

AUGUST 1970

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# Pet Fish

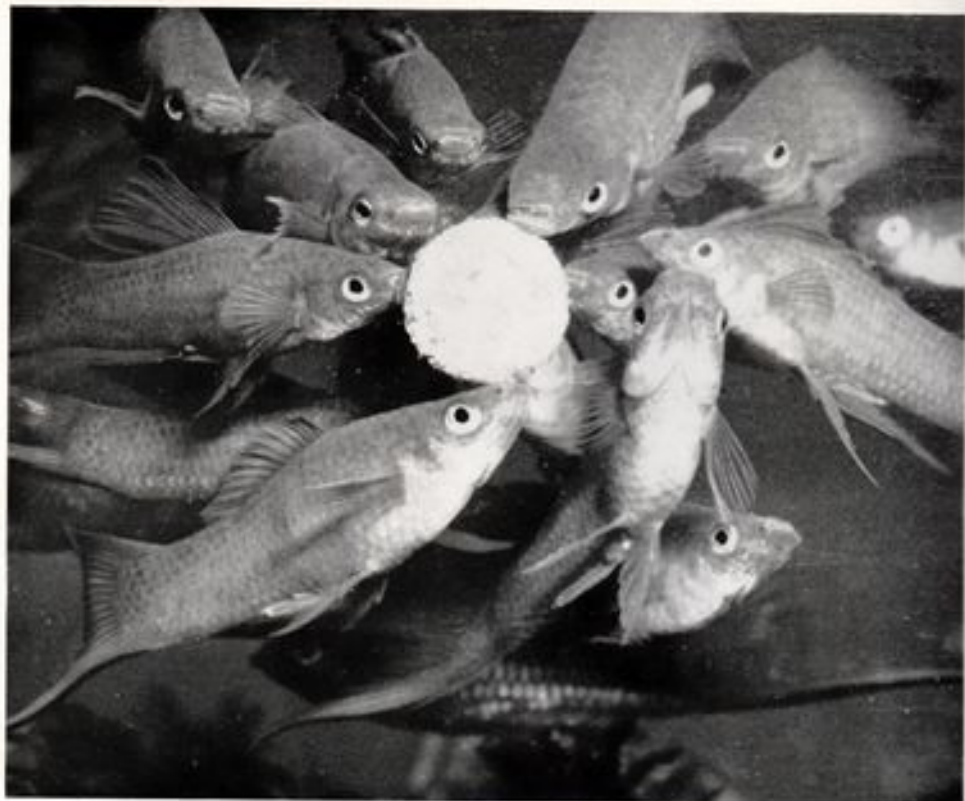
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**PetFish**

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Editor: Anthony Evans

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## Comments and Quotes

- Females when they're wanted
- Dumping in natural ponds

### Sex Change to Order

IN the Red Sea the coral fish *Anthias squamipinnis* is found around the coral masses in large groups, in which 80-90% are immature and adult females. The males are stationed along the coral, each in his own territory. If the females are isolated from the males in an aquarium an interesting result ensues, as shown by an experiment reported in NATURE by Dr Lev Fishelson of Tel-Aviv University.

He kept 20 female *Anthias* in a tank completely away from males. After 2 weeks one of these females had developed the typical colour pattern and behaviour of a male. When this 'male' was removed from the group another 'male' developed, and by continually removing such 'male' fish as they appeared Dr Fishelson eventually had 20 'males' developed from the original females. By putting a male in a tank of females the sex changes could be stopped; by taking out a male the changes in the females could be made to start again. In fact Dr Fishelson found that when a male fish could be seen by the females, even if it was not actually in the same tank, the sex changes in the females did not take place.

The deduction from these observations is that the state of having females as the preponderant sex in the natural populations is advantageous for the species—maximum numbers of eggs and young being produced, and the ability to produce males if the number of potential fathers starts to decrease ensures that the system does not fail. Exactly what sets off the sex reversal in a female when males are absent has yet to be determined.

Although reversal of sex is nothing new in the fish world, this reversal at times of male scarcity is something believed to be unique and, of course, only study in the aquarium could have established this.

### Protecting Britain's Ponds

A LIST of all the ponds in North Devon is being compiled by the Conservation Corps. Ponds are often filled in or neglected and the Corps, a group of young people working under the skilled supervision of the North Devon branch of the Devon Trust for Nature Conservation, is hoping to persuade owners to preserve ponds on their land.

One way of filling in a pond is to use it as a rubbish dump for old bedsteads, TV sets, refrigerators etc., and a new drive was launched recently to make Britain a pleasanter place for weekend relaxation. More and more people are apparently furtively dumping their rubbish in canals, rivers and ponds throughout the countryside and the organisers of the Keep Britain Tidy campaign have joined forces with the British Waterways Board in a campaign to persuade litter-droppers to mend their ways. According to the Press release on the campaign 'A team of attractive Litter Maidens will spend the rest of the summer swooping on litter blackspots throughout the country. They will wear only T-shirts carrying the slogan "Litter—Ugly, Dirty, Illegal" and they will pick up litter in public, moving right among people who are dropping it'.

When the stampede of aquarists carrying old bedsteads, TV sets, refrigerators etc., to their nearest pond has quietened down—we would seriously suggest that in this Nature Conservation Year aquarists' societies can play a part in such work when out on daphnia-collecting expeditions. If the pond you use has had a load of ironware dumped in it collect up some of the rubbish and dispose of it in the legitimate manner. This will ensure the future usefulness of your daphnia pond, so for this reason alone such an action is well worthwhile.



# LETTERS

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

### No Live Foods

I AM getting more and more concerned over the fact that, out of four aquatic dealers near my home, there appears to be an ever increasing lack of interest over providing live food for the fishkeeper. If one is interested in buying an expensive fish or equipment, then a great deal of help is forthcoming, but ask for a bag of daphnia and quite often there is a straight answer of 'none this week'. I was extremely annoyed to be told there was no daphnia, and when looking at the dealer's fish found the tanks full of the daphnia I had been told there was none of. Surely it is up to every dealer to provide a regular service of providing live food at a reasonable price for their customers.

It appears to me that there is an ever-increasing tendency for dealers to take the attitude that once the fish are out of their shop, then the customer must manage as best he can. I consider that the providing of live foods can be looked upon as an 'after sales' service, and any dealer who shows that he is more interested in selling expensive items rather than selling bob's worth of daphnia or tubifex will most certainly get no trade of mine. Perhaps someone will come up with some reason why he cannot provide live foods, but I can see no excuse for it at this time of the year, and would be very interested to hear what his reasons are.

Stevenson, Herts.

D. C. MANKELL

### Insect Diet

IN your article on 'Pond Life and Live Foods', which was basically very good, you made a slight error. This was that you stated that 'bloodworms (the larvae of *Chironomus tentans*) lay their eggs in a large mass formation...'. In fact, the larvae (bloodworms) hatch out from the eggs laid by adults. A larva is an immature form which metamorphoses within the pupal case to give the adult. As they are immature they have no fully formed gonads and so cannot lay eggs.

A letter on this page ('Fly Diet') told of an aquarist who collected green fly for his archer fish. This food is also relished by other species especially, in my experience, by guppies.

South Norwood, S.E.25

M. YATES

### Cryptocoryne Disease

I WAS extremely interested to read the letter from Mr J. Cauldwell (PFM, July) re *Cryptocoryne* disease. I had read the previous note from Mr Jim Kelly, whose observations I always read with great interest.

On the matter of the '*Cryptocoryne* disease', I would firstly hesitate in calling this a disease. I rather think that it is a complete breakdown in the plant due to the

so-called life cycle rhythm being not necessarily broken but put out of gear, particularly over a long period.

I have always maintained that this life cycle exists in plant life in the aquatic sense in the same way as the botanical sense, and the breakdown is most evident in plants of a weak stock. Stronger plants tend to combat the breakdown, otherwise all such plants would obviously suffer.

I feel that this might well bring forward a large amount of discussion and I would not be alone in expressing my thanks, if you would open your columns to such a discussion from your readers.

On a last point I would assure Mr Cauldwell that his fishes would not suffer if he found such a condition in his tanks, provided of course, that he maintains otherwise normal conditions.

Thank you also for giving us a magazine which is a delight to read.

Ruship, Middlesex

DR R. O. B. LIST

### Proud of it Now

I started the hobby as a sceptic,  
One must be reasonably sure  
Aquaria all were quite septic.  
And fish in the house seemed a bore!  
No space for a tank in the lounge,  
No plug for the power it would need.  
Some goldfish I suppose I could scrounge  
But they tell me they're a trouble to feed?  
Still, I started with a simple ten-gallon—  
No heater, aeration or lights.  
Despite all I said I had fallen;  
Though fallen perhaps to great heights!  
Then came that withering winter.  
It stiffened our fish with a bump;  
And as sore as a thumb with a splinter  
I had to buy heater and pump.  
We'd start with a tank of livebearers.  
Another to rear all their young;  
Two more for those tropical pairs  
And a fifth for a fighter called Chung.  
Community tanks are now sprouting  
Installed in the dining-room wall.  
And soon we've no reason for doubting  
We'll have fish displayed in the hall.  
What made us so enthusiastic,  
Both sceptical me and my femme.  
The change to our lives was quite drastic  
When we started to read PFM.  
Each month we look forward with pleasure  
To this PRACTICAL mag, showing how  
We can improve the hobby we treasure  
We're hooked and proud of it now.

Manchester

R 122

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## THE COLDWATER SCENE

# Which Fishes for the Garden Pool?

By BRIAN FURNER

It depends so much on one's aim in fish-keeping which hardy fishes one has in the garden pool. Most beginners in pool making and stocking start off with a few common goldfish. For some of us things stop there; others are bitten by the pet fish bug and a fish collection is built up, or a special interest taken in one sort of fish. This specialisation can lead to the breeding and development of a good strain and usually to showing.

Perhaps the first few goldfish seen in Britain were gold. Most of them are red these days. There are also red with white markings, yellow and silver. Small common goldfish are very cheap, at around 2s each. The black markings on young fish usually disappear within a year or so. Common goldfish thrive in suitable pools and come into breeding when about a year old. Young fish cannot be sexed but if one buys a half dozen there is every chance of there being both males and females. Although exceptionally large goldfish are to be seen in park lakes those in garden pools rarely exceed 9 in. including the tail.

Among fancy goldfish the comet variety, with its very large forked tail, is an attractive and hardy pool fish. Red is the more usual colour but silver and silver and red occur. Around 7 in. is a fair size for an adult comet. The fantail goldfish, with its egg-shaped body and large, double spreading caudal fin is quite hardy for garden pools in the south—as is the large-tailed, graceful nymph. In colder parts of the country there is always the danger of the flowing finnage becoming damaged in icy water and where fish of this sort are kept the pool should have a deep part of around 3 ft. All the nymphs I have seen were red, but fantails may be had in red and also in shubunkin colours and with the



Photo: W. J. HOWES

Carp make particularly good pond pets and the author finds that his mirror carp of the type shown here always attract visitors' attention

thin, transparent scales of the shubunkin. Fish with this kind of scaling are known as 'calico' fish. They are sometimes incorrectly called 'scaleless'.

Two shubunkin varieties are recognised in Britain—the London and the Bristol. London shubunkins resemble the common goldfish in body shape and finnage. Blue is the preferred predominant colour, mingled with other markings in brown, black, violet, yellow or red. Bristol shubunkins are similar in shape to comet goldfish but the tail of the Bristol 'shu' is broader and less sharply pointed. Here again, blue is the most desirable predominating colour. Shubunkins attain a length of around 7 in. and breed readily in a garden pool.

Apart from goldfish varieties there are several other fishes which merit consideration for the garden pool. The orfe comes in silver or

gold. Of the two, the golden orfe is the more colourful and this really is a gold-coloured fish. These herring-shaped fish spend a great deal of time at or near the surface so they are seen far more often than goldfish and shubunkins. Orfe grow rapidly and any black markings on young fish usually fade and disappear within a few years. It would be unwise, I think, to buy medium or large sized orfe. There is every chance that they would jump out of a garden pool. Small orfe do not do this.

With rudd, too, one has a choice of silver or gold. I have golden rudd and surely here again 'golden' is a misnomer. There is no gold colour at all. Instead, the body has a somewhat red tinge and the finnage is red. Rudd link up with orfe to form a small shoal. The rudd is the slowest growing pool fish I have come across.

## how? How can I repair plastic aquarium accessories?

**A** PART from flexible plastics used in the manufacture of air hose, the two common plastics we find in the hobby are the rigid tubes used for filter air-lifts, vacuum cleaners etc., and the sheet plastic from which filter boxes, breeding traps and tank dividers are made.

Most of the polystyrene sheeting can be repaired with one of the proprietary 'plastic' cements used by modellers. This can be obtained from most hobby suppliers in easy to use tubes. Be sure to replace the cap after use as this cement soon sets hard when exposed to the air. These solvents, called E.D.C. (ethylene dichloride) for short, temporarily dissolve the plastic, and weld the joint as it solidifies. Use sparingly and you won't have any toxicity problems in the aquaria.

Rigid filter tubes are often made from cellulose acetate and become pliable when heated. You can place the tube in almost boiling water to heat it but some tubes require greater heat; try revolving them slowly over a gas cooker jet. Take care when doing so that you don't soften the material too much; if it becomes too pliable tubes are liable to collapse.

Nail polish remover makes a good fixative for this type of plastic, especially when repairing loose air-lift tubes and tiny cracks. Larger cracks can be bound round with waterproof tape and painted over with gold size.

## Which Fishes for the Garden Pool?

(continued from preceding page)

The hi-goi or golden carp is another inexpensive fish often offered in pet shops. The hi-goi is yellow-gold in colour and all those I have seen had brownish-black markings, too. This fish is not as attractive as goldfish or orfe. From the hi-goi Japanese breeders have developed nishiki-koi. These carp have received a lot of publicity of late and just how colourful they can be may be gauged from the first-class colour illustrations in the *PETFISH MANUAL* entitled *KOI*. I have seen a few large, colourful and very expensive nishiki-koi but many smaller koi on offer are far less colourful than shubunkins.

Bright coloration of pool fishes is important for this allows them to be seen readily and such fishes are attractive. It is therefore strange (I think) that so many of my visitors are fascinated by my mirror carp. Slate blue is hardly attractive as a colour in fish. Possibly it is their size that attracts, and their habit of swimming up to the visitor with hope that food will be forthcoming.

Small mirror carp cost around 3s but I recommend them only for large pools. These greedy fish grow very quickly and I am getting down to constructing a special pool for mine. At the present my other pool fish obtain little of the food I put in the water. The mirror carp take almost all of it.

Among pool owners there are those who consider a couple of tench as being essential for the good work they do as scavengers. Others point out that as the goldfish is an excellent scavenger itself it is a waste of time and money investing in tench—a fish one seldom if ever sees because it lurks among aquatic plants way down in the water. My two green tench put in an appearance occasionally at feeding time. The three small golden tench that I put in the pool over a year ago have not been seen since.

All of these different fishes are members of the Cyprinidae family and live in harmony together. How many fishes to buy for stocking a new pool or adding to one which is

already established depends in part on the pool size. It is the total surface area of the pool which is used as a guide to safe stocking limits for the health of the fish: 1 in. of fish length (excluding the tail) to 24 sq. in. of water surface is often suggested as a maximum allowance but I think this would lead to over-stocking and to an unhealthy situation. For a pool measuring 6 ft. x 4 ft. I consider a dozen small (2-3 in.) fish sufficient. Not only will they grow but if they are goldfish varieties they will also breed.

August is really the latest month in the season for buying fishes for the garden pool. There is still time to acclimatise imported fishes to our climate before colder weather sets in. Pool fishes may be ordered from mail order firms but there is far more fun, particularly for young members of the family, to shop around at pet shops. Apart from tench, which hide in shop aquarium tanks, healthy fish are active, clear-eyed and with the dorsal fin erect—so reject any fish which is sluggish or has a dull appearance. Ensure, too, that you are not supplied with one or more fishes with scales missing or torn finnage. Above all inspect each fish before leaving the shop for white marks or a woolly growth on the fins or body. These are signs of fungus, which can pass so quickly from fish to fish. I invariably keep any newly bought fish in a quarantine tank for a fortnight before introducing the fish into my pools. During the quarantine period the fish are inspected now and then. By doing this I prevent any fishy disease from being transferred to my healthy stock.

If medium or large fishes are being placed in a newly made pool then a few weeks should have elapsed so that the aquatic plants may have settled down and made some new growth. If they have not, the fish may damage or eat them. But if one starts off with only 2-3 in. fishes these may be added to the pool immediately after planting, if one wishes.

Whether the fish are being introduced to a new or established pool or to quarantine quarters it pays to protect the fish from suffering shock due to differences in water temperatures. Most fish are sold in polythene bags. These may be floated in the pool or tank water for an hour before being opened to allow the fish to swim out.



# History of a Killifish

## *Roloffia calabarica*



Pair of *Roloffia calabarica* (maximum size 40 mm)

THIS beautiful fish was described in 1925 by Dr. Ahl as *Aphyosemion calabarica*. I kept and bred them before World War II, and for many years after I could not bear to part with my 'calabaricus', as German aquarists called them. Their exquisite colour and amiable behaviour make this species a most desirable aquarium fish. It is a bottom-spawner, and the fry hatch generally after 2 weeks. But occasionally one finds also a few eggs which show no sign of development after 2 weeks and the incubation of these eggs can take some months. These dry-season eggs enable the species to survive long periods of drought when their native waters are completely dried out.

In the current aquarium literature *calabaricus* does not exist any more. Colonel J. Scheel, the well-known author of comprehensive killifish publications, has relegated the *calabaricus* to being a synonym of *Roloffia liberiensis*. The latter fish was identified by Boulenger in 1908, from two female specimens which originated in Monrovia (Liberia), as *Haplochilus liberiensis*. Boulenger did not know the males of this new species.

In May, 1965 the world-renowned Danish zoologist Stenholt Clausen, who had spent many years in West Africa, sent one male and three females of an *Aphyosemion* species to Scheel, which had been caught in Monrovia. Unfortunately these fish were dead on arrival in Denmark. Scheel, who had taken over from

Clausen the preliminary scientific work (breeding, cross-breeding etc.), presumed this fish to be the aquarists' 'calabaricus'. At the same time he maintained that these fish were identical with *Aphyosemion liberiensis* and that for this reason one must recognise them as a synonym for *Aphyosemion liberiensis*. In his work TROPICAL OLD WORLD CYPRINODONTS,

By E. ROLOFF

which appeared at the beginning of 1967, Clausen listed *calabarica* among his newly established genus *Roloffia*. Clausen intimated that he could possibly share the opinion of Scheel when he remarked: 'I think that *A. calabaricum* is a synonym for *Haplo-*

*chilus liberiensis* Blgr. and *Roloffia liberiensis* (Blgr.)'.

In 1965 I noticed that Scheel repeatedly used, for his own publications, the material from Sierra Leone which I had sent to Scheel for use by Clausen for scientific studies, this being contrary to our mutual agreement. As a result of this I terminated my co-operation with Scheel. A year later the co-operation between Clausen and Scheel ceased.

In recent years it was necessary for me to study intensively the question whether *R. liberiensis* is actually identical with *R. calabarica*. I had found, in a part of Liberia bordering on Sierra Leone, a new *Roloffia* species, the description of which depended on the findings of this study. In my opinion it was possible that *Roloffia liberiensis* might also occur in the same locality. I was afraid that Scheel had been somewhat hasty in his identification of *R. liberiensis* and that a mistake could have occurred. My view was strengthened by the fact that the drawing accompanying Boulenger's description of a female *R. liberiensis* has no similarity to a *R. calabarica* female. To make quite sure, I studied and photographed type material of *R.*



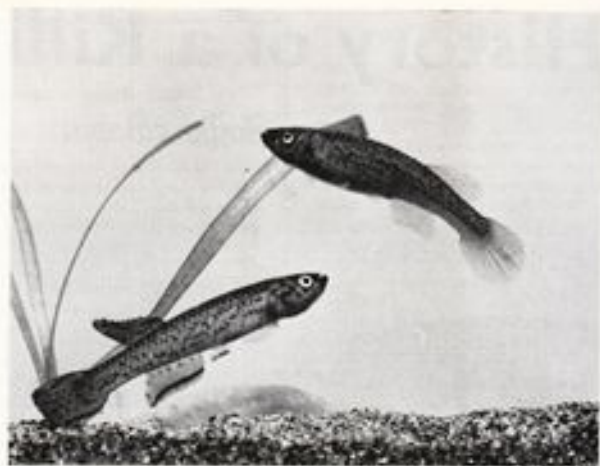
Preserved type specimen of *Roloffia liberiensis* (female) photographed at the British Museum (Natural History)

Photos: E. ROLOFF

*iberiensis* in the British Museum (Natural History), with the kind permission of Dr Chambers, whom I should like to thank again for his valuable help.

My visit to the British Museum in October, 1969 gave me the assurance that *R. calabarica* is not identical with *R. iberiensis*, but is a species in its own right. The accompanying photograph of *R. calabarica* shows that the female has the distinctive rivulus-type spot, whereas the photograph of one of the type species of *R. iberiensis* is without the marked spot.

While studying the type material I made an unexpected discovery. The small diagonal markings on the hind part, above the lateral line, of the *R. iberiensis* female agree with the markings on a female of a similar species of *Roloftia* which aquarists call '*Aphyosemion muelleri*', but which has not yet been scientifically identified. This species was imported by Herrn Müller, who caught them in a small forest stream near Totota in Liberia. Totota lies on the main road which leads from Monrovia through Kakata to the interior of the country, and is about 70 miles from Monrovia. It was on this same road, however, only about 20 miles from Monrovia, that Clausen caught the fish (mentioned above) which he sent to Scheel in 1965 and which Scheel took to be the calabaricus of the aquarists, and erroneously identified as *R. iberiensis*. Scheel, in his book *STULINS OF THE OLD WORLD* published in the U.S.A., stated that '*Aphyosemion muelleri*' belongs to the population of *R. bertholdi*. This, however, is a great



Pair of *Roloftia bertholdi* (natural size)

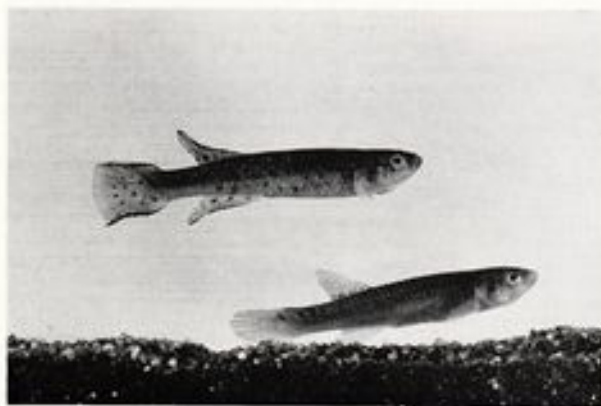


*Roloftia iberiensis*.

♀, 15 mm. ♂.

Above: Boulenger's drawing of *Roloftia iberiensis* (female)

Below: pair of '*Aphyosemion muelleri*' (maximum size 45 mm)



mistake, and the difference in the shape of the body, the form of the head and the caudal fin of the male is considerable. Also the female *R. bertholdi* has net-like markings. I am of the opinion that it is at present too soon to classify *A. muelleri* as *R. iberiensis*, although there are many points in favour of it. But we have to wait until further material is available from the surrounding districts of Monrovia before we come to a final conclusion.

On pages 364 and 365 of *STULINS OF THE OLD WORLD* Scheel shows two colour plates of males of *Roloftia* species as *R. rolofti*. These names, and the names of several *Epiplatys* species from Sierra Leone, are incorrect. Amongst the *Aphyosemion* species I think it is questionable to refer to Meinken's *multicolor* and *splendens* as synonymous with *A. bivittatus*. This can only be established by crossing the two species with each other and with *A. bivittatus*, and provided that the hybrids are not sterile, they should be bred for at least three generations. Alas! I cannot attempt these experiments at present as I am engaged in completing the cross-breeding of the fish which I brought from Sierra Leone. Neither can I count on the support of Clausen for some time to come as he unfortunately contracted two tropical diseases in West Africa and they are still affecting him very severely.



# GUPPY

## World

THE number of different types of guppies has been increasing faster than a field of rabbits and with the multiplicity of fin forms has come a subsequent increase in the number of classes available to the exhibitor at specialist shows.

Top honour must surely go to an American society, the Guppy Associates of St. Louis, who, at their May show went four better than the famous Heinz and tempted guppy breeders with no less than 61 separate classes for their fish.

A strange fact to European eyes is the New World propensity to group fish by colour as opposed to finnage shape used here. For example, the St. Louis show had eleven classes for the delta. The list read like some artist's palette: red, blue, green, black, yellow, gold, albino, multi, purple, half-black, snakeskin/cobra.

No wonder they regard us British as a sombre lot when we lump all these colours into one class!

If you live in Los Angeles, London, Manchester or Moscow, anywhere in fact remotely urbanised within easy reach of electricity, then it is a safe bet that if your leisure activity runs to fishkeeping, the pump you have working the air stones, filters and a thousand and one gadgets, is the reciprocating armature type working a rubber diaphragm.

Though inexpensive, these pumps will give years of service if you treat them properly.

Don't have a large output pump serving just a few outlets. If you have air to spare then incorporate a bleeder valve in the system; don't clamp air hoses too severely to cut down the flow. This only leads to

back pressure building up in the pump with the result that the rubber diaphragm is stretched and the output drops. Replacement rubbers are costly and in some older versions of pumps, almost impossible to obtain, so treat them right if you want to keep them at full production.

Not all cases of a drop in air output are caused by stretched diaphragms. Some makes of pumps

By PETER UNWIN

incorporate a felt pad over the air input. In constant use these become clogged with dust and debris. See that you examine these pads regularly and if badly soiled try washing them in a little warm water and detergent. Make sure the felt is thoroughly dry before putting it back in position.

Those readers who have tackled making their own food mixtures often found that when they mixed such ingredients as chopped heart with gelatin the mixture refused to solidify or gel.

The reason it didn't become firm was an enzyme interaction between the substances used, namely from the raw, minced heart.

The simple answer is to cook the heart (or other ingredients) first. Allow it to cool, then mix with the gelatin in the normal way. I can guarantee it will set as firm as the Rock of Gibraltar.

With more and more guppies from the Far East reaching the shops and the show bench, a story

about some recent imports wouldn't go amiss and just might alleviate a few fears if the same event happens to you?

Fish are often shipped in the minimum amount of water possible because air cargo is costed on weight. This may look fine on the balance sheet but doesn't help the recipient when it comes to acclimatising his new fish to local water conditions. The usual method is to dilute the original water gradually until the guppies are virtually enjoying a complete change of environment and have grown accustomed to the breeder's local supply.

This was done to some Singapore guppies but after about 12 hours the water turned a brown-red. The water was again changed and again the water turned red!

With very little of the Singapore water left after such changes it was assumed that the fish were extruding something that caused this condition—but what? After a fourth change the water at last remained colourless. We anxiously await the analyst's report, if only to refute one suggestion that the red water was a diabolical political move on the part of Chairman Mao, who had somehow got at the Singapore guppies. A cunning lot these Chinese!

And so the secret is out! The answer as to what causes 'egg-binding' in guppy females is not a lemon but alkaline water.

Who would have dreamt it in a month of Sundays? Now we all know the cause of this distressing condition (so often resulting in the demise of the female), what can we do to alleviate the binding?

One professional's solution was to place the female in a tank containing a few active males! When I questioned him on this, what to me seemed a drastic solution, and suggested that the ceaseless activity of the males in harrassing the female might aggravate her condition, he replied that his system worked! A

case of 'ours not to reason why' apparently?

• • •

In the whole wide world of fancy guppies we stand on the shores of an endless ocean of facts, most of which remains unknown to us. Despite an upsurge, a superficial gloss of technicalia, we still know little enough.

Take the question of the best brine mix to use when hatching shrimp (*Artemia salina*). Literally dozens of formulae have been offered yet it still boils down to trial and error. A mix that works in one situation doesn't seem to have any effect in another. That is why when asked this question I still recommend seawater. With no one in these shores living more than 30 miles

from the sea that isn't as hard as it first sounds.

One fact that does emerge from conversations with guppy folk, and one that has often occurred in my own set-up, is that on occasion shrimp hatching virtually ceases. Despite the use of the same brand of eggs, despite the use of systems that have worked well, we all seem to experience this non-productive period.

If this does happen to your mix take a tip and start afresh; you will only spoil a lot of good eggs if you continue using the odd mix.

• • •

Ever had the experience of visiting another guppy set-up and marvelling that the other fellow's tanks were full of perfect fish? Every tank in

that fish room was full of beautiful guppies. It made you want to tear down your own set-up and start again! 'How do they do it?' fills my postbag.

If you are a beginner then take heart, it is simple. The good breeder culls his stock vigorously; even if that odd male does look cute with that triple caudal, he has to go if he doesn't fit the bill.

Cull, cull, cull, should be the watchword of all would-be champions. And the funny thing is that provided that you are looking to the other wants of the guppies in your care—correct environment and good diet—the day will dawn when visitors to your set-up will want to go home and tear down theirs.

Yes, that tank full of exceptional fish aren't all the brood, but the end product of vigorous culling.

## Guppy Types No. 2: The Veiltail



Original veiltail



Long dorsal veiltail

IN June 1950 a triple set of circumstances sparked off the production of Britain's first broadtail standard, the veiltail. At a show in London, a tank full of guppies had been entered in the A.O.V. class and called scarftail (a then unknown name and standard). At the same time, Dr Weyrauch, from San Francisco, sent several pairs of similar shaped fish to a British breeder. Not to be outdone, yet another aquarist, newly domiciled in Australia, also sent some fish. All of these were distributed amongst the members of the Guppy Breeder's Society, who were delighted with the progeny these 'immigrants' gave birth to.

In 1951, they established these fish with a standard describing the caudal fin as being equal in length to the body and broad, the width increasing in a gradual curved sweep until the maximum width was

reached about one-third along its length. The end of the tail was required to be concave. The dorsal was broad based, extending up to, but not beyond, the caudal peduncle. What was to become the most popular of early male types had arrived.

Six years later, our guppy breeder from down under sent a variant on his first veils that caused quite a stir. Not only was this fish exhibiting blue, green and yellow in its fins, but it had a long, tapering dorsal. Promptly named the multi-colour veiltail, the variety caught on. The female supposedly responsible for producing it had dark patches of blue and black in its fins and on the extreme end of the body.

Now everyone was working overtime to produce colour variants and, in 1958, Abe Abrahams from Bedford showed his black variety, a

strain that was to win him 71 awards in open shows all over Britain.

The modern veiltail is represented by three types: original, long dorsal and short dorsal. The two last-named have a caudal fin that is much broader than that of the first and not quite as long.

Much confusion about the veiltails was caused in the United States, where the word was used to indicate any broadtailed guppy. This position wasn't resolved until we came to the German International Shows—a story that must wait for our description of the delta male.

J.K.

Illustrations are from the STANDARDS HANDBOOK of the Fancy Guppy Association, obtainable, price 5s (post free), from the secretary, Mr F. Campbell, 37 Cardigan Drive, Busy, Lancs.

## Readers' Queries Answered



### Holiday Lighting

*Could you please give me some advice on my fishes' welfare when I go on my holidays. I am not so concerned about the feeding as I am about the lighting, as I have found that if I have missed just one day without the lights on my fish lose all their colour and look terrible.*

Your fish will not suffer at all if your tank is not illuminated during the time you are on holiday. Aquarium lighting is largely for the benefit of the viewer and for the growth of aquarium plants. Certainly fish in a tank placed in a windowless cupboard, for instance, would suffer because no trace of natural daylight could regulate the feeding habits of fish that were not nocturnal, but tanks in most living rooms receive enough natural daylight to prevent the fish being affected physiologically. If a tank is suddenly illuminated after the fish have been without artificial light for even a few hours the fish will lose their colour for 10 or 20 minutes with the change in conditions, but they will regain their colour quite soon. Fish do appear to be more brightly coloured when the tank lights are on but this is largely because of the reflective nature of the colour effects. Some fishes actually look almost colourless in top artificial light and show their true beauty only when natural sunlight reaches their tank from the side.

### Aquarium Rocks

*I really am not certain about the principles of choosing suitable rocks for the aquarium but I would really like to bring back some rocks from holiday this year. What sort should I look for?*

The main thing to be avoided is the introduction into the aquarium of rocks that are going to dissolve gradually or break up in the water. This will have the effect of making

the water increasingly hard. And the rocks that do this are, of course, chalk, marble and other limestone. Hard, non-soluble rocks are granite, flint and sandstone. Collecting rock-work for one's aquarium can be a very pleasing occupation and quite the best source of suitable pieces are the beds of rivers. Here you will find not only rock pieces that have already proved themselves to be resistant to the action of water, but also pieces worn into smooth, natural shapes by the action of the water over the years. Such water-worn stones are not 'soluble' but have been ground down by their action one against the other as they are moved about by the pressure of the water.

### Poisonous Fumes

*I find myself in the unfortunate position of having woodworm in my house and I wish to call in a firm to clear up this problem for me. Will the killing of the woodworm also affect my fish tanks, which incidentally are all built into the walls. If so, will removing the fish cure the problem or will the spray used affect the water itself? If not, how long will it be necessary for me to keep the fish out of the tanks?*

The usual treatment for woodworm-infested wood is highly likely to affect the water in your aquaria and cause the death of fishes. However, the period in which the fish room has to be closed off is not likely to be more than a few hours so we would suggest closely covering all the tanks, leaving no gaps at all, with several layers of dampened newspaper (i.e. not dripping wet). The tanks should have heat and light turned off during this period and also any aerators and filters that are normally working. As soon as the room can be opened up again the newspaper should be removed and thrown away, the tanks heated again and the room kept well ventilated for a day.

### Undergravel Filters

*Although my local dealer recommends undergravel filtration, some aquarists seem to be against the use of these filters. I have had mine for about 6 months now and the water is still clear and the surface of the sand is clean. After reading the answer to a query in *VFM* (February) I wondered whether, since my filter depends on a process of decay of organic matter, I am likely to be plagued by the white 'worms' that the answer said are encouraged by rotting organic matter.*

You need have no fear that the normal operation of an undergravel filter in a properly run tank could give rise to infestation by scavengers such as *Spirontomon* (the white 'worms' referred to in the query you mention). Obviously no kind of filter could readily cope with, say, the consequences of dropping a half a tin of fish food into the tank and leaving it there, but the bacterial breakdown of normal tank waste under the gravel is a continuous process that permits neither the build-up and spread of bacteria beyond the gravel nor the accumulation of dissolved and suspended wastes in the water. The system normally is in balance, so that although there are some protozoans around the tank swallowing up some of the bacteria, their numbers do not increase enormously because their food supply is not abundant. Undergravel filters have now been in use in aquaria for some 15 years and we think they have well proved their usefulness.

### Cabomba

*I am having no luck with growing Cabomba and cannot understand why. I have only just started a tank but I am getting cuttings from a friend who is very successful with it.*

The newness of your tank set-up is probably the culprit in this case. Cabomba requires good top lighting, a slightly acid, soft water and a fair amount of nutriment, which can be supplied naturally in a well populated tank and which your new set-up probably lacks. If you want to speed up the process of providing suitable conditions, you could try acidifying the water slightly by filtering it

*Continued on page 161*

# Keeping the Spiny Eel



*Macrognathus aculeatus* (Bloch)

By JAROSLAV ELIAS

Photographs by RUDOLPH ZUKAL

Translation by F. MARSH



The long-snouted head of the spiny eel above the sand is often all that shows of the fish

THE home of this interesting eel-shaped fish stretches from India over the whole of south-east Asia and the Molucca and Malay groups of islands. It lives there in both fresh and brackish waters and reaches a recorded size of about 14 in. The fish has an eel-shaped—indeed it could almost be described as worm-shaped—body covered with delicate brown to rust-coloured marbling that carries over the fins.

It is about 15 to 20 times longer than it is thick, and other points to notice are the visible ribbing on the underside of the snout-like jaw, the nose openings placed far to the front, and the fact that the dorsal and anal fins are noticeably separated from the tail fin. I mention this particularly as two other species, *Mastacembelus armatus armatus* and *Mastacembelus loennbergi*, are very much like the fish being described but there is no separation between their dorsal, anal and caudal fins. The 'peacock's eyes' on the dorsal are characteristic of *Macrognathus aculeatus* although the spots vary in number from three to ten.

In my opinion, the fish can be considered sexually mature at a size of 4½–6 in. and I reckon to differentiate the sexes fairly certainly according to the sturdiness of their bodies—the female's body is distinctly thicker than the male's and during spawning time is decidedly swollen. Unlike many import-

ed fishes, the spiny eel soon settles down in captivity. Temperature is not critical, and the fish seem perfectly happy within the range of 72-83°F (22-28°C). Indeed, after actually experimenting with this I can report that they came to no harm even when the temperature was lowered further. A level teaspoonful of cooking salt or sea salt per gallon of tank water can be added but it is not essential.

We know that in their home waters these eel-like fish seek out the quiet, over-grown waters where there is a soft muddy or sandy bottom. So the aquarium should have plenty of hiding places (provided, for example, by half-coconut shells) and a soft, sandy base. It is said that the fish will, with time, become so tame as to recognise their owner, but personally I cannot accept this as I don't believe that they will recognise 'their' man against any other human being.

In our permanent Aquarium Exhibition in Brno we always have to draw our visitors' attention to the fish, dug-in as they are in the sandy tank bottom. We have had six specimens for over a year now, and although they are no longer nervous, even when children knock on the tank glass, they will not leave the sand until the last visitor has left for

the day. One very interesting fact to observe, however, is the way in which, although their whole body may be dug into the sand, their heads and eyes stick up so that they can carefully observe anything going on around them. Only if the tank bottom is disturbed, perhaps when new plants are being put in, will the fish disappear completely into the sand for a short time. Spiny eels can swim equally well backwards or forwards. When eating, they first 'sniff' the food with their long nose, then whip forward to seize it and snap it up. Favourite foods are *Tubifex* worms and bloodworms.

It is said that the fish will ruin plants in a tank, but these are not my observations. Provided that the plants are well rooted before the fish are put in, their hiding in the sand can be looked upon as a 'soil lightener', which simply improves the plants (I am referring here, of course, to a sandy base, not a heavily packed one).

To the best of my knowledge, *Macrogynathus aculeatus* have not yet been bred but there seems to be no reason why this should not be achieved. The spawning of *Mastacembelus panculus* has already been observed and there are many similarities between these species.

## Readers' Queries Answered

*continued from page 159*

through aquarium peat. The stem of the cutting should be inserted into the base medium until the first lateral shoot rests just above the gravel, as it is from this point that the cutting will root. Care must be taken with fine-leaved plants like *Cobomba* that they do not become entangled with thread algae so do not try to grow it in tanks infested with this.

### Green Pond

*My pond has turned very green and I am wondering whether to buy some mussels to help clear it?*

It is true that freshwater mussels are 'living' filters. Water is drawn into them, passes through their gills and out through the upper siphon; in the process the mussel extracts its food and oxygen requirements. Along with other suspended particles, floating algae, that causes the green appearance of the water, are removed by the mussel. To set against this apparently invaluable aid to garden-pond keeping, however, are a number of disadvantages that must be

considered if these molluscs are to be kept. During their moves around the pond they tend to uproot plants, their larvae embed themselves in fish skin and can leave a wound when they drop off to start their adult life, but the big trouble is that few ponds can

*Many points have to be considered when assessing the suitability of sites for a heavy aquarium and a tale of woe in the club bulletin of BRADFORD & D. A.S. draws attention to a new hazard relating to flooring. A member had placed a stand with three 60 in. tanks on an upstairs wooden floor that was made from a type of composition board. Although this board was quite strong when dry the spillage of water on to it caused it to soften, whereupon the legs of the stand penetrated the wood so that the three tanks fell forward and were smashed. As might be expected by those who have had experience of similar disasters, all this took place in the middle of the night.*

supply them with sufficient food, so that they die. Only the zebra mussel (*Dreissena polymorpha*) can be recommended as not being guilty of such nefarious practices—and even they will die. Few things pollute a small pond more quickly than dead mussels.

### Hydra

*I am very worried in case I am introducing Hydra into my tank with the Daphnia. It often contains small creatures that proceed with a sort of hopping motion but are certainly not Daphnia.*

They are more likely to be Cyclops, a small crustacean that is usually found in the same ponds as Daphnia and that are a very suitable food, though not for the smallest fry. When disturbed *Hydra* contract and are not easily seen, until they appear on the tank glass and plants, their thread-like tentacles hanging from them. *Hydra* and *Cyclops* are dissimilar in their mode of movement. *Hydra* can move their tubular body from place to place but not very quickly whereas *Cyclops* swim with the kind of motion you describe.

# Rare Aquarium Plants

THE GENUS ANUBIAS



By VLADIMIR SADILEK

Photographs by the author

Translation by F. MARSH

*Anubias lanceolata*, one of the two most frequently available species

**P**LANTS of the genus *Anubias* are very beautiful and decorative, but unfortunately only rarely found in our aquaria. At present 12 species of these tropical marsh plants of the Araceae family have been described in detail. They are closely related to *Cryptocoryne* and *Lagenandra* and live in similar surroundings and under almost the same conditions as the former.

They thrive in shady marshland, along the courses of streams and the banks of the tropical forest rivers of equatorial west Africa, from Sierra Leone to Angola. They can also be found creeping over moss-grown rocks, stones and tree roots. In these areas they live, for the most part of the year, more or less emersed and only during the rainy season are they completely submerged under the water. Yet in spite of this varied yearly cycle, *Anubias* species are very suitable plants for a paludarium or humid terraria as well as for aquaria where they must live permanently under water.

All *Anubias* species are amphibious marsh plants with heavily branching rhizomes. Their leaves are lance-shaped or elongated egg-shaped, shiny, with a pronounced middle rib and many side veins. In the dwarf species, *Anubias nana* and *Anubias gilletii*, the leaf spread is only 2½-4 in., but the other species reach a length of about 10 in. The inflorescence is typical for all plants of this family—the flower is strikingly thick, slightly pink to chestnut brown in colour and covered with a fleshy, pale green blossom case.

The very name of the genus, derived from the name of the ancient Egyptian goddess Anubis who accompanied the dead in the darkness of the underworld, indicates that the species grow in the deepest shades of the tropical rainforest, and for successful cultivation in the aquarium

we should remember the living conditions under which they thrive in Nature. All *Anubias* are shade-loving plants, which must be protected from strong sunlight. The plants thrive best in diffused daylight but also grow well in artificial light. So they are particularly suitable for living room aquaria where artificial light is used regularly but for only a few hours daily.

Like all plants from equatorial regions, they require higher water temperature when cultivated in aquaria, or higher air temperature when grown in paludaria and humid terraria. During their growing period the best temperature for them is 75-83°F (24-28°C), though in the winter rest-period they require a temperature only between 65° and 68°F (18-20°C). With higher temperatures *Anubias* are fairly quick growing; they will come to no harm, if the temperature drops below the limits quoted, provided that the fall does not last too long. Permanently low temperatures cause them to lose their leaves.

## Growing Conditions

Since all *Anubias* species are marsh plants, like *Cryptocoryne* they require a nutritive soil. It is true that they will live in clean sand but they thrive best in a mixture of lime-free sand, loam, peat and turf. If the plants are being cultivated in a glasshouse, if we want to make them flower and when we are caring for seedlings, they must be given a specially nourishing soil. The soil bed should be at least 4 in. deep.

The plants have a rhizome that creeps along just under the surface of the soil or even lies on the surface. Remember when transplanting not to set the plants too deep.



*Anubias afzelii* Schott*Anubias congensis* N. E. Brown

The bottom of the leaf stalk should always be above the surface of the earth. Soft, moderately acid or neutral water is suitable and though usually water hardness is very critical for plants from tropical areas where the lime content of the water is practically non-existent, *Anubias* do not react so strongly to this.

In aquaria the plants do not flower so propagation is vegetative only. The rhizome is richly branched and the division of this is the usual method of propagation. The old plants form numerous side shoots and these can be cut off and transplanted. If the plants are being cultivated emersed, vegetative propagation takes place much more quickly and propagation by seed-sowing can then

also be carried out. Seed propagation is not difficult but it is a lengthy process as the seedlings, just like the mature plants, grow very slowly.

*Anubias* are amongst the most beautiful aquarium plants and because of their decorative appearance they make excellent centrepieces. They can quite easily be transferred from emersed greenhouse conditions to submerged growth in the aquarium. They suffer no loss of leaves and do not get leaf blight, as so often happens with *Cryptocoryne*. They are undemanding, hardy, water and marsh plants and are an ornament to any aquarium. They give a particularly lovely effect when grown in combination with brownish-green, purplish-brown or the bright green leaves of the lower-growing *Cryptocoryne* such as *C. petchii*, *costata*, *neodii*, *willisii*, *neulii*, *terrestris*, *lingua*.

In the aquarium we most frequently grow *Anubias lanceolata* and, though less frequently, *Anubias nana* Engler. Out of the remaining *Anubias* species aquarists know *Anubias afzelii* Schott and *Anubias congensis* N. E. Brown. Less well known are *A. affinis* De Wild, *A. englerii* De Wild, *A. barteri* Schott, *A. heterophylla* Engler, *A. auriculata* Engler, *A. hastulifolia* De Wild, *A. gillettii* De Wild and *A. hastifolia* Engler.

A short time ago a small, interesting *Anubias* species with wavy leaves was introduced, but its identity has not yet been determined. It may be a species that has already been catalogued but has not appeared as a living plant before in Europe. The plant that has been imported from S. America into Germany under the trade name of *Anubias michaelii* does not belong to the genus *Anubias* and will not live submerged in the aquarium.

#### Known Species of *Anubias*

*Anubias afzelii* Schott comes from Sierra Leone, where it grows in streams and marshes in thick rain-forest. The dark-green, oval lance-shaped leaves are bluntly pointed and narrow at the base of the leafstalk. Emersed leaves are 8-14 in. long and 1-3 in. wide. The plants growing permanently under water have smaller leaves. The upper side is lighter and matt. This is a robust and very decorative marsh plant, suitable for

*Anubias nana* Engler is another fairly well known aquarium species



*Anubias nano* growing emerged and showing two inflorescences



New species of *Anubias* that has not yet been named

large and deep display tanks. These plants were imported into Europe a short time ago but are still quite rare.

*Anubias congensis* N. E. Brown comes from the lower Congo. The elongated lance-shaped or elongated egg-shaped leaf spread is 4-10 in. long and 2-4½ in. wide. The top end is pointed and the base end rounded or heart-shaped. The middle rib is very prominent and numerous fine side veins run obliquely parallel to the leaf edge on the upper side. The leaves are pale green and the undersides somewhat lighter. The 1-2 in. long lower nodule is enveloped in a green, fleshy sheath.

*Anubias congensis* var. *crispipadiis* Engler is distinguished by a characteristic shorter and much thicker flower nodule, which is coloured chestnut brown.

*Anubias congensis* is one of the largest representatives of this genus. It is not much thought of by aquarists and only occasionally do we find a real enthusiast keeping this plant in the paludarium.

*Anubias lanceolata* N. E. Brown. The home of this best-known *Anubias* species is the west African rainforest area from southern Nigeria through the Cameroons to Gabon. *Anubias lanceolata* is a very decorative marsh plant with creeping, thick (½ in.), often lumpily thickened rhizome. The slightly wavy leaves are broad and lance-shaped, bluntly pointed at the end, narrow at the leaf stalk end 4-6 in. long and 1-2 in. wide. The separating leaf stalk can reach 6 in. in length. The leaves are dark green on the surface and gleam slightly. The underside is lighter. The flower nodule is covered with a whitish green sheath. There has also been a narrow-leaved form, *Anubias lanceolata* f. *angustifolia*, introduced from the Cameroons whose leaves are narrow, lance-shaped and

only 1½-1¼ in. wide. This variety is a very rewarding aquarium plant. It grows fairly slowly, but the external decorative leaves often survive for several years.

*Anubias nana* Engler. The home of this small delightful marsh plant is again the rainforest area of the Cameroons. It is the dwarf form resembling *Anubias lanceolata* and the whole plant reaches a length of only 4½-6 in. The dark green lance-shaped leaf spreads are 2-3 in. long and 1-1½ in. wide. The stalk of the inflorescence is 2-4 in. long and the flower nodule is covered with a pale green inch-long flower sheath. *Anubias nana* is rare in aquaria and it is amongst the most valuable of aquarium plants.

Beautiful and undemanding as these aquarium plants are they unfortunately grow very slowly, and are propagated vegetatively in most cases. It would be quicker to propagate with seeds, but this can be done only under glasshouse conditions and even then not with certain success, so they must be propagated by the slower vegetative method. As importation of these plants is itself sporadic we can begin to understand why *Anubias*, so suitable in every respect, are found so rarely in our aquaria.

• I use an old aluminium pan for cooking up my home-made diets for my guppies, but as is usual with this type of utensil the inside soon becomes soiled and stained. To clean, simply boil up a mixture of sugar and rhubarb in the pan. The final result will amaze you—I don't have to stress that the rhubarb is discarded after use!

A.B.



## Personal COMMENT

*HYPHESOBRYCON flammeus*, the flame fish, has always been one of my favourites. Although it seldom looks its best in the shop it usually responds to the more settled circumstances of the home aquarium, especially if you can provide it with the softish, acid water so beloved of many of the little tetras. Some years ago I kept a lot of these and they bred readily and the young were easy to rear, but it has become increasingly difficult to secure good specimens of this species in recent times. I have seen plenty of undersized fish with misshapen bodies, and there seem to be plenty about with swim bladder trouble, a complaint to which they seem especially prone. As a consequence the flame fish has been unrepresented in my tanks for all too long. I regret this very much because they shoal quite well and colour up in company: in smaller numbers they sometimes become snappy to their own kind, possibly because of frustrated breeding cycles.

I thought I had at last solved the problem a short time ago when I saw what I took to be some superb specimens sharing a tank with some platinum tetras with which, incidentally, they looked really suited. Two points impressed themselves on me: one was the solid redness of the tail fin and the other was the size and roundness of the second 'bar' of black on the side of these fish. If you can compare the photographs in the *TFH EXOTIC TROPICAL FISHES* of *Hyphesobrycon flammeus* and *H. griemi*, you will first establish that I had mistaken some specimens of the latter for the more familiar species, and then you will wonder why I appear to be getting enthusiastic about what would seem to be something inferior, at least if the photographs are anything to go by. I think the truth is that this is once again a case where colour photography fails to give a fair account of the circumstances.

Certainly, in *EXOTIC TROPICAL FISHES* the photographer has caught the flames at their happiest and most glamorous, and the *griemi* look a little pale by comparison. On the evidence of my own observations, the flame is a more consistent all-over shade, but is most inconsistent in deciding whether to display this in high or low key. For this reason it either strikes one as totally nondescript or brilliant. The *griemi*, on the other hand, consistently displays its nice red tail and its black body bars, though perhaps it varies its overall appearance rather less than the flame. It will thus appeal to the dealer who despairs of fishes which sulk themselves into an olive study and refuse to sell themselves, as the *griemi* is lively and just as adventurous as the flame and may take much more to subdue. From the point of view of the buyer he is bound to be attracted,

as I was, by the immediate contrasts of colour, and since the price is not noticeably high for this type of fish, he is as likely to fall for it as I did.

As a community tank candidate *H. griemi* is a good bet, because it not only parades its colours well but develops those fine white edgings to its fins which usually point towards peak condition. The contrast between the white and the red is, of course, most agreeable, and it is unlikely that this feature will have emerged in the dealer's tank. With time the prominent black blotch on the body seems to me to distinguish it still further from the flame, in which the markings are much more like bars, but it is possible that individual specimens may vary in this respect. It is somewhat of a pity that this tetra is said not to be as easy as the flame to breed, but as the latter is simplicity itself it could be that the *griemi* would be worth studying. There is no doubt that the fancier who bred them for his own satisfaction would be well rewarded, and anyone who had surplus stock to sell should find no trouble in moving them on.

Like the garnet tetra, the flame and the *griemi* can get quite deep chested with care and good feeding, and the sight of the silver glinting on the undersides of these chubby little fish when adult can be very attractive. A rather high intensity of Gro-lux lighting and plantings with large groups of fine-leaved *Myriophyllum* and hair grass will set them off to perfection, and if you can provide white gravel on the tank bottom the effect will be enhanced. These requirements apply to many of the tetras that fall within the 1½ in. and below size bracket. A 36 in. tank planted as suggested and stocked with three or four shoals of compatible species will be a constant source of enjoyment. Try cardinals, *griemi*, platitudes and garnets and if you don't like this combination, please write and tell me what is better.

Food requirements are not at all critical unless breeding is contemplated, in which circumstances it is advisable to switch across to an exclusively live diet for a few weeks. Even this should be varied, though. There is no harm whatever in ringing the changes on the standard range of dried foods for most of these fishes, as the producers seem to have made them so attractive that they can be recommended with confidence. Look out for the *griemi*, then. I have only just come across it, and if imports come your way you will find this a very good fish. It simply isn't true that there are no pleasant surprises left!

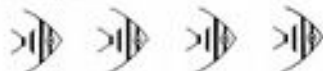


In my early days of fishkeeping enthusiasts in collecting uncommon varieties of fishes often led me into trouble by way of accepting third-class specimens, and hard though it may be on the dealer, who has to take the good and the bad, I do urge buyers to go without if they cannot buy a good healthy fish of the type they desire, as anything less is a liability. If your dealer admits he is selling you a poor specimen and halves the price, the risk might be worth taking, but to buy one at full price and blame the dealer if it dies is a foolishness to which you have fully contributed, and you deserve all the lack of sympathy you will get.

The purchaser who buys sub-standard fish from a dealer is doing an immense amount of harm. He is

giving the dealer confidence that he can part with rubbish readily and lowering the standards of goods on offer all round. I don't blame any dealers for trying to resuscitate some of those terrible-looking imports, but this should be done in privacy, in quarantine, in a part of the establishment not open to the public: nothing attracts custom like consistently high standards.

I think I must have missed out on something, or perhaps I was suffering from a hangover. I have always had an aversion to man-made creatures like fancy goldfish and fancy guppies, and when I saw droop-tailed angels I thought I had seen everything. But last month I saw an even more horrible sight that I can only describe as dangle-finned black widows, and I was so outraged that I walked out of the place without asking what their name and derivation were. I suppose someone will buy these awful things and think them wonderful, and I can only pity them their taste. What seems utterly deplorable is how a breeder can conscientiously sit down and plan a programme designed to turn a glorious creature like *G. ferretii* into a laboured and gangling caricature. We live in an age of overrated freedoms so far as *Homo sapiens* is concerned, but I do hope that he will confine his excesses to his own kind and not extend it to creatures who, quite unaided, manage to maintain a level of dignity out of all proportion to their relative level of intelligence.



There is plenty of evidence from a variety of sources that the majority of fishkeepers who possess modest collections look further than packeted or frozen food when it comes to maintaining really high standards of stock or fry. This is not to say that dried foods are in any way unsatisfactory so far as the dealer is concerned, or that they do not form a good basis for a diet, but that extra bit of sparkle which turns a tank into an aquarium can often be traced to sensibly varied feeding.

Swarms of those ungainly flying forms of the leather-jacket, the crane-fly or daddy-long-legs affairs have plagued this district for some weeks now, particularly at night, when the bright lights attract them. I tried them on the big angels with considerable success. The effect is somewhat comic, since they ingest them head first and the long thin legs trail from the fish's mouth like long moustaches and usually take some time to disappear from sight. The customary summer plague of flies and bluebottles also hit us and these have joined the crane-flies on the menu.

It is quite surprising how quite small fishes will rise to houseflies. The pulcher tetra is particularly attracted and I have seen quite small ones taking on blowflies, inevitably without much success; they usually manage to drag them below the water level, only to have something bigger like the black widow make off with the spoils. The emperor tetra and the bleeding-heart tetra also seem especially addicted to flies, and I suggest that they may prove quite useful when pre-breeding conditioning is undertaken.

It has not been easy this year to lay the foundations for the winter supply of earthworms, as they have not been in abundance in our dry summer and will soon move to lower strata as the cold weather sets in. Woodlice have

been very plentiful this year and may well fill in here and there in the diet of some of the larger cichlids, though their tough chitinous exteriors are much too hard a proposition for lesser beings. I usually do the rounds of the garden early in the summer to extract the junior froghoppers from the cuckoo spit in which they develop. Most of the food mentioned above can usually be fed to fish with reasonable certainty that they have not been exposed to poisons or insecticides. The possible exception is the earthworm, but if you have been using any chemical in the garden likely to have been absorbed by it, leave well alone and get busy with the fly swat instead.

None of these foods is suitable for my hatchets, with their rather small mouths, and as I am always on the look-out for ways of keeping them in good shape I hit upon the idea that I might somehow attract to them those myriads of tiny grey flies that appear after dark from apparently nowhere and pepper the ceiling around the lights.

If you can switch the tank light on and leave the top uncovered for a while, the rest of the room meanwhile being in darkness, many night-flying insects will fly towards the lamp and finish up in the water, whence the fishes will obligingly remove them if of suitable size. It is worth trying if you are not too sensitive about crawly things. Above all, don't on any account spray around with an aerosol afterwards to dispose of the balance, as these are quite lethal where fishes are concerned even if they don't always kill the flies. This after-dark experiment is possibly most effective in a fish house, where there are fewer domestic complications than in the rest of the home, but you are a better judge than I as to how your wife or husband is likely to react to the proposal.

## Mr A. G. Jessopp



It is with extreme regret that we learn of the death of Mr A. G. ('Ted') Jessopp, chairman of the F.B.A.S. since 1966, suddenly on 14th July after a short illness

## GOING BRACKISH—3

## Under Test

By ROY PINKS

THE first sign of the trouble I referred to at the end of my last article was that the glass perch started behaving as though afflicted by ich., and, sure enough, there were some tell-tale spots on his tail and later on the body. Having had almost magical success recently with malachite green in such cases I treated the whole tank and sat back to watch it work. Five days later the glass perch died and the larger of the two monos looked very poorly. The following day the one small scat died and both monos were covered with what looked like *Oodinium*.

It was quite clear that the cure was not working and it suddenly occurred to me that perhaps the trouble had been *Oodinium* from the very start. This presented quite a problem since I had either to drain the tank down and start again, using water of the same specific gravity as that which had been discarded together with a compatible *Oodinium* remedy, or to remove all the fishes to alternative quarters. Since I had no tanks large enough to house the entire collection I adopted the former course, and decided to try *Diseasolve* against the disease, the nature of which was rapidly becoming something of a mystery, and whose pace was increasing all the time.

Had I had more time to consider the situation it is possible that I might have done the rounds of all the specifics more thoroughly, and might even have employed something with a measure of success, but there was I, with no shops open, seeing fishes degenerating rapidly. Only emergency action was possible; unfortunately I did not have available anything that touched the right spot. If anything, on this occasion the *Diseasolve* caused more distress than otherwise, as the fish seemed to react against it. The puffers were the first to go but I decided to leave everything as it was overnight in the hope that the addition of the latest remedy might lead to an improvement before the morning.

Unfortunately a pathetic sight met me on the following day. The monos were both dead and the two large scats were blundering around in apparent agony. I removed them to a small emergency tank containing fresh water, but by lunch time they, too, had succumbed. There was one ray of sunshine, which indicated that neither of the remedies in themselves were to blame for the carnage. The bumblebees were quite unscathed, though perhaps a bit wobbly, so I netted them and transferred them to temporary quarters, wherein they rapidly regained their good spirits and dined heartily.

Like most outbreaks of disease in marine tanks it was difficult to draw any particularly useful conclusions from this incident. I still don't know quite what the disease was, nor how to combat it if it happened to recur. I know what my future plans will be, however, so perhaps some good came from this expensive outing after all.

One thing was certain, and that was that I would

try again as soon as I could get some good specimens of the species I had lost, though I would only use marine remedies against any disease that might break out. From various sources it seems that minute quantities of copper are distinctly beneficial in cases of marine afflictions and with this in mind I bought some Searem, which comfortingly announced on the label that it was specific against *Oodinium* in marine fish as well as against persistent 'spot'. What a good buy if it were true!

I lost no time in thoroughly disinfecting the tank and its contents with potassium permanganate, and within a week I was well on the way to setting it up again. I had invested in some more attractive pieces of coral and I put blue polythene sheeting against the outside and back panels of the tank to give more of a 'marine' appearance to the contents. This turned out to be a great improvement on the previous arrangement in which I had used a black backdrop. I played with the layout for quite a time before I was satisfied with it and was so pleased with the results that I hot-footed in search of suitable fishes.

I seemed to have struck a bad patch, as the local market had nothing that appealed to me. There was a certain number of rather moth-eaten monos about, but no scats at all. There were some enormous puffers, but they had a mean and hungry eye so I resisted the temptation. I eventually secured some good monos, just two. These settled down quickly and were joined by the bumblebees, which seemed to have forgotten all about the blood bath of a week or so previously. I then saw some scats of the right size—a little more than 1½ in., and there were some good monos, too, a little smaller. I scooped these up and put them into isolation. On the following day the scat had spot and had beaten the smaller of the monos into a moribund mass. I separated the survivors and treated them with Searem, and this time the remedy worked, for the traces of disease disappeared very quickly and did not return. These cured fishes have just joined the others in the main tank and I hope that peace will reign for a time, at least.

I have been less fortunate with a couple of small spotted puffers, which I secured recently. Like the *comphogus* they seemed to do really well at first, and if their appetites were anything to go by they were in peak condition. Nevertheless one died the other day for no apparent reason and the survivor is apparently shrinking and turning black. I have no doubt that this will succumb shortly, but I just cannot account for their failure. They have all had plenty of live food, including crushed snails, and at times have gorged, but all to no avail. As there is no sign of damage to them I feel inclined to exonerate their tank mates from any blame. I expect it is the keeper, not the kept, who is at fault.

Despite what may seem to be a disastrous beginning

to my brackish experiments I would not hesitate to recommend this sort of enterprise to the aquarist who wants to try his hand at something different. Those who may have kept brackish fishes in freshwater community collections have probably been disappointed at losing their rather expensive purchases, as well as, possibly, some of their most valued plants. If you create a marine tank and keep it stocked with brackish species I think you are more likely to succeed than otherwise because there are far fewer things to go wrong. The great appeal of my small collection is its vividness to the onlooker, and almost every recent visitor has goggled at the monos and ignored the cardinals in the tank on the other side of the room. It is the first time that this has ever happened, and the latter must be feeling pretty fed up with it all, though they conceal their feelings very well.

Feeding has not been anything to worry the average fishkeeper, though live food must form the major part of the diet. I find that earthworm and white worm are the most favoured foods, and tubifex is accepted gradually. I put a lettuce leaf into the water occasionally and it is quite attractive to the scats, but I have excluded dry food altogether as I am a little worried that it will cause pollution.

During the day the overhead lighting is left off, and during this period there is not a great deal of activity. When the evening comes and both light and food are in prospect there is much to-ing and fro-ing, but so far there has been little by way of shoaling on the part of either the monos or the scats, both of which have this habit in Nature. The largest mono seems to control the territory and there is usually one or two of the smaller ones cringing, blackened with emotion, in the shelter to which they have been driven. The only sign of sex has been utterly unhelpful: this has occurred when the larger monos have made mating passes at the largest scat. A curious situation, altogether, as they all seem

distinctly hostile to those of their own kind.

One other observation may be of interest. It is said that the scat is an eater of human ordure since such was discovered inside specimens which have been opened up for examination. My scats also exhibit a tendency to ingest their own excreta as soon as it has been ejected. This is something of a reassuring feature in a fish which is said to be a gross and dirty eater, whose tank must be filtered rigorously on account of its mud-making habits. So far I have never had experience of a tank that has kept so clean and tidy as this one, and there is nothing to indicate that I need be pessimistic about the future in this respect. At any rate, the need to refurbish the coral from time to time provides an excellent opportunity for doing the rounds with the dip tube, so, all in all the future looks clean as well as reasonably bright.

I shall be rather less anxious than I was to begin with to achieve a full sea-water specific gravity, though if no further disasters occur within the next few months the spirit of adventure may well break down this resolution. Here is something of a dilemma. I am as keen as anyone to succeed with tropical marines, but I am not prepared to make a huge outlay on expensive fishes whilst so little is still known about the diseases to which they are subject. It would be a gradual process therefore if I did try it out. I would, if I acclimatised my present collection to marine conditions, introduce a 'cheap' coral fish to their company, just to see how it behaved, and take my cue from there. Whilst there are tropical marine enthusiasts all over the place there are probably just as many who have been bitterly disappointed with their experiences, and it is also true that there are many dealers who will never stock another marine fish again.

This all points to the fact that tropical marines take quite a bit of understanding, and, unlike the freshwater side of the hobby, demands an apprenticeship on the part of the fishkeeper before he is allowed to enjoy the delicious fruits of success.

## What's New?

### Frosted Backgrounds

A NEW, decorative effect for that back glass panel of the aquarium can be achieved with **Crystallising Lacquer**. Distributed by B. Cannon & Co. Ltd. of Mill Road, Welling-

borough, NNS 1PG, this lacquer is stated to be quick drying and presents a unique, frosted pattern when dry. It can be applied to pottery, glass, tiles, metal and plastics by 'flowing' on to the material and allowing to dry overnight. Once dry the surface is stated to be hard and durable. The lacquer is available in five colours: red, blue, green, amber and white.

### Styled Aquarium

BARTON Grange Aquaria, the Preston (Lancs.) based aquatic supplies specialists, have recently launched their **Sheerwater aquarium**. This aquarium has been designed by an aquarist and styled by a furniture consultant to present ideal living conditions for fish in a

form that will be most attractive as a piece of furniture. The Sheerwater is an all-glass sealed liner housed in an elegant teak cabinet ready to install in the living-room. The unit is 30 in. by 18 in. by 14 in. and inside the lid are the feeding access and access to a clearly labelled electrical terminal block. Cost is about £26 including purchase tax.

### Fountain Spray

SIX new spray heads for pond fountains, manufactured by **Eclipse Sprayers Ltd.**, increase the range of fountain effects obtainable. Three to go outlets of different kinds in these heads, machined in solid brass, are provided.

## A Voracious Livebearer



Pair of pike top minnows  
(male is the lower fish)

**Definitely not for the community tank this species—but nevertheless an interesting aquarium inmate for the keeper of the unusual.**

THESE are my observations on the habits of the live-bearing pike top minnow (*Belonesox belizanus* Kner), a tropical fish of the family Poeciliidae. It attains a size of up to 8 in. and was brought to Europe for the first time in 1909 from its home, an area stretching from southern Mexico across Guatemala and Honduras to Nicaragua. Its specific name *belizanus* is derived from the town Belize in British Honduras; the genus name *Belonesox* comes from *belone* (arrow-head) and *sox* (pike).

The body is truly pike-shaped, with a long head and pointed jaw equipped with sharp, pointed teeth. In sexual maturity the male is substantially smaller than the female and reaches a size of only about 4 in. It is very easy to recognise the male because of the presence of the gonopodium.

These pike must be kept on their own, for they are real pirates, which, of course, explains why they are so seldom seen in aquaria of amateurs. I wanted to procure some of these fish long before I was successful; it was not so simple for me to get them in Czechoslovakia. Then I brought some from Germany. The fish withstood the 12-hour drive well in a plastic bag, and only the fins were a little torn. I had obtained a young pair; they were

By **RUDOLPH ZUKAL**

Photographs by the author

Translated by **F. MARSH**

fairly equal in size and about 3½ in. in length. Before my journey to Germany I had prepared a 10-gallon tank for them (though they would have liked even more living room) with normal tap water. The water was slightly salted, and the temperature was 75°F (24°C). I knew already from the literature that the pike minnow had to have coarse live food and chiefly fish in its diet. To provide this food I had raised about 100 guppies.

The pair were comfortable in their new living quarters. After a few hours they swam so slowly and carefully out of the clump of plants that I could only see the beak-shaped heads. This sight made me think of the many lovely hours I had spent sitting on a river bank fishing for river pike (*Esox lucius*). Their movements and behaviour, the snapping up of the prey, were all amazingly



The male displays in front of the female with his body curved and gonopodium turned forward (compare its position with that shown in the photographs on the opposite page)

similar. And from that time on I regretted that I had brought home these Mexican pike minnows. You ask why? Because I couldn't do any work! I sat for hours in front of the tank and watched my pirates. When I threw a few guppies into the tank, at first nothing happened. The male guppies approached the pike fearlessly; I even saw mating behaviour on the part of the males towards the

pike. All at once there was a lightning thrust and a male guppy disappeared into the jaws of the pike. Then for the first time the alarm was raised. The remaining guppies made themselves scarce on the water surface as far as possible from the pike. But it was no use. Each day four to six guppies were consumed by the pair and before my eyes the pike grew larger and more powerful. I spent



In this picture the extreme manoeuvrability of the male's gonopodium is again demonstrated as it is pointed almost vertically downwards



innumerable hours with them. At the same time I had my camera at hand and recorded what was happening.

The literature suggests that the sexes should be kept apart, for the female is very snappy and the male can be attacked by her. I am of the same opinion although if the pike are fed abundantly, no danger exists for the male. The fertilisation of the female takes place so swiftly that the male can quickly dodge her bites. The gestation period lasts about 5-6 weeks at a temperature of 78°F (26°C). The female has up to 100 young, which are quite large and can take *Daphnia* and small worms at once. There must be plenty of hiding places and plants in the tank so that the young can shelter from their voracious parents. After the fry are born it is wise to remove the female (the male will have been removed earlier) and to leave the young on their own. With plenty of nourishment the young fish grow fairly quickly.



End of a guppy in three pictures: a lightning-quick dart forwards secures the pike top minnow's prey, which on this occasion is seized tail first, and the fish soon disappears within its jaws.



## BOOK Review

PELHAM MANUAL FOR FISH TANK OWNERS by Reginald DUTTA. 155 pages; 22 line drawings in text. Pelham Books, London, 1969. 35s.

THE title should not be taken too seriously. The author is head of a fish tank manufacturing business and the book opens with liberal helpings of his reminiscences about tank construction and décor, often for other entrepreneurs whose pockets are far longer than those of the average reader. Whilst interesting, these allusions are hardly the practical features that one would expect to find in a manual. The book then covers a wide range of coldwater fishes, fancy goldfish in particular, and closes with hints on pondkeeping. This somewhat curious amalgam of three facets of the hobby is nevertheless well worth reading, though as a reference work I would not rate it very highly. It is breezily frank in style and although the author is more dogmatic over a number of matters than perhaps he should be, it is

clear that he has a firm rapport with his charges and is greatly concerned with their welfare. That readers might disagree with him over methods is by the way. I found myself chattering with rage at one moment and then nodding agreement several paragraphs later, so this you find a stimulating book if nothing else. The drawings were as mercurial as the manuscript. I cannot believe that the sensitive hand which drew that exquisite Chinese moor perpetrated the mawkish representations entitled oefe, rudd, tench and dace. Apart from the truly delightful sketches of fancy goldfish by Olive Dutta the book has little eye appeal and looks a rather ordinary production. Perhaps, with his eye for exciting the senses, the author can prevail on the publishers for something better next time. Some photographs, perhaps, and some twentieth century paper. But keep those sketches, Mr Dutta, for they endow those zirconous fish with a beauty I never believed existed, and for them the book may be said to justify its price.

ROY PINKS



JUNE was an interesting and active period for the **HASTINGS & ST LEONARDS A.S.** Two outings were made—the first saw a coach party of 37 members visiting the Aquafleet Pet Centre, Northfleet, where they were made welcome and were able to purchase some of the more unusual fish species. On the return journey a stop was made to see a commercial hatchery. A second party of 20 members visited the Zoological Gardens at Epping where there is a varied collection of fishes and plants. Lectures have catered for both the coldwater and tropical enthusiast. Mr J. Chandler, a biologist with the Sussex River Authority, spoke on 'Life in the Pond' and Mr J. V. Morrice gave an enlightening talk on mollies with emphasis on breeding. The table show for male guppies was won by Mr A. McCoemick (2), Mr P. Harbord; 3, Mr G. Chalcraft and for mollies by Master A. Reed (2), Master C. Mescham; 3, Master B. Reed).

THE **BRISTOL T.F.C.** open show proved as successful as last year's with all available tanks being used. Results were:

**Siamese fighting fish:** 1, Mrs C. C. King; 2, Miss C. Holland; 3, Mr D. J. Bateman.  
**Labyrinth:** 1, Mr R. A. Harding; 2, Mr B. Easton; 3, Mr J. Wheeler.  
**Barbs:** 1, Mr I. Littleton; 2 and 3, Mr B. A. Harding.  
**H. & M.:** 1, Mr R. K. Day; 2, Mr C. Butcher; 3, Mr R. Harvey.  
**A.O.V. characins:** 1 and 2, Mr R. A. Chapman; 3, Mr B. Easton.  
**Angels:** 1 and 2, Mr J. Bull; 3, Mr R. Harvey.  
**Dwarf cichlids:** 1, Mr C. Butcher; 2, Mr H. Musialik; 3, Mr R. Harvey.  
**A.O.V. cichlids:** 1 and 2, Mr R. Watts; 3, Mr F. Brown.  
**Cyprinids:** 1, Mr L. Littleton; 2, Mr M. Taylor; 3, Mr J. Wheeler.  
**A.O.V. catfish:** 1, Mr F. Brown; 2, Mr D. Warrant; 3, Mr S. Green.  
**A.V. danios:** 1 and 2, Mr G. Furber; 3, Mr K. Titcomb.  
**A.V. sharks and loaches:** 1, Mr I. Littleton; 2, Mr G. Furber; 3, Mr R. K. Day.  
**A.O.V. tropical:** 1, Mr G. Furber; 2, Mr G. R. Day; 3, Mr J. Millar.  
**Mollies:** 1, Mr M. A. Lerway; 2, Mrs J. Pinfold; 3, Mr B. A. Harding.  
**Swordtails:** 1, Mr M. Taylor; 2, Mr M. A. Lerway; 3, Mr B. Watts.  
**Breeders egglayers:** 1, Mr R. Watts; 2, Mr H. Musialik; 3, Mr J. Wheeler.  
**Plays:** 1, Mr G. Furber; 2, Mr H. Musialik; 3, Mr R. K. Day.  
**Breeders livebearers:** 1, Mr H. Musialik; 2, Mr J. Wheeler; 3, Mr B. A. Harding.  
**Guppies, long tail:** 1 and 2, Mr J. Wheeler; 3, Mr D. Chick.  
**Guppies, short tail:** 1, 2 and 3, Mr J. Wheeler.  
**Guppies, female:** 1 and 2, Mr J. Wheeler; 3, Mrs M. A. White.  
**A.V. sword pairs:** 1, Mr B. Easton; 2, Mr R. Watts; 3, Mr H. Musialik.  
**A.V. livebearers (junior):** 1, D. Pinfold; 2, S. Woodson; 3, C. Holland.

**Killifish:** 1, Mr R. A. Chapman; 2, Mr F. Brown; 3, Mr B. Easton.  
**A.V. egglayers (senior):** 1, D. Leed; 2, A. Marks; 3, S. Holland.  
**Furnished aquaria:** 1, Mr I. Littleton; 2, Mrs M. E. Holland; 3, Mr G. Furber.

The best fish in the show award was made to the long tail guppy entered by Mr J. Wheeler; Mr Wheeler also achieved most points in the show.

**RESULTS of the LOUGHBOROUGH & D.A.S. Open Show** are as follows:

**Ambuloids:** 1, Mr Anderson (Leicester Fishkeepers); 2, Mr D. Sewell (Sherwood); 3, Mr Spencer (Independent).  
**Barbs:** 1, Mr Wilks (Haden, lost by the Show); 2, Mr K. J. Moore (L.A.S.); 3, Mr Wilks (Cichlids).  
**Cichlids:** 1, Eddies Page (Bedworth); 2, Mr Makinson (Sherwood); 3, Mr Sewell (Sherwood).  
**Danio, rambora, minnow:** 1 and 2, Mr R. Clarke (Sherwood); 3, Mr Jordan (Leicester F.C. Coydians).  
**Driftwood:** 1, Mr D. Birbeck (Sherwood); 2, Mr D. Sewell (Sherwood); 3, Mr S. Buchanan (Sherwood).  
**Labras:** 1, Mr Willets (Haden); 2, Mr Selby (Northampton); 3, Mr Platt (Northampton).  
**Guppies:** 1 and 2, Mr S. Buchanan (Sherwood); 3, Mr and Mrs Carter (Bedworth).  
**Characins:** 1, Mr Wilks (Haden); 2, Mr B. Eyre (Worktop); 3, Mr D. Sewell.  
**Livebearer pairs:** 1, Mr Igoe (Sherwood); 2 and 3, Mr S. Buchanan.  
**Egglayer pairs:** 1, Mr Igoe; 2, Mr Shakespeare (Bedworth); 3, Mr Hiron (Independent).  
**Killifish:** 1, Mr Blackburn (Sherwood); 2, Mr Shakespeare; 3, Mr Anderson (Leicester F.C.).  
**A.O.V. livebearers:** 1, 2 and 3, Mr J. Igoe.  
**Breeders livebearers:** 1 and 2, Mr Gibson (Huddersfield); 3, Mr Sewell.  
**Breeders egglayers:** 1, Mr Anderson (Leicester F.C.); 2, Mr Jackson (Dukeries); 3, Mr Walker (Loughborough).  
**A.O.V. tropical:** 1, Mr R. Clarke (Sherwood); 2, Mr Robinson (Northampton); 3, Mr Perry (Loughborough).  
**A.O.V. catfish and loaches:** 1, Mr Roberts (L.A.P.S.); 2, Mr Jackson; 3, Mr Hubert (Dorby).  
**Rogers:** A.V. coldwater: 1, Mr C. C. Carver (Leicester A.S.); 2 and 3, Mr Makinson (Sherwood).

**RECENT speakers at EALING & D.A.S. meetings** have been Mr Dick Armstrong, talking on killies, and Mr Les Jordan on cichlids. Vice-chairman Mr R. C. Mills tells us: 'Dick Armstrong came along laden with many show jars containing various species and one pair of fish certainly bore out his comments by spawning in the jar as he spoke! Les Jordan was no less entertaining with his motor bike and sidecar story and hand-painted maps. Both these speakers were invited to the club through the

**THE treasurer of the FEDERATION OF BRITISH AQUATIC SOCIETIES reports that affiliations to the Federation for the year amount to 109, 96 being societies that affiliated last year and 13 new ones. A further possible nine societies have yet to make their intentions known.**

strengthening ties between Ealing and Becknell A.S.; however, it is not been just a one-way traffic. Charlie Ankin has given a talk; Bracknell on diseases and another member will be giving a talk into the two societies stage their own club show. Ealing members have also been busy staging a display at Ealing Town Hall for the annual Arts and Crafts Exhibition Week and having their own home finished aquaria competition judged

**WHEN COVENTRY POOL A.S. members met to discuss the Society's entry in the forthcoming tropical aquarium class at the Island Open Show in August** a great many useful tips emerged from the discussion that would not only be useful at the Open Show but would also help anyone who planned to set up an aquarium at home. The talk show at this meeting attracted 25 entries. This year a number of classes for juniors only have been introduced and have proved very popular as it gives the juniors an opportunity to win some cash. Points from these junior classes go towards the Mayer Cup in its annual competitions. In the junior A.V. characin class, B. Hirst took all the first four places. Other winners were: barbs under 3 in.; Mr D. Easingwood (74 pts); A.V. catfish Mr E. Sheehy (74); A.V. coldwater Mr B. Bromfield (71).

**THE THORNE Trophy for the best fish in the show** went to Mrs M. Miller of Belle Vue A.S. **NORTHWICH & D.A.S.'s** second open show. Entries were well up on last year's total and the 260 fishes benched were entered by 18 societies. The Russel-Allen trophy for the best livebearer was awarded to Mr and Mrs C. Grimshaw of Sutton-brow A.S.; the best fish entered by a member of Northwich awarded the Hyland trophy was won by Mr H. W. Bowman, who also receives the Benoy trophy as the Northwich member awarded most points. The Inter-Pet trophy for the society gaining the most points was won by Belle Vue A.S.

Detailed results are as follows:

**Livebearers:** Guppies: 1, Mr L. Bradler (Northwich); 2, Mr and Mrs A. Will (Salford); 3, Mr and Mrs Hogarth (Salford).  
**Swordtails:** 1, Mrs C. Kaye (Tun Tun); 2, Mr N. R. Gibson (Huddersfield); 3, Mr and Mrs Cobb (Belle Vue).  
**Mollies:** 1, Mr and Mrs Grimshaw (section winner, Sutton-brow); 2, R and I. Antonio (Northwich).

2, Mr Pritchard (Wrexham); Flays: 1, Mr and Mrs Cobb; 2, Mr H. Bowman (Northwich); 3, Mr P. Thompson (Wrexham).  
**Barbs.** Up to 3 in.: 1, Mr F. Ledger (section winner, Top Ten); 2, Mr and Mrs A. Wild (Salford); 3, R. & A. Johnson (Ashton). Over 3 in.: 1, Mr and Mrs Grimshaw; 2, Mr J. Giehl (Sunnybrow); 3, R. and I. Antonio, Chorlton. Small, Mr F. Oliver (section winner, Wrexham); 2, Mr Pritchard (Wrexham); 3, Mr and Mrs Hogarth (Salford). Large: 1, Mr H. Bowman; 2, Mr R. Adamson (Northwich); 3, Mr R. Ankers (North Staffs.).

**Anabantids.** Fighters and a.o.v.: 1, Mrs J. Shackleton (section winner, Belle Vue); 2, Mr A. Lomas (Merseyside); 3, Mr H. Bowman. Cichlids. Angelfish: 1, Mr B. Pearson (Northwich); 2, Mr F. Oliver; 3, C. and K. Davies (Northwich). Dwarf: 1, Mr F. Oliver; 2, Mr N. R. Gibson (Huddersfield); 3, Mr F. Ledger. Large: 1, Mr A. Lomas (section winner, Merseyside); 2, Mr P. Prochant; 3, Mr Louse (Ston).  
**Carps and minnows.** Danos: 1, Mr H. Bowman; 2, Mr and Mrs Hogarth (Salford); 3, Mr and Mrs Cobb. Barboras: 1, R. and A. Johnson (section winner, Ashton); 2, Mr L. Thomas, Sharks and Foxes; 1, Mr R. Meyer (North Staffs.); 2, Mr Louse (Ston); 3, Mr H. Buckley (Northwich).

**Catfish and loach.** Catfish, small: 1 and 2, Mr R. Davies (section winner, Belle Vue); 3, Mr R. Harding (Sunnybrow). Catfish, large: 1 and 2, R. and I. Antonio; 3, Mr J. Faulkner (Merseyside). Loaches: 1, Mr P. Shackleton (Belle Vue); 2, Mr J. Faulkner; 3, Mr and Mrs Hogarth. A.o.v. tropical fish: 1 and 2, Mr and Mrs Heap (section winners, Belle Vue); 3, Mr R. Ankers (North Staffs.). Toothcarps: 1, Mr S. Smith (Merseyside); 2, Mr F. Ledger; 3, Mr K. Ankers.

**Pairs.** Livebearers: 1, Mr and Mrs Hogarth; 2, Mr J. Brierley (Belle Vue); 3, R. and A. Johnson (Ashton). Egglayers: 1, Mr and Mrs Heap (section winners); 2, Mr L. Thomas; 3, Mr and Mrs Cobb (Belle Vue). Breeders. Livebearers: 1, Mr N. R. Gibson (Huddersfield); 2, Mr R. Adamson (Huddersfield); 3, Mr and Mrs Cobb. Egglayers: 1, Mr and Mrs Hogarth (section winners); 2, Mr J. Shackleton; 3, Mr B. Bewick (Warrington). Coldwater. A.o.v.: 1, Mr and Mrs Miller (section winners, Belle Vue); 2, Mr L. Bradley (Northwich). Juniors. Egglayers: 1, Master T. Dean (section winner, Ellesmere Port); 2, Miss A. Davies (Belle Vue); 3, P. Dawson (Oldham). Livebearers: 1, S. Smith (Merseyside); 2, G. Brierley (Belle Vue); 3, J. Brierley (Belle Vue).

THE new, bigger premises in which MERSEYSIDE A.S. held their annual Open Show this year occasioned many favourable comments from visiting aquarists, and the financial success of the show more than justified the gamble taken in venturing into a bigger venue. Judges were Mr Cliff Walker, Mr Barry Pengilly and Mr Lord; Mr Jim Kelly officiated at the prize-giving. Mr Ken Parkes received the handsome copper plaque donated by Longlife of America awarded to the best fish in the show (a *Lepomis frederici*), and Mr Parkes also won the Beth and Graham Wood trophy for the best barb. Mr Fred Mulla was awarded the Harry Swanson trophy. Merseyside itself retained the shield for the society gaining most points overall (2, Belle Vue A.S.; 3, Alfreton A.S.). Detailed results were as follows:

**Livebearers.** Guppies: 1 and 2, Miss Laidley (section winner, Alfreton, 78, 21); 3, Mr R. Stone (Merseyside, 73). Molies: 1, Mr and Mrs Heap (Belle Vue, 76); 2, Mr F. Robinson (Sunnybrow, 74); 3, Mr K. Rhodes (Alfreton, 71). Platys: 1, Mr G. Hodgkinson (Gorton & Openshaw, 74); 2, Mr H. Bowman (Northwich, 73); 3, Mr and Mrs Cobb (Belle Vue, 68). Swordtails: 1, Mrs Kaye (Top Ten, 74); 2, R. and I. Antonio (Northwich, 72); 3, Mr N. R. Gibson (Huddersfield, 70).

**Barbs.** Small: 1, Mr J. McDermott (Merseyside, 78); 2, Mr J. Wright (Alfreton, 77); 3, Miss Gerrard (Alfreton, 76). Large: 1, Mr K. Parkes (section winner, 82); 2, Mr F. Mulla; 3, Mr C. Stewart (Nelson, 75).  
**Loaches, sharks and foxes.** 1, Mr and Mrs Stenden (section winners, Lymm, 79); 2, Mr F. Mulla, 28; 3, Mr and Mrs Cobb (Belle Vue, 78). **Catfish and loaches.** Loaches: 1, Mr W. Smith (section winner, Merseyside, 82); 2, Mr F. Mulla (79); 3, Mr F. Kerton (Belle Vue, 78). Corydoras: 1, Mr and Mrs Grimshaw (Sunnybrow, 79); 2, Mr R. Davies (78); 3, Mrs V. Parkes (Merseyside, 77). A.o.v.: 1, R. and I. Antonio (Northwich, 80); 2, Mr F. Mulla, 77; 3, Mr D. Faulkner (Merseyside, 75).

**Anabantids.** 1, Mr J. Gibson (section winner, Huddersfield, 77); 2, Mr F. Ledger (75); 3, Mr J. McDermott (Merseyside, 73). Fighters: 1, Mrs P. Shackleton (Belle Vue, 74); 2, Mr J. Brantley (Alfreton, 69); 3, Mr G. Mervin (Merseyside, 67). Dwarf: 1, Mr R. Davies (75); 2, Mr Gibson (78); 3, Mr F. Ledger (77). Large: 1, Mr and Mrs Ormisher (section winner, Southport, 82); 2, Mr J. McDermott; 3, Mr and Mrs Stenden (Lymm, 76). Angelfish: 1, Mr D. Broadbent (Merseyside, 79); 2, Mr P. Danielson (Huddersfield, 76); 3, Mr J. Bowyer (Ellesmere, 75). **Characins.** Small: 1, Mr R. Dawson (Oldham, 79); 2, Mr D. Wright (Alfreton, 78); 3, Mr J. Wright (Alfreton, 76). Large: 1 and 2, Mr K. Parkes (section winner, 83, 81); 3, Mr J. Cobb (Merseyside, 79). **Toothcarps.** 1, Master S. Smith (section winner, Merseyside, 79); 2, Mr F. Ledger (78); 3, Mr D. Wright (77). **Barboras and danios.** 1, Mr R. Moorcroft (section winner, Merseyside, 78); 2, Mr K. Parkes; 3, Miss Gerrard (Alfreton, 75).

**Breeders.** Egglayers: 1, Mrs J. Shackleton (section winner, 79); 2, Mr J. McGinty (Merseyside, 78); 3, Mr and Mrs Ormisher (Southport, 76). Livebearers: 1, Mr Gibson (section winner, Huddersfield, 78); 2, Mr P. Danielson (Huddersfield, 78); 3, Mr and Mrs Brierley (Belle Vue, 74). **Pairs.** Egglayers: 1 and 2, Mr F. Mulla (78, 74); 3, Mr R. Dawson (Oldham, 77). Livebearers: 1, R. and A. Johnson (section winners, Ashton, 79); 2, Mr and Mrs Cobb (Belle Vue, 78); 3, Mr J. Brantley (Alfreton, 71). A.o.v.: 1, Mr F. Mulla (section winner, 80); 2 and 3, Mr and Mrs Stenden (Lymm, 77, 74). **Juniors.** 1, B. Seabright (section winner, Gorton & Openshaw, 81); 2, D. Moorcroft (Merseyside, 80); 3, S. Smith (Merseyside, 79). **Ladies.** 1, Mrs Tonge (section winner, Oldham, 76); 2, Mrs Parker (73); 3, Mrs Heap (74).

**Coldwater.** Fancy goldfish: 1, Mr Walsh (section winner, Accrington, 79); 2, Mr Wilbank (Accrington, 77); 3, Mrs S. Taylor (Merseyside, 76). A.o.v.: 1, Mr and Mrs Miller (Belle Vue, 78); 2, Mr Walsh (Accrington, 76); 3, Mr J. Divine (Merseyside, 75). Common goldfish: 1, Master Cobb (Belle Vue, 77); 2, Mr H. Bowman (Northwich, 73); 3, Mr Whitty (Accrington, 74).

**LLANTWIT MAJOR A.S.** has been in existence for some 17 years, and for 14½ of those Mr R. S. Wigg has been honorary secretary and treasurer. Now, because of a move to Skyrubury in his business connections, Mr Wigg has had to resign these posts (he is not moving home yet either).

100, 74). **Non-society exhibitors.** Egglayers: 1, Mr N. Kirkby; 2, Mr K. Atherton; 3, Mr Matthew. Livebearers: 1, Master J. Butterworth; 2, Mr Baxter.

MIR S. SMITH of Merseyside received the best fish in the show award at the HYDE A.S. Open Show and entries from Mr and Mrs Heap and Mr and Mrs Cobb from Belle Vue were second and third. Other results were:

**Novices.** A.v. livebearer: 1, Mr A. Jackson (Ind., 71); 2, Mr J. P. Gee (Belle Vue, 74); 3, Master Bradley (Belle Vue, 67). A.v. barbs: 1 and 2, Mr R. Andrew (Hyde, 79, 62); 3, Mr A. Hyde (Hyde, 66). A.v. characins: 1 and 2, Mr Norris (Lymm, 74, 68); 3, Mr C. Penner (Hyde, 76). A.v. anabantids: 1, Mr A. Jackson (74). A.v. carp and minnow: 1, Mr S. Smith (section winner, Merseyside, 82); 2, Mr J. P. Gee (Belle Vue, 71); 3, Mr K. Harrop (Oram, 68).

**Breeders.** Livebearers: 1, Mr and Mrs Cobb (section winner, Belle Vue, 80); 2, Mr Sewell (Sherwood, 76); 3, Mr Bradley (Belle Vue, 75). Egglayers: 1, Mr Shackleton (Belle Vue, 78); 2, Mr Sewell (75).

**Livebearers.** Guppies: 1, Mr R. Thomkinson (Glossop, 78); 2, Mr R. Barnaby (Belle Vue, 77); 3, Mr S. Buchanan (Sherwood, 75). Platys: 1, Mr G. White (Ashton, 77); 2, Mr R. Thomkinson (76); 3, Mr and Mrs Cobb (Belle Vue, 73). Swordtails: 1, Mr D. Godbhere (Stockbridge, 78); 2, Mr and Mrs Heap (Belle Vue, 77); 3, Mr Haslam (Lymm, 75). Molies: 1, Mr Igwe (section winner, Sherwood, 76) 2 and 3, Mr and Mrs Grimshaw (Sunnybrow, 77, 76). A.o.v.: 1, Mr and Mrs Heap (77).

**Anabantids.** Siamese fighters: 1, Mr W. Nowell (Hyde, 74); 2, Mr B. Wright (Hyde, 69); 3, Mr Shackleton (69). A.o.v.: 1, Mr Sewell (section winner, Sherwood, 74); 2, Mr J. Bowker (Ind., 70); 3, Mr D. Godbhere (68). **Cichlids.** Dwarf: 1, Mr M. Tonge (Oldham, 76); 2, Mr R. Davies (Belle Vue, 75); 3, Mr Bradley (74). Angelfish: 1 and 2, Mr Sewell (77, 76); 3, P. and R. Stenden (Lymm, 76). A.o.v.: 1, P. and R. Stenden (section winner, 78); 2, Mr J. Bowker (77); 3, Mr and Mrs Cobb (Belle Vue, 72).

**Barbs.** Small: 1, Mr J. B. Dawson (section winner, Oram, 74); 2, Master Kaye (Top Ten, 72); 3, Mr D. Godbhere (68). A.o.v.: 1, Mr Abell (Sunnybrow, 76); 2, Mr and Mrs Grimshaw (Sunnybrow, 69); 3, Mr Faulkner (Merseyside, 67). **Characins.** Small: 1, Mr Birchwood (Oldham, 76); 2, Mr Tonge (Oldham, 75); 3, Mr B. Wright (Hyde, 73). A.o.v.: 1, Mr M. B. Cass (section winner, Macfield, 77); 2, Mr Sewell (76); 3, Mr Haslam (Lymm, 75). **Killifish.** 1, 2 and 3, Mr Loft-house (section winner, Huddersfield, 58, 77, 71). **Carps and minnows.** Sharks and foxes: 1, D. and R. Stenden (Lymm, 78); 2, Mr F. Mulla (Merseyside, 74); 3, Mr and Mrs Cobb (71). Barbora, danos and minnows: 1, Mr Tonge (section winner, 78); 2, Mr R. A. Johnson (Ashton, 77); 3, D. and R. Stenden (Lymm, 78).

**Catfish and loach.** Corydoras: 1 and 2, Mr R. Davies (Belle Vue, 78, 75); 3, Mr J. B. Dawson (Gorton, 74). A.o.v.: 1, Mr Hodgkinson (Gorton & Openshaw, 74); 2, Mr A. Gleave (Stretford, 77); 3, Mr S. Buchanan (Sherwood, 71). Loaches: 1, Mr W. Smith (Merseyside, 74); 2, Mr S. Smith (Merseyside, 71); 3, Mr Hodgkinson (70). A.o.v.: 1, Mr Tonge (section winner, 76); 2, Mr F. Mulla (Merseyside, 76); 3, D. and R. Stenden (Lymm, 74). **Pairs.** Livebearers: 1, Mr R. Thomkinson (Glossop, 76); 2, R. and A. Johnson (Ashton, 78); 3, Mr D. Godbhere (75). Egglayers: 1, Mr and Mrs Heap (section winner, 80); 2, Mr Haslam (Lymm, 79); 3, Mr S. Robinson (Sunnybrow, 74). **Coldwater.** Common goldfish: 1 and 2, Master A. Kaye (Top Ten, 74, 73)

A.O.V.: 1, Mr and Mrs Miller (section winner, Belle Vue, 77). **Mini-jars**: 1, Mr and Mrs Cobb (section winner, Belle Vue, 78); 2, Mr and Mrs Heap (77); 3, Master Cobb (Belle Vue, 74). **Marine**: 1, Mr D. Haddock (section winner, Hyde, 77); 2, Mr Tonge (70).

**LLANTWIT MAJOR A.S.** held their annual tropical fish show on 13th June at the Town Hall. Judges Dr Cole (Birmingham), Mr John Wheeler (Trowbridge), Mr Colin Lewis (Newport) and Mr B. Clark (Bristol) made the award for best fish in the show to a cardinal tetra entered by Mr A. Lewis (74 points). The best guppy award went to R. and S. Hoare (77 points). Mrs G. Vinicombe entered the best furnished aquarium (2, Mrs J. Edwards; 3, Mr S. Ireland). Winners of the fish classes, for which there were 320 entries, were:

**Barbs**: 1, Mr F. Brown; 2, Mr A. Lewis; 3, Mr C. Perry. **Characins**: 1 and 3, Mr A. Lewis; 2, Mrs Pamsford. **Hemigrammus, Hypheobrycon and Cheirodon**: 1, Mr R. Hoare; 2, Mr H. Jones; 3, Mr Butcher. **Cichlids**: 1, Mr P. Player; 2, Mr Treadgold; 3, Mr R. S. Wigg. **Angels**: 1, Mr H. Jones; 2 and 3, Mr R. W. Hill. **Apoistogramma, Pelotatochromis, Naem**: 1, Mr F. Brown; 2, Mr Hesketh; 3, Mr Butcher. **Labyrinth**: 1, Mr C. Pass; 2, Mr R. Hoare; 3, Mr C. Penny. **Fighters**: 1, Mrs King; 2, Mr D. Bateman; 3, Mr and Mrs Harding. **Egg-laying tooth carps**: 1, Mr R. W. Hill; 2, Mr N. Llewellyn; 3, Mrs King. **Tropical catfish**: 1, Mr Treadgold; 2, Mr F. Brown; 3, Mr R. Wilkie. **Breeders livebearers**: 1, Mr R. Wilkie; 2, Mr R. W. Hill; 3, Mr R. Player.

MR R. F. ELMES, secretary of the **WEST LONDON SECTION** of the F.G.A., has sent us the following report: 'At the last meeting of the West London F.G.A., held on Sunday 21st June at our new and permanent venue, we were extremely pleased to see such a large number of members from other London Sections. This allowed us to have an enjoyable afternoon and resulted in a show with 99 entries. Some really wonderful fish were on show and these reflected the hard work that their owners had put into them. To any one wishing to know more about the "millions fish"—why not come along to the Brentford Youth Centre on any third Sunday in the month at 3.0 p.m. (Brentford Youth Centre, Half Acre, Brentford). If this does not suit you geographically I would let you know that we have other sections at New Cross, Edmonton and Radlett. These sections meet on the fourth, first and second Sundays in the month as listed. Write to me at 24 Sunview Avenue, Peacehaven, Sussex.'

## In Brief . . .

. . . **YEOVIL & D. A.S.** members recently volunteered to re-decorate their meeting room at Park Lodge Youth Centre. Secretary Mr R. Gott organised the working parties and the job was soon completed—greatly aided by constant cups of coffee supplied by the ladies. Class winners at the June table show were: plants, tropical, Mr A. Rendell; coldwater, Mr V. Collins. Breeders, tropical, Mr P. Sealey; coldwater, Mr S. Langdon. Mr M. Hulbert won the quiz.

*SEVERAL reports of bumper spawnings are recorded by editor Mr R. M. Whittington in the July bulletin of THE GOLDFISH SOCIETY OF GREAT BRITAIN. One of these is of a record brood of London shubunkins produced by fish owned by Mrs Whittington. Mr Whittington writes: 'We gave up counting at 3000 and these from a pair of 3 inch body length! If there is a lesson to be learnt—3 year old fish, a 24 in. by 12 in. by 12 in. tank three parts full, and a quantity of willow moss just dropped in at one end. This is an excellent plant for catching and holding eggs. Now I have always found that if the eggs fall on the tank floor instead of attaching to plants they are not fertile. This year, however, with a pair of singletails and using Lagarosiphon major as the plant, whilst many eggs were on the bottom they were nearly all fertile. One can never tell with goldfish!' Mr Joe Linale is also reported to have had fish 'spawning in every tank' earlier in the year, with eggs, including celestial eggs, abundant.*

. . . **ANNUAL** competition results at **HEMEL HEMPSTEAD A.S.** are: shield for most points at table shows: 1, Mr T. Craddock; 2, Mr A. Dibley; 3, Mr L. Bamfield. Fish of the Year: 1, Mr S. Collins; 2, Mr D. Whiby; 3, Mr A. Dibley. Junior furnished aquaria, 1 (joint) I. Sommes and J. Whiby; 3, C. Gray.

. . . **THE** holiday season is having its usual effect on club attendances but members of **CARSHALTON & D. A.S.** who watched the Braz Walker slide and tape show enjoyed

the wide range of fishes shown on the slides. Table show judge Mr Harry Towell answered questions on fish breeding. Show cards in the **A.O.V.** egg-layer class were taken by 1, Ted Horsley; 2, Christopher Lamb; 3, Jean Horsley. The **amateur** class was won by Ted Horsley and the junior class by John Dixon.

. . . **DENNY'S** daphnia evening proved a great success with members of **GUILDFORD & D. A.S.** Although it started with the participants standing around in the car park armed with waders, nets and jars wondering apprehensively where member Mr Denny Pummell was going to lead them, nobody fell in the water and enough daphnia was caught to feed all the hungry fish. The cups of tea at Mr Ian Bennett's house where the hunt ended were much appreciated.

. . . **BOTH** teams taking part in **TONBRIDGE & D. A.S.**'s club quiz on tropical freshwater fish and plants obtained very good results and showed a fair amount of knowledge of the subjects. Mr I. Mathieson took first place in the table show classes for *Corydoras* catfish and floating plants and Mr R. Baker won in the **A.O.V.** catfish class.

. . . **CAMBRIDGE & D. A.S.** held a successful show this year even though they were competing against the World Cup on Sunday, 21st June. There were some 80 fish entries and Mr Ott won the best fish of the show Cup with a giant gourami. The Challenge Shield for the open furnished aquaria competition was won by Mid-Herts A.S. (2, Cambridge and 3, Bedford).

. . . **MR BERT COOMBS** of Bournemouth lectured to members of **NEW FOREST A.S.** at their June meeting at Lymington Community Centre on the goldfish and its descendants. Descriptions of the common goldfish, shubunkin, fantail, veiltail, lionhead and comet were given and the mention of the word shubunkin led to a discussion on the merits or otherwise of the new classification. Mr D. Bennett won in the guppy class at the table show, Mr D. Lane took first and second places in the shubunkin class and Mr A. Williamson first and second in the Bristol shubunkin class.

. . . **WHEN** Dr J. N. Carrington spoke to members of **BASING-**

**STOKE A.S.** on modern fishkeeping techniques he illustrated his lecture with examples of his company's latest products, including the ultra-violet light unit developed to destroy bacteria. Table show winners were: novice, Mr N. Stead (*A. walferi*); a.o.v. tropical, Mr A. Blake (*A. agassizi*); loaches, Mr M. Gough (*kuhli*).

**VAUXHALL MOTORS A.S.** enjoyed a slide and tape show on all aspects of keeping cichlids, from breeding these fishes to showing them. Judge Mr Randell of Bletchley awarded first card in the a.v. tropical table show to Mr 'Tich' Jeffs (thick-lipped gourami); 2, Mr Brian Burgess (bronze catfish); 3, Mr John Biggs (sailfin mollie).

**YATE & D. A.S.** are very pleased to learn that Major Codrington of Doddington Hall has agreed to become the Society's patron-in-chief for what is hoped will be a long and happy association. Mr Ellick, a member who has recently joined the Society from Gosport & D. A.S., gave the club a very enjoyable slide show of fishes he has kept.

AT the June table show for guppies held by **WEYMOUTH & D. A.S.** Mr Jones took first place in both the male and female guppy class.

A NEW competition held by **SOUTHAMPTON A.S.** had members trying to forecast the judge's decision on various species of fishes and it was won by Mr M. Calvert, a junior member. A cartoon quiz, with members and guests trying to discover the names of tropical fishes from illustrated cards, was also popular and Mrs J. Vincent was the winner. Mr C. McCann of Shirley, Southampton, judged the table show for catfish and loach: novice, 1 and 2, Mr G. Houston; 3, Mr S. Hillman. Advanced, 1 and 2, Mr D. Jones; 3, Mr E. Hearn.

**WHEN BISHOPS CLEEVE A.S.** held a general quiz for junior members the standard of the questions was found to be very high. Results of the table show that evening were: junior section: 1, P. Tattersfield (black widow); 2 and 3, L. Gamble (neon and black neon). Senior section: 1 and 3, Mr K. R. Burton (Congo tetras); 2, Mr N. W. Dooley (silver tetra).

**'WHEN PORTSMOUTH A.S.** held its inter-club table show' Mr T. J. Howard, secretary of the Society informs us, 'over 200 aquarists from Basingstoke, Bracknell, Brighton, Havant, Hounslow, Isle of Wight, Kingston, Littlehampton and Bognor, Mid-Sussex, New Forest, Reading, Reigate & Redhill, Southampton and Winchester exhibited some of the best fish seen in the south this year, competing for the inter-club shield. A scorching hot day didn't send the visitors off to find the beach—instead they settled down to an afternoon of films until the judging was over. After some very close

*AN INTERESTING fishy 'friendship' has been reported by Mr V. B. Hargreaves in the YORK & D. A.S. Lateral Lines for May. Mr Hargreaves reports that a kuhli loach and a fighter kept in a community tank together have evolved an unusual bond. 'Quite often recently they have been in each other's close company. By close, I mean laid motionless side by side, their bodies touching "dorsal to dorsal". My wife and I have even observed the fighter "sit" actually on top of the loach! Personally I think this is because the loach protects the fighter by being in such close contact with it, and in return the fighter provides a constant comfort and "matinee" to it. Normally when the loach moves, the fighter moves with it and vice-versa. What I do know though is that I have never seen any relationship or bond of this sort before in a freshwater tropical aquarium. Has any other fishkeeper a story of such a 'friendship'?*

scoring the F.B.A.S. judges decided that Reigate & Redhill were the winners. We wish them luck with their trophy and will try to find a few winning fish to take the trophy next year!

**SECRETARY** Mr A. P. Steward has given a most interesting talk to fellow club members of **HARROGATE & D. A.S.** on the breeding and collecting of live foods. The three new members at the meeting also found the lecture helpful. New members are always welcome.

AT their first monthly meeting in June members of **LEAMINGTON**

**& D. A.S.** greatly enjoyed the lecture and slides presented by Mr Twistleton, assisted by Mr Blackwell, on the world's reptiles and amphibians. The talk covered newts, toads and frogs, skinks, lizards and snakes and there were live exhibits to demonstrate the last-named. The table show for egg-layer pairs was won by Mr E. Clarke (rosy barbs) and for livebearer pairs by Mr Phil Taggart (guppies). At the second monthly meeting junior member Christopher Smith most successfully entertained members with a talk and slide show on his travels through Norway and Sweden. The table show classes at this meeting were won almost entirely by the ladies, Norma Smith and Mrs J. K. Smith taking first places in the furnished jars and a.v. guppy classes.

**MID-SUSSEX A.S.** treasurer, Mr C. West, gave fellow members a very instructive talk on the care and breeding of barbs. Five new members at this June meeting were also present. Mr F. C. Tomkins judged the table show for a.v. sexed pairs. Egg-layers: 1, Mr C. Corbin; 2 and 3, Mr J. Walker. Livebearers, 1, Mr C. West; 2, Mr S. Caulderbank; 3, Mr J. Walker. Further information from secretary Mr J. Reeve, 36 Rumbolds Lane, Haywards Heath (3702 evenings only).

**MEMBERS of NOTTINGHAM & D. A.S.** are busily engaged in practical fishkeeping at present. The Society's annual pond competition is being held at the end of August but the Society's open show on 6th September has had to be cancelled.

**FURNISHED AQUARIA** were the subject of the talk given to **BRADFORD & D. A.S.** by Mr D. Shields from Halifax at their main June meeting. As a prize-winner at the National Furnished Aquaria Exhibition, Mr Shields was able to impart some really useful tips in competitive setting-up. At the second monthly meeting Mr H. Fletcher began his talk on 'What the Judges Look For' by posing the question 'What is a judge?'. Observing that it was someone who had kept and studied a wide variety of fishes and read all the literature he could obtain on them, the speaker stressed the importance for judges to keep up-to-date because of the many new species and varieties that continually appear.

## Dates for Your Diary

1st August, **STROUD & D. A.S.** third Open Show, Mid-Gloucestershire Technical College, Stroud Road, Stroud (change of venue). Schedules from Mr P. L. K. Treadgold, 15 Kings Road, Rodborough, Near Stroud, Glos.

2nd August, **BLACKPOOL & FYLDE A.S.** Open Show, Arnold Boys School, Lytham Road, Blackpool. Programmes obtainable mid-June from Mr G. Howard, 35 Stamford Avenue, Blackpool (phone 44925).

8th-11th August, **FORTSMOUTH A.S.** Open Show. Schedules from Mr V. Hunt, 120 London Road, Witley, Nr Portsmouth, Hants.

14th-15th August, **THE MIDLAND OPEN SHOW**, Bingley Hall, Broad St., Birmingham, Wednesday 2.30-10 p.m., Th. and Fr., 11-10 p.m., Sat., 12 a.m.-8 p.m. Schedules from Mr J. Fellows, 18 Worsleyworth Avenue, Headless Cross, Redditch, Worcs.

14th August, **HARLOW A.S.** Open Show, Moor Hall, The Stour, Harlow. Schedules from Mr P. Murdoch, 21 Brookline Field, Harlow and Mr R. Kerridge, 75 Glablands, Harlow.

16th August, **LEIGH A.S.** Open Show.

25th August, **NORTH STAFFS A.S.** second Open Show, Merit Community Centre, Lutterer Road, Meir, Stoke-on-Trent. Details from Mr K. Balch, 78 Courtyard Drive, Stoke-on-Trent, ST1 6DU.

16th August, **BEDWORTH A. & P.S.** Open Show, Nicholas Chamberlaine Comp. School, Buckingham Road, Bedworth. Schedules from Mr K. Edkins, 74 Sister Street, Atherborough, Nuneaton.

15th August, **SOUTH DERBYSHIRE A.S.** Farriashed Aquaria Show, The Railway Inn, Midway Road, Swoadmoor, nr. Buxton-on-Trent. Open to public 7-9 p.m.

22nd August, **YEovil & D. A.S.** Open Show, Grass Royal Secondary School, Yeovil. Details from Mr D. M. Pison, 5 Hill Terrace, Bower Hinton, Martock, Somerset.

20th August, **CITY OF SALFORD A.S.** Open Show, Lancasterian Hall, Swinton, Lancs.

1st September, **F.B.A.S.** General Assembly, Conway Hall, Red Lion Square, London W.C.1.

1st September, **YATE & D. A.S.** Open Show, Christchurch Hall, North Street, Downend, Bristol. Details from Mr C. E. Stickland, 20 Bursage Close, Chipping Sodbury, Bristol BS17 6EL.

1st September, **BETHNAL GREEN A.S.** Birthday Show.

5th-6th September, **MID-HERTS A.S.** Open Show (Hertfordshire Horticultural Society Show), Francis Bacon School, Drakes Drive, St Albans.

6th September, **WEYMOUTH & D. A.S.** Open Show. Details from Mr Hinton, 53 Brownlow Street, Weymouth.

6th September, **CLEVELAND A.S.** third Open Show, British Legion Hall, West Gate Gumborough, Yorks. Schedules from Mrs Avery, 7 Dorset Road, Gumborough, Yorks.

12th September, **HARWICH & D. A.S.** Annual Exhibition of Tropical Fishes at Queens Hotel, High Street, Dovercourt, Essex.

14th September, **HOUNSLOW & D. A.S.** Open Show, Hounslow Youth Centre, Cecil Road, Hounslow, Middlesex. Schedules from Mr D. J. Woodward, 34 Urbridge Road, Hanworth, Middlesex.

17th September, **BRIGHTON & SOUTHERN A.S.** seventh annual Open Show, Marrison Centre, Marrison Road, Hove, Sussex. Schedules from Mr Roy Browning, 24 Rowan Close, Ferslade, Brighton (Brighton 49912).

17th September, **WARRINGTON A.S.** Open Show, St Benedict Y.C. Bell Hall, Oxford Lane, Warrington, F.N.A.S. judges. Schedules from Mr J. Higham, 42 Hood Lane, Sankry, Warrington (phone 36936).

20th September, **FOUR STAR A.S.** Open Show, Hemsworth High School, Station Road, Hemsworth. Details from Mr J. Rhodes, 105 Barnsley Road, Hemsworth.

20th September, **STONE A.S.** Open Show, Walton Community Centre, Stone, Staffs. Schedules from Mr N. Platt, 184 High Street, Stone, Staffs.

20th September, **OLDHAM & D. A.S.** Open Show, Music Room, Werneth Park, Oldham, Lancs. Booking 12.30-2.12. (This is also an A.M.D.A.S. show.) Schedules from Mr J. C. Williams, 3 Queen Street, Shaw, Lancs.

24th September, **RIVERSIDE A.S.** Open Show, St Ethelredus Church, Fulham Place Road, Fulham, London, S.W.6. All enquiries to Mr M. Goss; phone 01-726 6149.

26th September, **BRACKNELL A.S.** Open Show, Frostwood Community Centre.

27th September, **NORTHAMPTON & D. A.S.** Open Show. Schedules from Mr B. Edwards, 38 Dovecot Road, Roade, Northamptonshire.

27th September, **TORBAY A.S.** Open Show, Torquay Town Hall. Schedules from Mr L. Doubleday, 69A Newton Road, Torquay.

27th September, **STROUD & D. A.S.** Convention, Mid-Gloucestershire Technical College, Stroud. Lectures by Dr Cohen and Dr Belamy. Film Show. Enquiries to Miss J. Smith, The Prince of Wales, Cashes Green, Stroud, Glos.

3rd October, **EAST LONDON AQUARISTS AND FONDKEEPERS ASSOCIATION** Open Show, Ripple Road School, Barking, Essex.

4th October, **EALING & D. A.S.** Open Show, Northfields Community Centre, Northover Road, London, W.11. Open from approx. 3.30 p.m., Refreshments. Enquiries to Mr F. R. Cooper, 7 Nemours Road, London, W.3.

10th-12th October, **BRITISH AQUARISTS' FESTIVAL**, Belle Vue, Manchester. Saturday 10-8, Sunday 10-7. Schedules from Mr G. W. Cooke, Spring Grove, Field Hill, Batley, Yorks.

17th October, **G.S.G.B. CONVENTION** and Open Show, St Marks Church Rooms, Selgrave Gate, Leicester, at 2.30 p.m. Details from Mrs P. Whittington, Plum Lodge, Ringley Park Avenue, Rogem, Surrey.

17th October, **BRENT A.S.** Open Show, Sydney Memorial Hall, High Road, Wembley, London, N.W.9. Details from Mr A. T. Raymond, 39 Inman Road, London, N.W.10.

18th October, **SHERWOOD A.S.** 10th Open Show, Ladybrook Community Centre, Ladybrook Lane, Mansfield, Notts. Schedules from Mr J. Igoe, 25 Marples Avenue, Mansfield Woodhouse, Notts.

14th October, **KINGSTON & D. A.S.** Open Show. Schedules from Mr G. Greenhall, 39 Garth Close, Morden, Surrey.

8th November, **HEYWOOD & D. A.S.** Open Show, Ambulance Hall, Bardsley Road, Heywood, Booking 12 noon-2.2 p.m. Details from Mr A. Evans, Brechin Close, Unsworth, Nr Barry, Lancs.

10th November, **AIREBOROUGH & D. A.S.** Open Show, Governors Hall, Rawdon. (Details and schedules later.)

6th December, **HORSFORTH A.S.** Open Show, Greenacre Hall, Rawdon, nr. Leeds. Booking 12.30-2.30 p.m. Schedules from Miss J. Helyar, 20 Wallington Road, Leeds LS12 1EE (phone Leeds 22225).

12th December, **F.B.A.S.** Annual General Meeting, Conway Hall, Red Lion Square, London, W.C.1.

### 1971

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

15th April 1971, **BURY & D. A.S.** Open Show, Church House, The Wylie, Bury.

## Meetings and Changes of Officers

**CITY OF SALFORD A.S.** Secretary: Mrs S. McGookin (59 Devonshire Street, Higher Broughton, Salford M7 0BB). Meetings: alternate Tuesdays; visitors are always welcome.

**HARROGATE & D. A.S.** Meetings: every second Tuesday of month at the Conservative Rooms, Park View, Harrogate.

**HEMEL HEMPSTEAD A.S.** Meetings (change of venue): now held at Adeyfield Secondary School, Longlands, Hemel Hempstead, Herts, every other Thursday (6th August, etc.). Officers elected at A.G.M.: chairman, Mr E. Lowry; vice-chairman,

Mr A. Dibley; secretary, Mr F. Trueman; assistant, Mr T. Craddock; treasurer, Mr G. Whitty; assistant and librarian, Mr M. Whitty; show secretary, Mr A. Tuff; assistant, Mr S. Collins; junior secretary, G. Treerwith; catering, Mr C. Gordon, P.R.O., Mrs J. V. Collins (65 Pulley Lane, Hemel Hempstead).

**LLANTWIT MAJOR A.S.** Secretary, Mr J. M. Thomson (11 Yew Tree Green, St Albans, Glos.); treasurer, Mr J. Edwards. **WEYMOUTH & D. A.S.** Chairman, Mr J. Turner; secretary, Mr D. Rogers (140 Dorchester Road, Weymouth, Dorset).

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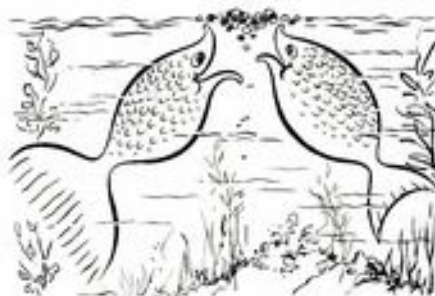
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