1, Danson & DAS (74); 2, Leptostoma DAS (71); 3, E.L.A. & FA (71). A5; 1, Mr A. Field (72); 2, Mr N. Burger (71); 3, Mr G. Green (70). A6; 1, Mr P. Harris (74); 2, Mr L. Baker (70); 3, Mr K. Wragg (66). Xa; 1, Mr K. Wragg (70); 2, Mr B. Priest (70); 3, Mr B. Boshoff (71). A8; 1, Mr J. Ross (61); 2, Mr A. Bennett (60); 3, Mr P. Harris (72). XaB; 1, Mr B. Appert (72); 2, Mr K. Wragg (70); 3, Mr I. Ross (74). A9; 1 & 2, Mr B. Wragg (70, 70); 3, Mr J. Ross (70). XaC; 1, Mr W. Newman (68); 2 & 3, Mr A. Field (72), 71). XaDa; 1 & 2, Mr F. Vicker (70, 70); 3, Mr P. Harris (74). XaE; 1, Mr M. Pearson (74); 2, Mr R. Wragg (72); 3, Mr Wain (77). XaF; 1, Mr P. Harris (73); 2, Mr L. Baker (74); 3, Mr W. Corby (74). XaG; 1, Mr A. Pither (72); 2, Mr W. Corby (70); 3, Mr A. Pither (74). Xa; 1, Mr R. Wragg (63); 2, Mr P. Harris (62); 3, Mr P. Lambourne (61). Xb; 1, Mr H. Wain (74); 2, Mr P. Gardner (71); 3, Mr K. Wragg (74). XcU; 1, Mr H. Wain (66); 2, Mr W. Corby (66); 3, Mr H. Burger (65). XcV; 1, 2 & 3, Mr J. Lindo (75, 73 and 74). XcVb; 1, 2 & 3, Mr J. Lindo (61, 48, 44).

In Brief . . .

... **THE BRISTOL AS** annual trophy for the highest number of points gained at table shows was won by Miss A. H. Morgan with Mr D. Saphier, Mr G. Bell and Mr J. Phillips as runners up. Miss O. Lee showed members films she had taken on holidays at Niagara and Bavaria but it was her shots of the white tigers, taken at the Bristol Zoo, that really stole the show.

... **THE BRITISH MARINE AQUARISTS ASSOCIATION** report a dramatic increase in the number of applications for details and membership forms during the last 3 months. The most successful event of the year was the Association's stand at The Aquarium Show '72, when 36 new members were gained. Particular thanks are recorded to Mr Lewis Doubleday, who master-minded the stand, to president Mr Graham Cox who provided equipment, fish etc. and to Mr Bruce Wilkinson, Mr Geoff Curtis and Mr B. Fleetwood. The members of the South-Western Group have drawn up detailed marine standards, which will be published one or two at a time in the Association's bulletin 'Marineus'. The Association is also in the process of establishing correspondence with authorities in other parts of the world. Happy and Prosperous New Year wishes to all BMAA members.

... **DORCHESTER & DAS**, 1 year old, is a thriving club with growing membership. Recently members heard a most interesting and learned talk on bow animals are given their scientific names by Mr Gledhill of the Freshwater Biological Association River Laboratory.

... **BRIGHTON & SOUTHERN AS** very much enjoyed a talk by Mr Fagan (BKA) on fish breeding, illustrated with samples of his own breeding stock. A bring-and-buy sale (for fish) was also a great success. The Society's annual buffet dance is being held on 20th January and tickets are available from Mr C. P. Corbin, 80 Marlborough Drive, Burgess Hill, Sussex.

... **TOWARDS** the end of last year **COVENTRY POOL & AS** members were fortunate to hear a most informative talk by Dr Hawcroft on simple genetics and on scientific names. At the table show at this meeting Mr D. Easingwood was particularly successful with first, second and third for pedigree raintail goldfish and with a third for single-tail goldfish.

... **TYNESIDE MARINE AQUARISTS** hold meetings on the last Wednesday of each month and all members receive a monthly newsletter. Prospective members should contact the secretary, Mr G. D. Brewis, 79 Newton Road, Newcastle-upon-Tyne, NE7 7HQ.

... **FREELANCE AS** recently held a cichlid table show. Judge Mr K. Nutt awarded first, large cichlids, to Mr P. Elson (2, Master D. Elson); 3, Mrs S. Elson) and first and third, dwarfs, to Mr R. Burton (2, Mr A. Lupton).

... **SWILLINGTON AS** have enjoyed a very interesting lecture by Mr E. Herringway on keeping and breeding Malagascas rainbow and emperor tetras.

... **CLAPHAM AS** have held their first closed show. The attendance was good for a growing club, with 100 fish benched. Judges Mr H. Towell and Mr M. Carter, assisted by Mr T. Cruickshank, complimented members on the quality of the fish and on organisation, presentation and punctuality. Trophies were all made by treasurer Mr Mick Wright. The best fish in show was a *Mylepois arnoldi* owned by Mrs L. Read.

... **RHONDDA AS** gain strength all the time. At the November meeting 40 members were present to see the ladies and juniors team soundly beat the adult section. Forty fish were entered in the table show and judged by Mr Jim Edwards and his son John. The Society are booked for inter-club meetings on 16th January with Swansea and 13th February with Llanwit Major. Members are well prepared to travel and look forward to the new year's battles on the circuit.

... **SUFFOLK A & PA** table show results for the catfish class were: 1, Mr Turner; 2, Mrs Woollard; 3, Mr Howard; and for a.o.v.: 1, Mr Howard; 2, Mr Auffer; 3, Mr Fenton.

... **KEIGHLEY AS** members enjoyed a slide show on marine animals and on furnished aquaria at the end of the year. Mr D. Mosley won the table show classes for a.o.v. and novice a.o.v., Mr Hart the fish of the month class and Master Hollingworth the junior a.v.

... **NEW FOREST AS** members found the slide lecture presented by Mr G. Danby on freshwater fish parasites gruesome but vividly illustrative of the many different types of parasite. These included the lamprey, with its rostral sucking mouth and incredible number of teeth, that has caused so much damage to fish in North America. The fancy goldfish table show results were: 1, Mr R. Travers; 2 & 3, Mr R. Percy. Mr D. Lane won the first and second places in the Top Breeders trophy.

... **MR J. Wilson** of Edinburgh gave an interesting talk and slide show on Characins to **EAST KILBRIDE AC**. Winners of the table show classes were: Characina A: 1, Mr I. McLaren; 2, Mr J. Thomson; 3, Mr P. Clenaghan. B: 1, Mr J. Ewing (best fish in show); 2, Mr A. Hynds; 3, Mr J. Findlay. C: 1, Mr J. Thomson; 2, Mr J. Ewing; 3, Mrs Purcell. Juniors, Characina A: Master K. McKerran; 2, Master S. Trevelthick; 3, Master N. Murtagh. B: 1, Master A. Stuart; 2, Master T. South; 3, Master N. Murtagh. C: 1, Master H. Jones; 2, Master A. Stuart; 3, Master J. McLaughlin.

Dates for Your Diary

Note your special dates in the PFM Aquarist's Pocket Diary 1973, now available (40p post free from PFM, 554 Garraway Lane, London SW17 6NY).

14th January. **DERBY REGENT AQUARIST SEMINAR**. Playhouse Theatre, Derby. Speakers include Dr N. Carrington, Mr Graham Cox and Mr Roy Stopper. Tickets (50p) from Mr J. Bland, 1 Canalside Road, Duffield, Derby DE8 4HA; phone Derby 841232.

18th February. **ROTHERHAM & DAS 4th Open Show**. Brimsworth Manor School, Brimsworth Lane, Brimsworth. Details: Mrs J. Aitson, 6 Best Lashes Avenue, Rotherham, Yorks S60 4BL.

4th March. **KEIGHLEY AS** Open Show. Victoria Hall, Victoria Park, Lawkholme Lane, Keighley. Details: Mr J. Mosley, 11 Moorcroft Avenue, Oakworth, Keighley, Yorks. BD23 7NE.

17th March. **RIVERSIDE AS** Open Show. St. Saviour Church Hall, Cobbold Road, London, W.11. Schedules: Mr W. Newbery, 11 Greyhound Road, Fulham, S.W.6 (phone 81-383 0270).

19th March. **NELSON AS** Open Show. Civic Centre, Stanley Street, Nelson, Lancs.

10th March. **TYNE TEES AREA ASSOCIATION FBAS** Open Show. Langston Hall, Seaton Cross, Hartlepool, Co. Durham. Schedules available shortly.

1st April. **BOUGHTON & DAS** Open Show. Details later.

7th April. **THURROCK AS** Open Show. Arthur Street School, Arthur Street, Grays, Essex. Schedules: Mr A. L. Biddis, 2 Fern Place, Grays, Essex.

8th April. **WARRINGTON AS** Open Show (P.N.A.S. Rules). Venue later. Show secretary: Mr J. Higham, 42 Hood Lane, Salford, Warrington, Lancs; phone 36919.

14th April. **INDEPENDENT AS** Open Show. The Public Hall, Edlington, Tynes Hall, Upper Street, Edlington, London, N1.

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13th April. **COVENTRY POOL & AS** Open Show. Foleshill Community Centre, Foleshill Road (444), Coventry. Details: Mr S. Widdridge, 24 Ridgeway Avenue, Sycemole, Coventry or Mr D. J. Grant, 22 Carly Road, Cheltenham, Coventry.

14th April. **RUNNYMEDE AS** Open Show. Details later.

15th April. **SOUTHAMPTON AS** Open Show. Avenue Hall, Berthing up to 12 o'clock, 7 judges. Details: Mr P. J. Brown, 214 Spring Road, Sholing, Southampton.

16th May. **OSHAM AS** Open Show. Osham Recreation Hall, Rudge Street, Osham, Oldham, Lancs.

17th May. **GLOUCESTER AS** 2nd Open Show. Gloucester Education and Leisure Centre, Paternock Road, Gloucester. Schedules: Mr M. Brooks, 114 Melbourne Street, Gloucester from February on.

17th May. **CHYDON AS** Open Show.

17th May. **CORBY & DAS** Open Show. Corby Civic Centre, FRAS rules. Details later.

17th May. **DERBY REGENT AS** Open Show. Sherwood Foresters Recreation Centre (Newcastle Barracks), Ouseston Road (A5111) Derby. RAC signpost. Show secretary: Mr R. G. Harlow, 118 Mansfield Road, Derby; phone 44372.

17th-19th May. **SECOND NATIONAL WELSH** Open Show. The Central Hall, Treppany, Rhondda. Berthing 17th May 12.30 p.m. to 12.35 p.m., 18th May. Details: Mr M. Williams, 118 Top Treppany, Treppany, Rhondda, Glamorgan.

18th May. **SOUTHEND, LEIGH & DAS** Open Show. St Clements Hall, Nectroy Grove, Leigh-on-Sea. Schedules from Mr D. C. M. Durrant, 174 Trinity Road, Southend-on-Sea, Essex; phone Southend 619275.

18th May. **MIDDERSEY AS** Open Show. British Legion Hall, Cranwood Avenue, Liverpool. Details: Mr Brian Hall, 122A Southlands Way, Central Farm, Liverpool L4.

18th May. **YEOVIL & DAS** Open Show. The School Hall, Church Street, Martock, or Yeovil. Details later.

17th May. **WEYMOUTH AS** Open Show. Details later.

18th June. **BOURNEMOUTH AS** Open Show. Kinross Community Centre, Pelsham Park, Bournemouth. Details: Mr J. V. Jeffery, 29 Bessner Avenue, Southbourne, Bournemouth, BH5 4JP.

9th June. **VAUXHALL MOTORS AS** Open Show. Details: Mr A. Philip, 15 Hollybush Road, Luton, Beds.

9th June. **LLANTWIT MAJOR AS** Open Show. Show secretary: Mr J. Edwards, Glanfon Mill Park, Llanidloes, Cwmbridge, Glam.

12th June. **GEN FOND & AS** Open Show. GEN Customs, Salisbury Street, Darlington. Staffs. Details: Mr Ken Bowley, 125 Wolvathamption Street, Darlington, Staffs.

18th June. **LINCOLN & DAS** Open Show. Details later.

17th June. **FREELANCE AS** Open Show. Anzelm Community Centre, Thurlow Street, London, S.E.17. Details: Mr J. Stamp, 74 Redmond House, Laith Street, Brough, S.E.1.

17th June. **SWILLINGTON AS** Open Show. John Semmens School, 66 Barwick Road, Leeds 14. Show secretary: Mr R. Stacey, 35 Goodwood Avenue, Kippax, or Leeds, Yorks.

17th June. **ALFRETON & DAS** Open Show. Adult Education Centre, Alfreton Hill, Alfreton. Details: Mr B. Hickling, Parkway, 21 Coppas Drive, Eastwood, NG16 5PA (phone: Langley Mill 2104).

14th July. **BASINGSTOKE & DAS** Open Show. Carriwell Hall, Basingstoke. Schedules: Mr R. Bach, 21 Finkerton Road, Basingstoke, Hants.

14th August. **NORTH STAFFS AS** Open Show. Details later.

8th September. **CAWTHORPE BRACKNELL AS, DIDCOT AS & READING & DAS** Open Show. White Road, Sharnfield Road, Reading. Details: Mr John Harvey, 4 Rickmans Close, Woodley, Berks. (phone: Reading 666971).

9th September. **NUNEATON AS** Open Show. Details later.

22nd September. **TORBAY AS** Open Show. Torquay Town Hall. Details to follow.

17th November. 1973 **HENDON CONGRESS** (provisional date).

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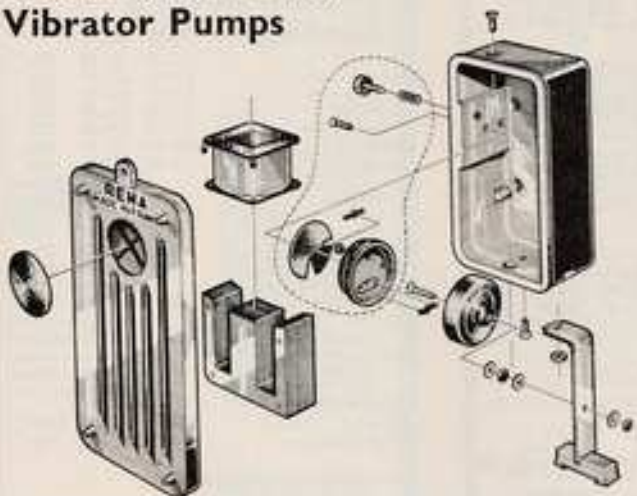
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