

JULY 1975

25p

Pet **Fish**

PRACTICAL FISHKEEPING MONTHLY



Contents include:

Dwarf Croaking Gourami
Foods for Guppies
Mare's Tail for Pond and Aquarium
Readers' Queries Answered

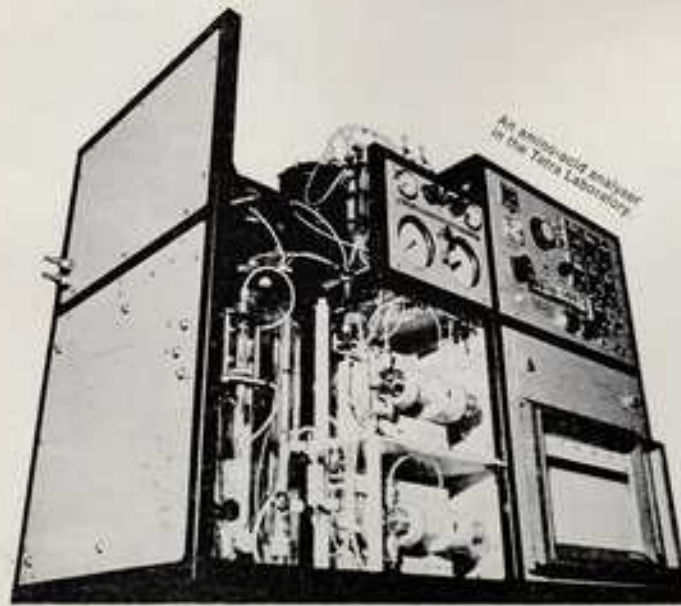
Marine 'Starter Fish'
Cichlids as Community Fish
Fruit-Fly Management
Coldwater Scene etc.



Can TetraMin be improved? With Tetra the answer is "Yes". In 1970 we were the first manufacturer of fish food in the world to have the courage to publish a complete analysis of TetraMin. This analysis has become a standard today. By using an amino-acid analyser we can now apply the findings of

protein research more rapidly and more safely to current production, and thus improve the composition of our fish food. Of course, only after extensive practical tests in our large Testing Station. And with our new TetraMin we are once more setting the standards for the right quality of fish food.

**We spare no costs
to improve TetraMin.**



Good health for fish — a whole life long





pfm

PetFish Monthly 25p

Vol. 10 No. 3

July 1975

Subscription rates: £4.00
for 12 issues; £2.00 for 6
issues (U.S.A. and Canada
\$10.00 for 12 issues)

Editor: Anthony Evans

Advertisements:
G. Bellenger

In This Issue

	Page
Comments and Quotes	105
Letters	106
Cichlids Can be Community Fishes	113
Easy Fruit-Fly Management	116
Personal Comment	118
Coldwater Scene	120
Pond Plant with Aquarium Applications	123
Feeding — the Least of the Worries	125
Fantails and Fantail Types	126
Breeding the Dwarf Croaking Gourami	128
Is it New to You?	131
'Starter Fish' for the New Tank	132
Readers' Queries Answered	133
Meetings and Changes of Officers	134
Club News	135
In Brief	137
Dates for Your Diary	138

© 1975

P. F. Publications
554 Gerratt Lane
London, SW17 0NY
Telephone 01-847 2805

Comments and Quotes

● Time for new thought on heating equipment?

Consumer Wants

HOW much does a manufacturer put into initiating new, improved designs and how much is he forced to make change because of public (potential customer) reaction? Certainly an inventive manufacturer can give the lead and provide what is wanted almost before the consumers realise the need, but in some instances in the aquarium industry consumers seem to have given the stimulus to manufacturers. Aquarium design is a case in point, where many people who in effect had said 'Not at any price' to the angle-iron aquarium became aquarium keepers when aquaria more acceptable in living room decor came on the scene.

There might be another area in aquatic manufacturing where the existence of a fairly quiet group of resisting consumers should provoke some new thinking. This is the field of aquarium heating and temperature control. From time to time we meet or hear of people who are seriously worried about having fragile-looking live electrical equipment under water, particularly with aquaria for children, and who will not keep tropical fish for this reason. It is of no use pointing out conformity with official standards, a long record of operational safety or other amelioratory factors to this group — they are just unhappy about conventional aquarium heating equipment.

A recent instance of this objection had a thoroughly justifiable background. A works officer of a large hospital group sought our advice because of difficulties with aquaria in wards for mentally handicapped patients. Although the hospital staff were convinced that the patients benefitted from being able to watch fish, there were real problems about the small items of electrical equipment with patients who cannot comprehend the dangers of 'fiddling'. Fortunately, as we found that the tanks were in wards unlikely to fall below 65°F ambient temperature we were able to point out that there was no real difficulty here since heaters could be dispensed with. But elsewhere the problem remains. We have known of schools where tropical aquaria are banned for the same reasons.

Is it not time that a sealed, thermostatically operated heater unit was manufactured for use beneath an aquarium (the best position, in our opinion)? The basic technology has already been tried out in several spheres — animal operating-table units are an example. Such a unit would remove the worry that genuinely prevents some people from becoming tropical aquarium keepers. Although the advent of the equipment would not provide another spectacular lift-off for aquarium-keeping it could facilitate the achievement of the desire that many publicity seekers for the hobby have — to get more tanks on display in public places and institutions.



LETTERS

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

Dear Fluorescent Tube

HAVING been appraised of a new brand of fluorescent tube, I went to a dealer trading in them and inquired the price. I was quite shamelessly asked £4.50 for a 24in. tube. Needless to say, I refused to pay this outrageous price. One must, I suppose, expect to pay more for a specialist product than an everyday one, but to be robbed to the extent of £2.25 per foot — and this sort of price is robbery — is just not on. This is an imported product, and the sooner it ceases to be imported the better. A fluorescent tube, however special and wide spectrum, is no more than a fluorescent tube and there is no reason at all for it to retail at this price. In fact, it seems suspiciously like profiteering.

There should be a British product at a reasonable price. An equivalent, I mean. Why is there not? Here are a few more why's, too. Why is an old and respected British firm offering air-pumps that on examination turn out to be Japanese? Why is the best and quietest range of air-pumps available French? Why is another respected British firm, hitherto producing its own self-motored filter, now offering a German one at over twice the price of its own product?

Why, in fact, with the exception of certain food and heater and tank producers, are British manufacturers neglecting the aquarium market and allowing foreigners to take the lead?

If the above contentions can be proven wrong, hooray! But it's about time we saw a broad-spectrum British fluorescent at a much lower price than the aforesaid. Until then, I stick to my 'warm white'.

LAURENCE SANDFIELD

London W13 9EL

Coldwater Fish Standards

AS a member of the panel responsible for the publication of the 'Pedigree Book of Standards', I write with much con-

cern regarding the future of the newly formed Confederation, in relation to cold-water standards. Prior to publication of this booklet, a meeting was held and included representatives from MAAS, FBAS, NGPS and other responsible organisations. Much encouragement was afforded us and acceptance on publication assured by the above bodies. The said standards are now in current use in the Midland and Bristol areas and the new Confederation, it was thought, would adopt same at a future date.

A visitor to the BAF on the Saturday of the show, I was astonished to learn from one NGPS member that a meeting was currently being held to decide coldwater standards for the Confederation. I was informed that the meeting (which was still in progress) would vote in favour of a set of standards drawn up by the NPGS and approved by FNAS; in addition, it was stated, a meeting with panel members of the 'Pedigree Book' would be convened for 'discussion' at a later date.

The outcome of the BAF meeting has not been made known as yet to the Midland members. However, I fear that resolutions may have been passed and decisions taken without the representation from all concerned. If this be so, adverse repercussions may well follow. It could lead to the Midland Aquarium & Pool Society (MAPS) withdrawing from MAAS and thus jeopardising the possibility of the two bodies, MAPS and MAAS, staging the 'Midland Aquatic Festival' on a partnership basis. In short many complications are imminent. This at a time when MAAS are in the process of re-shaping and putting their house in order.

On behalf of the coldwater aquarists in the MAAS area I appeal to the Confederation to 'do the right thing' by their members and in particular those of us desirous of a unified and successful organisation, namely the Confederation of United Kingdom Aquarists.

F. R. CLOSE

Handsworth, Birmingham

Armitages
Aquarium products now include
the internationally known Singleton
range of **ES-ES** products



Armitages

the firm that cares for your fish, supply a wide range of fish foods, aquarium accessories, ornaments, air pumps, etc.



ARMITAGE BROS LTD · ARMITAGE HOUSE · COLWICK · NOTTINGHAM NG4 2BA

"I saw your advertisement in PFM"



EHEIM FILTER MEDIUMS

	EHFISYNTH EHFIL-FEIN EHFIL-GROB EHFIMECH	EHFISUBSTRAT-FEIN EHFISUBSTRAT-GROB EHFIBAS	EHFILARBOH EHFISCHAUM EHFISPHU	EHFILASER-MILD EHFITONAF-STARK EHFIMARIN-SE-N
	MECHANICAL	BIOLOGICAL	ADSORBENT	CHEMICAL
FRESH WATER	+	+	+	+
SEA WATER	+	+	+	+
RE-USABLE	+	+	+	+
PACKING				
3 QTS				
6 QTS				
1 QT				
2 QT				



EHEIM POWER FILTERS

ACCESSORIES
SPARE PARTS
REPAIR SERVICE

U.K. DISTRIBUTORS

John Allan
AQUARIUMS LIMITED
EASTERN INDUSTRIAL ESTATE
EASTERN WAY
BURY ST. EDMUNDS - SUFFOLK

Please mention PFM when writing to advertisers

EHEIM - FILTER - MEDIUMS

An aquarium filter can only be as good as its filter medium. That is the reason for adding EHEIM filter mediums to EHEIM power filters. Mediums designed for use in fresh or sea water, for mechanical, biological, absorbent and chemical treatment. Prepared and controlled under scientific supervision in order to guarantee the best possible conditions for your fishes.

MECHANICAL MEDIUMS

EHFISYNTH is a synthetic fibre providing the right degree of filtration without interrupting the free flow of water through the filter. It is also effective in preventing the flow of small particles from the filter to the aquarium. EHFISYNTH is recommended as sole filter medium when using chemical or medical additives in your aquarium.

EHFIFIX-FEIN is a mechanical pre-filter which protects the other filter materials from damage from large particles.

EHFIFIX-GROB is similar to EHFIFIX FEIN but is recommended for use in large aquariums.

EHFIMECH is strictly a pre-filter media. The multitude of the round, hollow bodies of EHFIMECH create a turbulence in the water as it passes through, retaining many substances and extending the duration of effectiveness of the other filter mediums.

BIOLOGICAL MEDIUMS

EHFISUBSTRAT-FEIN provides an ideal attaching surface for bacteria which break down biological waste materials in the aquarium. It is specially recommended for use at the bottom of the aquarium.

EHFISUBSTRAT-GROB is an effective biological filter medium. A highly porous material, it provides an ideal attaching surface for bacteria which break down biological waste materials in the aquarium.

EHFIBAS is a coarse, sharp edged, crushed gravel which should be used in uncrowded aquariums as pre-filter for other materials. In addition to its mechanical filtration of large particles, a biological filter is formed as bacteria settles on the rough surface of the gravel particles.

ABSORBENT MATERIALS

EHFKARBON is a natural filter coal, absorbing organic substances which result from food decomposition and fish wastes. It is also effective for removing gases which cause water discolouration, cloudiness and unpleasant odours.

EHFDRAFIN is an active hydradin-carbon, very effective in the absorption of organic sediments and gases. Very suitable for sea water and densely populated aquariums.

EHFPUR is a high performance carbon filter medium specially suitable for use in filters which are required to operate for long periods of time without maintenance. Its effectiveness will start gradually and remain efficient for a period of up to three months.

CHEMICAL FILTER MEDIUMS

EHFASER MILD is a slightly acid peat fibre recommended for the enrichment of soft or slightly hard water with biologically effective material and hormones.

EHFITORF STARK is a water softening and enriching peat which imparts biologically effective substances to the water. Peat tends to lower the pH of water, thereby making a more acidic water condition.

EHFIMARIN SER consists of two components which are harmonised and dependent on one another for effective filtration. It is an excellent filter medium for sea water, ensuring optimal water conditions. For normally populated aquariums EHFIMARIN SER will be effective for approximately three months.

"I saw your advertisement in PFM"

ANOTHER NEW **RENA** PRODUCT

R505 Water Circulating and Filtering Pump

- OUTSTANDING EFFICIENCY
- FILTERS 100 GALLS. PER HOUR
- DESIGNED FOR SEAWATER AS WELL AS FRESHWATER
- SILENT MOTOR
- LOW CONSUMPTION (8 WATT)
- BUILT-IN THERMOSTAT TO AVOID OVERHEATING
- price £18.00 plus V.A.T.
- "F" Filter price £1.40 plus V.A.T.
- Carbon Case price 85p plus V.A.T.

JOINS A TRIED AND PROVEN TEAM OF:

301 Pump

- INCREASED POWER
- GREATER EFFICIENCY
- UNMATCHED AFTER-SALES SERVICE
- Price £4.90 plus V.A.T.

301R Pump

- NEW DESIGN
- GREATER POWER
- WITH REGULATOR
- Price £7.52 plus V.A.T.

RENAFLOT

- NEW CONCEPT IN FILTERS
- INCREDIBLY EFFICIENT
- INEXPENSIVE
- UNOBTRUSIVE
- Price £2.10 plus V.A.T.

All are available at your usual dealer

DISTRIBUTED BY

IMPELEC
LIMITED

IN CASE OF DIFFICULTY WRITE TO:

UNIT 2, FARBURN INDUSTRIAL ESTATE,
FARBURN AVENUE, SLOUGH, BUCKS.
Tel.: SLOUGH 34437

Please mention PFM when writing to advertisers



gamma foods Ltd.

proudly announce

A NEW RANGE OF FROZEN FOODS FOR ALL AQUARIUM FISH

The secret is in the processing.
100% edible. Pure protein,
no waste. Contains added vitamins:-
A, B1, B2, B6, B12, B13, D2, D3, E, F, H, K.



Guaranteed to be gamma-ray
irradiated. Free from all
aquatic diseases.

Handy packaging, open sachet,
break off any size portion
and re-seal.



At present available:- MYSUS,
BRINE SHRIMP (Adult), SQUID,
PRAWN, RAZOR MEAT, COCKLE
AND PLANKTON. Fantastic value.
Complete range at only 39p. per sachet.

MANY MORE EXCITING NEW FOODS TO BE ANNOUNCED SHORTLY

TRADE AND WHOLESALE ENQUIRIES

from

gamma foods Ltd.

Telephone: 01-207 1234



"I saw your advertisement in PFM"

High quality, low price. And there's nothing fishy about that!

When it comes to tropical fish foods Phillips make sure that what's good for your fish is also good for your pocket.

Through intensive research and controlled tests their nutrition scientists have perfected a high-protein staple diet containing essential vitamins, minerals, amino acids and trace elements.

And they've done it so effectively that Phillips actually costs less than any other directly comparable product.

So now that you know the best doesn't cost the most, you can give your fish another important bonus—variety—with Phillips Flaked Fish Food, Phillips Maxiflakes and Phillips Multifreeze.



PHILLIPS FLAKED FISH FOOD

A palatable, easily digested flaked food rich in protein and essential vitamins. For all tropical fish.

PHILLIPS MAXIFLAKES

Specially prepared for hand feeding all large tropical fish. A nutritious, high-protein staple diet that's fun to feed.

PHILLIPS MULTIFREEZE

As close as it can be to live food. 100% freeze-dried to preserve the full nutritional value, giving 60% protein.

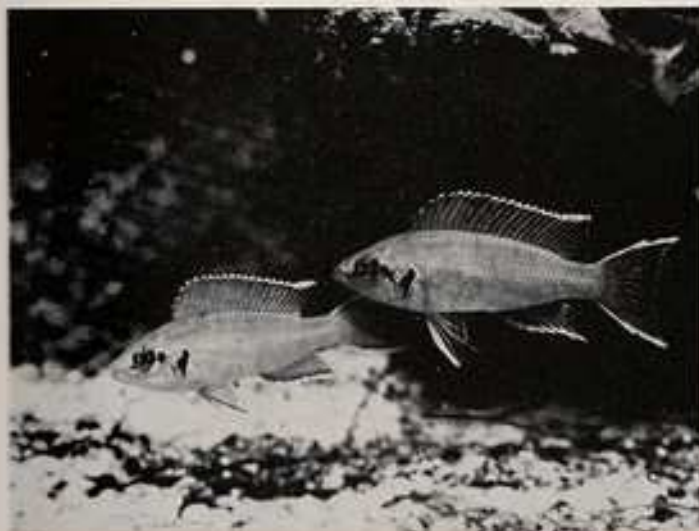
Phillips Fish Foods.

Phillips Yeast Products Ltd, Park Royal Road, London NW10 7JX.

Please mention PFM when writing to advertisers

Cichlids can be Community Fishes

says J. ELIAS



Photographs
by
the author

In the author's opinion the most elegant fish he has known — *Lamprologus savoryi elongatus*, one of the smaller cichlids from the African great lakes.

AQUARISTS, and particularly newcomers to the hobby, are often not careful enough in the choice of fish for their community tank. I have often seen such enthusiasts in the shops buying cichlids such as *Aequidens pulcher*, *Cichlasoma meeki*, *C. biocellatum*, *C. nigrofasciatum* and fishes such as *Hemichromis bimaculatus*. Of course, these are wonderful fishes, perhaps some of the most interesting in their life style and propagation, but they require special conditions.

Fairly strong and comparatively lively, these fishes do not belong in the company of fishes of smaller size in tanks with delicate plants. A well-planted tank in which these cichlids start to breed will rapidly present a sorry sight. The preparation these fish make for spawning covers not only the small spawning area but includes all the surrounding area as well; plants are pulled up and all other tank inhabitants banished from the spot. To keep danger away from their eggs, and eventually their young, they will exercise

dominance over everything in the area, and an adult pair will defend the most favoured territory against any intruder.

But community tanks containing cichlids are a possibility. Some might condemn them out-of-hand, but I propose to advise the beginner how his community tank and plants can be safely used for cichlid species. After all, the cichlid family does not consist only of fish species that grow very large in captivity. We have only to think of genera such as *Apistogramma*, *Nannacara*, *Pelvicachromis* and the newer representatives of the genera *Lamprologus*, *Julidochromis* or *Nannochromis*.

Even in Nature these fishes grow only to a length of 3½ to 4 in. (8-12 cm.) and they do not need as much tank room as their large cousins; they don't plough up the bottom; they don't destroy plants, and, apart from spawning periods, they do not attack other species. They can be kept in a 15 gallons (70 litres) tank — or possibly one even smaller; water conditions aren't critical and the tank can be planted as



Nannacara anomala will spawn regularly in a suitable community tank although aggression by the female towards the male is common after spawning.

circumstances require. Do not forget to provide plenty of possibilities for hiding places by the random grouping of stones or roots (that have been neutralised by water or time). A flowerpot with its bottom broken out will be gratefully used by cichlids — they usually take it over instantly. Possibly this kind of arrangement is rather unusual for a community tank but it answers beautifully for the purpose of producing cichlid fry. A coconut shell makes a very good hiding place

— it merges into the background so entirely that it becomes a favourite lair.

The species *Apistogramma agassizi*, *A. reitzigi*, *A. ramirezi*, *Nannacara anomala*, *Pelvicachromis pulcher* and *P. taeniatus* will spawn regularly in the community tank, mostly in small holes or on flat stones (*A. ramirezi* also spawns on broad-leaved plants). The eggs are mostly watched over by the female, though this is not invariable. The male drives away intruders and sometimes relieves the



Golden variety of *Apistogramma ramirezi* seen guarding a batch of eggs laid on a flat stone.

Another dwarf
cichlid of the
genus *Apistogramma*
— *A. perense*,
that is quite
peaceful in a
community of
fishes.



female. When the fry become free-swimming, then they must be provided with special food — a plentiful supply of the smallest live foods. More fry can be reared, of course, if they are isolated in a tank by themselves. From my own experience I can cite the example of *Pelvicachromis pulcher* taking care of their young in the presence of angel fish and other species and rearing 50 specimens. With isolated rearing there were over 100 young fish.

Based on my own observations, I would divide the members I have mentioned of the smaller cichlid species into three groups according to their temperament. The most peaceful are *Apistogramma nanae* and *A. reitzigi*. In the second group I would place *Apistogramma saponi* and *Pelvicachromis taeniatus*, though, of course, some of the behaviour of the second group applies to the first group and the third group also. Here I would place *Nannacara anomala* and *Pelvicachromis pulcher*. The female *Nannacara* is capable, after the spawning act, of chasing the male to death, and with *P. pulcher* chasing can also occur, though in reverse—the female is chased by the male. *Lamprologus savoyi elongatus* I have also kept — indeed it is perhaps the most elegant fish I have known — but I have not here put it into any category as I have not watched its habits during

spawning and rearing of young. According to some sources, however, it cares for and rears its fry in an excellent fashion.

Pretty well the most delicate are the cichlids *A. ramirezi*. They live for a comparatively short time (about 2 years) and I have found them susceptible to a number of diseases (chiefly to tuberculosis). With a plentiful supply of good quality food, however, and with carefully maintained living conditions (clean water, 72-79F°, 22-26C°, in temperature) we shall certainly witness spawnings and, in many cases, also hatching of the fry and rearing of the brood, to which the male and female devote exemplary care. With the golden form of *A. ramirezi* the female does not usually 'fill' with roe very satisfactorily, and produces only a small number of eggs, often before they are ready, and the whole process proves abortive. Many females are often not suitable to use again for breeding — possibly this is due to the stock coming from too closely inbred fish.

As for *Nannacara anomala*, here we have a species with a typical matriachal egg-laying and breeding care pattern. The tiny black-striped female furiously banishes the male from the eggs and the brood, and in a small tank can pursue him to the death. Her mother instinct is such

Continued on page 117

Easy Fruit-Fly Management



By S. TARRANT

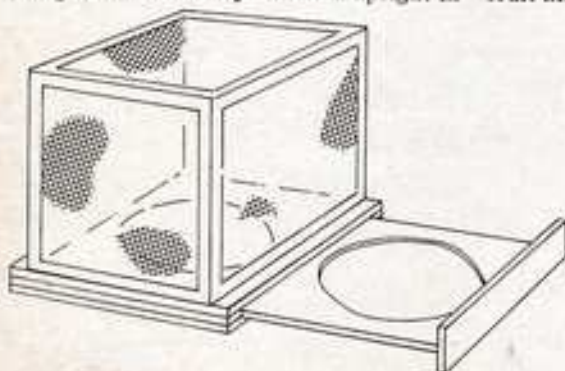
The trapping cage described in the article has a modified metal twist-off cap cemented beneath it so that it can quickly be fitted to a fruit-fly culture jar, as shown to the right of the photograph.

MANY aquarists know of the usefulness and value of fruit-flies as live food for aquarium fishes but have not realised how easily they can be managed if a little thought is given to the matter. Details of culturing the wingless fruit-fly were given in PFM for June 1974 but in this article I want to describe the technique and equipment I use to obtain the insects completely clean and free of any extraneous matter from the culture jars, ready to drop in to the waiting fish.

Two observations of fruit-fly behaviour in particular are made use of: first, when undisturbed the flies quickly crawl up the vertical sides of a jar to the highest point they can reach; secondly, a shock to the jar, given whilst the jar is held upright in

one hand by applying a smart blow with the flat of the other hand, causes all the flies to drop to the bottom of the jar.

I use a catching cage made from strips of Perspex cemented together above a base and covered with fine gauze or muslin, and with the base provided with a Perspex sliding false floor. This false floor has a hole in it towards one end and can be either placed with this hole over the similar hole present in the cage base, allowing access to the cage, or positioned so as to cover the hole and thus close the cage. To the underside of the cage base is stuck a metal twist-off cap from a jar, the cap having a cut-out hole that coincides with the hole in the Perspex base. My fruit-flies are cultured in glass jars that



Main features of the catching cage. The frame and slide holder are made from strips of Perspex and are covered with fine gauze. With the slide in the position shown the cage is closed; when the slide is pushed in the hole in it provides entry from a culture jar to cage. The twist-off cap allowing attachment of the cage to jar is not seen in this view.

are supplied with this type of metal cap (there are several makes) so that the catching cage can be fitted quickly and securely to one of these jars after its own cap has been removed. The cap of each culture jar also has a hole made in it and is covered with gauze cemented to it.

It is a simple matter to cut out the centre from a metal cap since it will be found that there is already a groove round the inside of the cap, which can be punched through with a small screwdriver tip; the cut edges can be smoothed with a half-round file. The hole in the Perspex base of the cage, of the same diameter (about 2½ inches) as the cut-out in the cap, can be made with a heated rod.

The procedure for obtaining clean flies from a culture jar is as follows. After a sharp tap to the jar to send the flies to its bottom the cap is removed and the jar screwed to the catching cage. The slide of the catching cage is now positioned so that the flies can ascend into the cage, which they quickly do. When they are seen to be in the cage, or when enough have congregated there, the slide is pushed in so

as to close the cage. This move is best done over the aquarium so that if a fruit-fly or two comes out on the slide's underside they can be made to fall into the water. Next the culture jar is vibrated again to send the flies down, and it is unscrewed from the cage and its own cap is replaced. Any delay in the transfer stages whilst the jar is uncovered need not mean that flies are lost — if the side of the jar is knocked occasionally the flies will stay away from the jar mouth.

The flies are now transferred from the cage to a clean jar, which is screwed to the cage base and the slide is pulled out; they descend into the clean jar when it is vibrated in the usual way. It can then be removed from the cage and capped. From this jar the flies, free from all detritus, can be tipped into the aquaria, their exit being controlled by the way the jar is held and by occasional vibration.

The dimensions of my catching cage are approximately 3 inches by 3 inches by 2 inches high, and it will be seen that the minimum size is dictated by the size of the jar twist-off cap.

Community Cichlids

Continued from page 115

that the female fish will often even collect large daphnia into her brood, believing them to be her own young and lavishing them the same protection on them.

Reverting to my second group, I should just like to comment on the spawning of *Aequidogrumma agassizi*, which I have observed. The female will deposit her eggs on a perpendicular surface or even on the underpart of an overhanging stone. If the pair are disturbed by someone approaching too closely to the tank, the male takes up a position whereby he protects the female with his body. Then, even though the eggs might already have been laid, instead of fertilising them, the male continues to block up the entrance to the 'lating place' and the spawning can therefore often be fruitless.

Fish of the genus *Pelvicachromis* distinguish themselves in that during the spawning the female is mostly more active in the care of the eggs and the young than the male. She settles on a suitable place

for laying, and it is her coloration that changes more to entice the male to spawn. Once the brood are free-swimming, then the male does take over unreservedly and he can then turn savage to his partner. The male leads the fry through the aquarium and feeds them, crushing food up in his jaws and spewing it out into the middle of them. This can also be seen with female *Nannacara anomala*.

For the genera *Lamprologus*, *Julidochromis* and *Nannochromis*, in general the following is mostly valid: they require neutral water about 77F° (25C°), plenty of varied live foods and plant foods too. The eggs are laid in holes and the number of young is relatively small.

I hope that these observations will be of some help to inexperienced aquarists who may be encouraged to keep suitable cichlids. By knowing some of the peculiarities of these small cichlids, losses may be avoided at spawning time. And it is the differences in the behaviour of these fish that is so astounding. They show a positive joy of living, anxiety about their offspring and self-sacrifice when the young are attacked. This should really be seen!



by
ARPEE

Personal COMMENT

IF recent correspondence in PFM is anything to go by, the behaviour of fish is becoming as interesting as their acquisition: this is always a welcome tendency so far as I am concerned because it indicates a genuine bias in favour of the well-being of the fish. Once an aquarist starts asking questions about the hows and whys of his immediate charges, he is well on the way to becoming a permanent member of the hobby with the ability to survive the 'ten minute wonder' stage, and for the good of all concerned every encouragement should be given to those who have reached this critical point.

It has been found in the course of all scientific activities that every fact observed has some relevance to the subject under survey, and the bashful should take heart from this simple truth. Jottings in a diary are often the source of invaluable information on obscure matters, and even today there is a vast amount of unrecorded information about pond and aquarium life, which, even if it did not lead to epoch-making discoveries, would nonetheless make very interesting reading in itself. Earlier the Editor mentioned the extraordinary behaviour of last winter's weather and urged readers to record their observations — already much has appeared in print about early stirrings in the ponds and about unusual flowerings in field and garden. The aspect that bothered me most about last winter was that I was unable to cut away the top growth of all the maces and rushes which spread so thickly during last summer, and I had a more troublesome job than usual when thinning them in the spring. I usually skim off all above-surface growth when the pond is frozen — this standard 'pruning' certainly looks far tidier than the hesitant snippings which take place when there is the usual quota of liquid water about.

So much for the behaviour of the winter, but since it is the behaviour of fish which is under discussion, I think I should lay stress on the fact that careful observation of animals will nearly always give early warning of disease or some other undesirable change. Of course, it will not always be possible to diagnose the complaint by mere observation, but the fish-keeper should condition his perceptive powers to recognise immediately that which is normal. Having developed this faculty it is a short step indeed to recognise the unusual: at this point prompt action may prevent the loss of part or all of one's stock. At all events immediacy in terms of action is essential once the facts have been recognised. A couple of examples will illustrate my point.

In late spring and early summer there are often quite severe losses of orfe and similar quick-moving fishes under thunder weather conditions. The careful observer will note that his fish, instead of proceeding quickly and smoothly and darting from place to place, suddenly lose equilibrium and begin to roll somewhat, and then they may move erratically and bump into obstructions, sometimes almost running aground on the mud in their befuddled efforts to survive. This is a condition of oxygen deficiency and relief may sometimes be achieved by directing a garden hose (with spray attached) on to the surface of the water. This will need to be maintained for possibly hours before the fish return to normal. Alas, some never survive the deprivation.

I can recall another occasion some years ago when my pool fish were clearly agitated and worried about something, but I could not readily understand what it was. They all seemed in perfect health, yet were swimming as though full of suspicion — indeed some were apparently in terror of something. I went through all the possible causes — birds hovering overhead, dragonfly larvae approaching from beneath, and dytiscus beetles advancing over a wide front, but so far as I could see none of these enemies was in evidence. Then, out of the corner of my eye I caught sight of a slight movement on a lily pad, and ever so gradually a 3 foot grass snake eased itself over the footstems of some bulrushes and silently left the pool to its established routines, greatly to the approval of the fish, or so it seemed.

I left this beautiful creature to its own devices, and I doubt whether it ever bothered the fish. Certainly the frogs and the toads tended to diminish, and they now seem to have disappeared. So, also, has the grass snake.



I was talking the other day with an ex-dealer friend of mine whom I had not seen for quite a time. As his standards were always very high I was impressed by his description of the cleanliness and freshness exhibited by a certain establishment in the north Midlands. It happened to be a comparatively recently opened retail business, and he expressed the hope that for the good of all concerned the achievement would not prove to be short lived, as all too often pet businesses start with a tremendous spurt and then fall apart visibly as the maintenance demands make intolerable inroads on the time and energies of their proprietors. Careful planning can, of course, make all the difference in the world, and every labour-saving device or method should be considered in the early stages.

By comparison, I looked over a newish local retailer's recently in which practically all the possible solecisms had been perpetrated, including some hideous grey mock tile wall covering as background, and it was therefore no surprise to me to learn that this was a commercial tooth sharper and little else. One might conclude from a round of visiting aquarium establishments that it is only fishkeepers who do window shopping: the retailers seem to stay at home to a marked degree, possibly because they are not on speaking terms with their competitors. What a pity, as they would seem to have so much to learn.

Beginners often ask me where to shop for this and that, and whilst it is simple enough to give them advice about which sort of tank to buy or what sort of plant goes best with angels, it gets embarrassing when I am asked point blank what I think about local traders. Personalities apart, there is one piece of advice I would always give. The specialist dealer is always worth making your first port of call. By this I suggest that if you want an air

pump you may well get better satisfaction by consulting a firm which does little else, or which mainly sells fish but makes a speciality of air pumps. For one thing the range of choice will be far greater than in the case of the general retailer, and for another the seller will have fewer axes to grind and may well dwell at length on the pros and cons of his wares in such a way that the purchaser is sold an article without being given the impression that some makes are good and that some are bad. In any case the specialist will not stock the latter.

Fairly obviously the firm which only sells aquatic goods and which leaves dog biscuits and monkeys to other traders will be in a position to dedicate its entire energies and interest to subjects which are in all conscience wide enough, and which are, if properly discharged, extremely time-consuming. Even fish alone can take a lifetime of study: a most distinguished writer who has forgotten more about fish than I shall ever know confessed to me that he couldn't name a certain percentage of fish on show at a certain exhibition, and this is just one indication of the sort of capacity most of us possess to improve our apprenticeship. There is, of course, nothing against a trader trying to cope with a wide range of products, because in so doing he may well be able to trim his prices, and the run of the mill aquarist may well find this more to his liking than the possibly higher prices obtaining at specialist establishments. At the same time the buyer must be on the look-out for quality, and in the case of the beginner this is a characteristic which is not always as obvious as it is to the old hand. That's where experience comes in!

Perhaps the worst give away when sizing up retailers is the presence in tanks of dead or dying fish and rotting plants. It is quite unfair to condemn anyone on the evidence of one dead fish in a whole shop, but some dealers manage even to overcome this. Another suspicion-provoking sign is a succession of tanks containing a miscellany of fish. I like a dealer to have an 'oddmans' tank, in which one might just discover that elusive specimen or meet with something quite new, but in general the most effective presentation is that of the single species per tank. Two

Continued on page 122

COLDWATER SCENE


By **FRANK W. ORME**

NOW the holiday season is with us many newcomers to our hobby will be viewing with apprehension the time when they must leave their pets to take care of themselves. How will they manage to survive 7 to 14 days without food or attention? There are even some who will have decided that their fish would be in jeopardy and so, for the sake of both the well-being of the fish and their own peace of mind, have concluded that the only safe course is to remain at home! Others will solve the problem by asking a trusted friend or relative to take care of the feeding — after careful instructions.

Such fears are without foundation and utterly needless. Each year my fish house is locked against intruders — both friendly intentioned and those with illegal intent, whilst my wife and I depart for a 14-day period of relaxation away from home. Well cared-for fish, including young, are well able to withstand a fortnight without any attention and may quite possibly benefit.

A few weeks before the commencement of your vacation ensure that your fish receive sufficient food that is adequate both in quantity and quality. This does not mean overfeeding, which could lead to trouble, but merely the offering of an extra feed. If, normally, you feed during the morning and evening the additional feed could be given at mid-day. Keep the tanks clean by siphoning muck from the bottom and replace lost water by replenishing with water drawn from the mains. In some areas it is advisable to use water that has been allowed to stand for 1 or 2 days to allow any gaseous additives to disperse. The idea is to ensure that both the fish and their quarters are in the best of health, for you can hardly expect sickly fish in a dirty, or polluted, tank to be able to remain immune to mishap — although your absence could well be the very thing to ease the problem, if you have been overfeeding with dried foods. It is surprising how clear the water will appear, and

Your pond and your vacation

● **A National Coldwater Show?**

● **Hints on showing**

how lively the fish will be, when you inspect the tank upon your return from holiday.

Under no circumstances should you either ask for, or accept, offers from friends, relatives or neighbours to 'look in' on your fish. Too often this leads to disaster and could lead to the end of what was a beautiful friendship. Of course, if the offer is made by an experienced fish-keeper it would be perfectly safe; however, it should not be necessary to accept if you have taken the trouble to see that, when you depart for your holiday, you leave behind well-fed fish in clean tanks.

Very similar advice applies to the garden pool. Nevertheless, if the pool is small and shallow and the weather hot and sunny it would be a good idea to remove fish to safer quarters. Hot weather can evaporate surprisingly quickly. In order to slow the loss of water, and protect plant life, a sheet of clear polythene can be stretched over the pool and held in place by weighting the edges with bricks. Before leaving home make sure that the water level is topped up and, as a precaution against cats and fish-catching birds, cover with three-quarter-inch mesh net. It is worthwhile keeping the pool permanently covered with a net against pests as it will also prevent large leaves and other debris falling into the pool and adding to any potential pollution problems.

It all boils down to commonsense preparations. Attend to obvious essentials and try to allow for the unforeseen, such as a tropical summer (do such summers still occur?), and all should be well. Why deprive yourself of a holiday? Relax in fresh surroundings and return to your hobby with renewed interest and friendships intact.

★ ★ ★

I have received a price list from Tropiculture Products Ltd of the Headlands, Scot-

land Lane, Horsforth, Leeds. This consists of 14 pages listing 69 slide shows with scripts, six tape lectures and six films. The subjects cover various tropical, coldwater, marine and pond life interests; each is described in reasonable detail and time fees range from £1.60 to £5.00 for films. Films, which can only be shown by the company's projectionist and carry an extra charge for travelling expenses, are only available to those within a short distance of Leeds. Other programmes are dispatched by post. This list should be of great interest to society secretaries for it will solve some of the difficulties encountered in arranging interesting programmes for society meetings. From a coldwater point of view, there are titles such as 'Fancy Goldfish', 'Freshwater Fish Parasites', 'Pond Life 1', and 'Pond Life 2', 'Whiteworms' and 'Brine Shrimp — from Start to Finish'. There is also a programme on 'Fish Photography'. With this list you will find it possible to cater for most interests.



Readers may recall that, in the April issue of 1971 I reported that a move had been made in the Midlands to set up a National Coldwater Show. Delegates from specialist goldfish societies — Association of Goldfish Breeders, Association of Midland Goldfish Keepers, Goldfish Society of Great Britain, Midland Aquarium and Pool Society and the Northern Goldfish and Pondkeepers Society met at Coventry, during April. Unfortunately Bristol AS were unable to attend owing to another commitment.

The subject of Standards was raised but the majority opinion was that each group should support a National Show, which would be held in a different area each year and that judging would be to the Standards adopted by the host/organising society. Judges would be instructed to judge according to whichever standards were being used irrespective of any allegiance he might have to other Standards. The spokesman for the Goldfish Society stated that this was acceptable to the GSGB and if asked to do so they would be willing to supply judges and instruct them accordingly. The delegates from the Northern Goldfish Society agreed in principle but said they had been instructed by the Federation of Northern Aquarium

Societies not to make any firm agreements until the matters had been discussed and approved by them. It was pointed out that the FNAS are producing their own set of Standards. The other groups accepted the proposal without reservation. It was suggested that adoption of the proposal would lead, in time, to a desire for a single National Standard. Over a period it would be possible to learn both the good and bad points of the various Standards and this knowledge could be put to good use when the time arrived to discuss a single Standard that would be acceptable to the whole of the British goldfish hobby.

The delegates agreed that if it could be arranged in time the first of the National Goldfish Shows would be hosted by the Show Committee of this year's Midland Aquatic Festival at Bingley Hall, Birmingham (14th-16th August). Judging would be to the International Competitive Standard for Pedigree Goldfish Varieties.

After some further discussion a proposal was made, and agreed to, that a National Committee would be formed with a maximum of three representatives from each participating Society; the Committee's guide lines would be simple but broad in scope — 'The furtherance and general well-being of the goldfish hobby'. Ultimately, if and when new Standards are thought necessary, this committee will ensure that all views are considered and that the Standards are acceptable by all. Mr Frank Close of the Midland Aquarium and Pool Society was elected to collate and co-ordinate the views of the participating Societies between delegate meetings.

The co-operation, understanding and willingness to work together shown at this meeting augurs well for the future and could be of great benefit by uniting the goldfish hobby. As one of the delegates, I left the meeting cheered by the thought that at last we were on the right road where commonsense was uppermost and the well-being of the goldfish hobby was foremost in everyone's mind. It is my hope that this spirit will continue to prevail and lead to a wish for all goldfish societies to join together under one umbrella. I hope to be able to report upon future progress being made by the newly formed National Committee of Goldfish Societies.

The first meeting took place during the Coventry P & AS open show and I know that a number of people there wanted to speak to me. I ask those people to accept

my apologies for not being able to see them as I could not leave the meeting.



Some of you may be considering entering your fish in a show for the first time and so perhaps a few hints may not be amiss. The first essential is to make sure that the fish are in good health. It is a waste of time and effort to put sick fish on the show bench — the judge will not even consider them. Try to choose fish that are active and alert with no scales missing. Study the relevant standard to be sure that the fish meets the 'type test'. If a divided tail and double anal fins are specified then the fish must have those characteristics.

Having decided upon those which you

intend to exhibit, place them in show-size tanks for a few days before the show to accustom them to the small tank. Do not feed the fish for 24 hours before benching; this will avoid droppings and encourage the entries to show off to the judge in expectation of food. When benching your fish make sure that they do not have too great a change in water temperature. Wipe up surplus water and clean the front glass of the tank.

Be sure to check the show schedule and enter your fish in the correct class, otherwise you may find the fish disqualified for being in the wrong class. Finally — if you do win a cup be sure to return it in good time for the next show. This is common courtesy and helps to avoid those letters, from show secretaries, appealing for the return of missing trophies.

Personal Comment

continued from page 119

or even three per tank are tolerable, but in greater numbers the poor beginner is befuddled in trying to sort out which is what, and often coming to quite the wrong conclusion.

One thing seems common to most businesses. Whether the firms are big or small, the proprietors are the most willing of people to talk fish. This is perhaps the acid test of where and whether you should buy. If you are rushed into a sale, don't have any of it. Just look at some of the other advertisements in *PFM* or the local press and somewhere where you can find confidence. It is surely there, and so very worthwhile once it has been mutually established.

London's Eighth Annual Exhibition of Fishkeeping

The Aquarium Show '75

ROYAL HORTICULTURAL SOCIETY OLD HALL

VINCENT SQUARE, LONDON, SW1

24th - 26th October

Presented by The Federation of British Aquatic Societies

All enquiries: The Show Organiser (Tel. 01-947 2805)

PetFish Monthly

554 Garratt Lane, London, SW17 0NY

Pond Plant With Aquarium Applications



Mare's tail growing above the water in a small garden pond, in which the plant has taken more than its share of space

By K. RATAJ

Photographs by R. ZUKAL

MARE'S tail or knotgrass (*Hippuris vulgaris*) is closely related to that most known to all aquarists, *Myriophyllum*, and was indeed classified with the latter as a member of the Haloragaceae family. Today, it is classified under the family Hippuridaceae, which, in fact, has only one genus, *Hippuris*. It is not quite certain whether the two or three described species are really just forms or varieties of the one single species—*Hippuris vulgaris* L.

This water or amphibious marsh plant is found all over Europe, in the temperate and cool zones of Asia as far as eastern China, in Australia, in the temperate zones of the Antarctic and north America and in Greenland. The rootstock is robust, sometimes divided, and creeping. The stems growing above the water can reach a height of 12-15½ in. (30-40 cm.) Be-

neath the water, if it is deep enough, the stems adapt to the water level and can sometimes grow to a length of more than 3 ft. (100 cm.). The stalks are segmented, and each short segment is copiously leaved, with the string-like leaves arranged in growths of six to 14 leaves.

In the emerged plant the leaves are shorter (up to ¾ in., 1-2 cm., long), broader, a dull grey-green colour and tough. In the underwater plant the leaves grow to 2 in. (4-5 cm.), so that the plant can have a total width of about 4½ in. (10 cm.) and these leaves are soft, curved, bright green and grow to a peak where the plant is broadest. Only the emerged plant blossoms and the blooms are small, set into the leaf clusters. The pistils shrivel up and so the blooms are unisexual.



Mare's tail growing submerged in an aquarium with the elongating stalk that will grow above the water seen at the top.

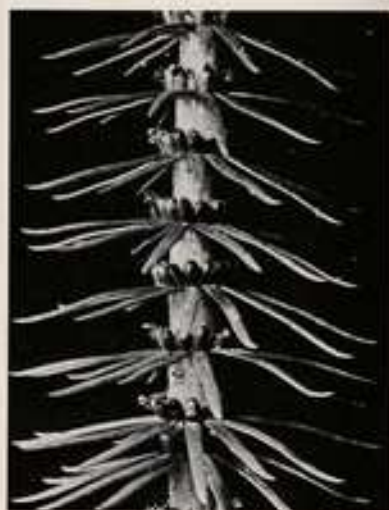


An emergent (above-water) stalk of mare's tail with an unusually regular arrangement of leaf whorls with flowers beginning to form.

In nature *H. vulgaris* is to be found in stagnant or slowly flowing water at a variety of depths. It grows profusely on marshy banks and in damp ditches, and can be found both in valleys and up mountains. Only in very deep water (over 20-24 in., 50-60 cm.) does it remain submerged. In shallower water near to a river bank, for example, the submerged form appears only in the spring from March to May when the vegetation begins to grow; it is then beautifully leaved with bright green stems. When the submerged plant reaches a height where its top is only about a couple of inches (5 cm.) below the water surface it prepares to turn into the emergent form. When a sufficient length of stalk projects out of the water the submerged part of the leaves are shed and the plant starts to flower.

As an attractive plant for small garden ponds and for bank vegetation to large water surfaces in gardens and parks, *Hippuris vulgaris* is ideal. It thrives in a balanced flat marsh bottom or in a mixture of sand and garden loam. In the spring months the water is covered with richly leaved submerged plants which, in the course of the summer, develop a thick

The tiny flowers looking like living coral are found in the axils of the leaves around the stem (magnified view)



growth of grey-green emergent stalks like a miniature primeval forest.

In their natural environment plant growth starts when the water temperature has reached 46-50°F (8-10°C). Standing water is warmer than running water, and so more rapid development takes place in the former. In the early part of the year — that is between March and May — the plants can be transferred from their natural environment to aquaria. It is best to take plants that are growing in standing water where the temperature is up to 54-59°F (12-15°C). These will root better because the transition to a room tank with a temperature of 68-72°F (20-22°C) will not be so sudden as when the plants come straight from cold running water.

Submerged *Hippuris* grows excellently in a well lighted tank with a sufficiently enriched sandy base. In a tank lit from the side it can be kept during its growing period — spring to autumn — in its submerged form. If the lighting in the tank comes predominantly from above the plant often grows out of the water. It requires approximately neutral, soft to medium-hard water. In winter the plant sheds its leaved stalks and the divided root stock very rarely survives the winter in the aquarium. So it is a 'seasonal' plant more valued by enthusiasts who like to have unconventional and interesting plants in their tanks, and who, by keeping such plants, discover new and unusual artistic effects.

BREEDING GUPPYS

Feeding—the Least of the Worries

By F. CAMPBELL

WE might say that the guppy's redeeming feature lies in the variety of beautiful colours and finnage shapes in which it is capable of presenting itself to the fancier. Taking into consideration, however, the disappointment and frustration we can experience when striving for the particular shapes and colours we covet, we might be tempted to look for some feature in which the guppy co-operates a little more readily towards its redemption.

What about feeding? Most leading breeders would agree that this is the least of their worries although they might not agree with each other as to what brings the best results. The guppy will eat almost anything provided that it is small enough to go into its mouth (I have even heard it said that it is dangerous to use fine steel wool for cleaning the inside glass lest stray pieces should be gobbled up). It will also eat anywhere, although it is equipped with

a protruding lower jaw which enables it to grab and swallow the insects which abound on the surfaces of its native streams. In captivity, however, it is not averse to exploring the depths should there be nothing floating.

What then should we give our guppies to eat? Let's start at the baby stage when most breeders would plump for newly hatched brine shrimp. If the hatching process deters us the yolk of hard-boiled egg squeezed through fine muslin, or crushed peas given the same treatment, alternating with the proprietary liquid suspensions, give good results. Baby guppies reared in water which has taken on a green opacity due to an abundance of plankton induced by direct sunlight, will need nothing more in the early stages provided that the green water can be maintained.

As our guppies grow so, too, do their mouths, enabling them to graduate from brine shrimp through micro worms, white

worms, daphnia and finally tubifex worms. The provision of live foods can, however, be troublesome and if limited to an occasional feed the guppies will not mind. Like ourselves variety seems to be the spice of their lives and they will readily accept scraps from our own table. Tender flesh such as chicken breast, steamed fish, or a luscious morsel of tinned salmon is greatly appreciated. Other variations can be cooked liver pushed through a fine sieve, portions of hard-boiled egg yolk, and finely chopped fresh shrimp, mussels, cockles etc.

There you have a varied selection of wholesome foods but it is not comprehensive so far as guppies are concerned. It consists mainly of foods suitable for carnivorous creatures but as guppies are omnivorous some vegetable matter should be included to maintain a balanced diet. Chopped spinach is highly recommended by many authorities but I have never tried using it. All my tanks are planted and have a surface covering of duckweed; my guppies are constantly nibbling, particularly at the root tendrils of the duckweed. This seems to provide them with sufficient vegetable matter to keep them in good

trim.

Not only will guppies eat anything and anywhere, they will also eat anytime and all the time. Small amounts of the foods already mentioned, interspersed with pinches of proprietary brands of flake food, offered as many times a day as circumstances permit is the ideal way of promoting growth and ensuring that your guppies are healthy and vigorous.

Some people, of course, have to go out to work, which limits them to feeds of two or three times a day. If this is the case care should be taken not to give too much food at one go, particularly where fresh food is used.

It is a mistake to think that sufficient food can be given at breakfast time to last our charges till tea time. Guppies don't think that way, they would rather grab their food while it is moving than have it served up on a plate, so to speak. They will, as I said, feed from the bottom but it is doubtful if they will clear up sufficiently to avoid decomposition and subsequent pollution. The problem of feeding before a lengthy interval can probably best be overcome by resorting to foods which float on the surface.

GOLDFISH TYPES

Fantails and Fantail Types

By FRANK ORME

A HARDY, attractive fish with the ability to withstand the rigours of the garden pool, the fantail goldfish will survive all but the most extreme conditions of winter and for this reason, if no other, is very popular with coldwater fishkeepers. The more usual form of this variety is metallic scaled, like the common goldfish, but it can also be found as a nacreous (calico) type. With the exception of one set of Standards, this fish is acceptable on the show bench in both nacreous and metallic form. A very good British strain of

metallic fantails was developed, over many years of selective breeding, by Mr Arthur Boarder and his fish became very well known on the show bench. Unfortunately, it is on the show bench that veiltail throw-outs, with short caudal fins, are sometimes seen masquerading as fantails; however, they seldom manage to deceive the judge!

The fantail should have a short deep body - occasionally described as 'egg-shaped', with a medium length stiffly carried, divided, twin tail that has moderate

sorking. The dorsal fin at the highest point is roughly one-third of the body depth and commences directly over the pectoral fins, which are 'paddled shaped' and match the front pair of pectoral fins. The anal fins must be fully separated and evenly matched in both size and shape. The ideal fish presents an impression of robust strength and has a well-balanced overall outline. Equally at home in pool or indoor tank, it is the perfect fish for the man who wants something different (and more eye-catching) than the single tail yet not so fancy as some of the other varieties.

In this respect it should perhaps be mentioned that, in all varieties of goldfish, the nacreous type is not as hardy as the metallic form. However, only in the extreme fancy varieties can this be considered a real drawback and, in any event, it should be borne in mind that the metallic types of very fancy goldfish also need more care than the fantail. When purchasing your fish make sure that the fish you are considering are true fantails and not the short-tailed cullings from a weiltail spawning, for, even though they may look the same, they will tend to be a little more delicate than the real fantail.

A very similar fish is the pearlscale. This variety is usually bi-coloured; only occasionally are nacreous multi-coloured pearlscales seen. Most often it is silver with large areas of red on the body, and the combination of these colours can make quite a spectacular sight in the aquarium. The finnage resembles the previous variety, apart from the tail; this is usually shorter, but should also be fully divided. Viewed from the side, the body outline is also similar to that of the fantail but whereas most fish are roughly oval when viewed from the front, from a head-on view the pearlscale is distinctly round, almost with a dropsical appearance. If looked at from above it will be seen that the fish is very thick and broad. The outstanding feature, and the one from which this variety derives its name, are the scales. Each scale is raised in the centre to form small domes, and they should lie on the fish's body in evenly matched rows giving (somewhat imaginatively) an appearance of rows of pearls covering the body of the fish.

Like the fantail this is a quite hardy variety, although for some reason not quite so popular, which will prove easy to

care for. This attractive fish is best suited to the indoor tank where the bright colour and unusual scale formation can be seen to the best advantage. Owing to the peculiar scales and colour pattern the young of this variety can be easily recognised and are not likely to be confused with the young of other varieties.

In dealers' tanks two other fantail-type varieties of goldfish are often seen. They are, mostly, imported stock and have 'telescopic' eyes, i.e. the eyes form spherical or ovoid truncated protrusions on either side of the head, giving the fish a frog-like aspect. Short-finned, 'telescopic'-eyed fish of these types are frowned upon by goldfish enthusiasts. They are considered to be inferior fish and they will not be found in any Show Standards. Despite this discrimination they can, in their bizarre fashion, be quite attractive and many find a home in the decorative coldwater tanks of the 'less knowledgeable' fishkeeper who may well prefer them to the enthusiast's preferred type of 'telescopic'-eyed fish (which will feature in a forthcoming article).

Two of these varieties are identical with the fantail, except for the protuberant eyes, being found with both the metallic and nacreous scale. The third type, however, differs in that, not only does it have the enlarged eyes but it is metallic scaled and black! Given the name of fantail moor, the best specimens are velvety black all over, from head to the tips of the fins. Such fish are not often found — mostly the scales on the lower part of the fish are a brassy colour. Although the eyes are susceptible to damage, these 'telescopic'-eyed fantails and moors are just as hardy as their normal-eyed cousins. Again, like the pearlscale, they are better suited to the indoor tank either on their own or with other slow-swimming fancy goldfish. Owing to the deformation of the eyes the fish appear to be short sighted and, if placed with faster swimming single-tail fish, they would be at a disadvantage when competing for food.

None of the fish mentioned is any more prone to disease than the single-tailed varieties which were discussed last month. Obtain healthy fish to start with, provide clean, light living quarters, and do not overcrowd but allow plenty of space to swim and grow. Provide a nourishing diet and they should be quite happy to share your home with you.

Breeding the Dwarf Croaking Gourami



Trichopsis schalleri

FIFTEEN years ago, in 1960, a further type of croaking gourami was imported into Europe from Thailand; this was *Trichopsis schalleri*, and with its importation we were the richer by a most interesting aquarium fish. (The fish is named in honour of Mr Schaller, who sent it to Europe.)

Growing to a length of about 2 in. (5 cm.), in body shape it resembles its relative *T. pumilus*, the dwarf gourami, being smallish, streamlined and slightly compressed laterally; however, its head is not as pointed as that of the dwarf gourami. The caudal is like a banner. Basic colour of the fish is brownish and there are two broad chestnut-brown stripes along its sides and rows of clearly visible green-blue spots. Dorsal and anal fins are edged in dark red. It is not always easy to differentiate the sexes even in the adult fish. You could say that the male's dorsal and anal fins are rather longer and more pointed at the ends. Or that the female is less intensely coloured, with her anal fin being somewhat rounded at the back. But to my mind the most definite way of telling the sexes apart is to note the female's ovary, which can be seen in outline when she is held against the light.

The fish can be kept in quite a small aquarium if

By RUDOLPH ZUKAL

Photographs by the author

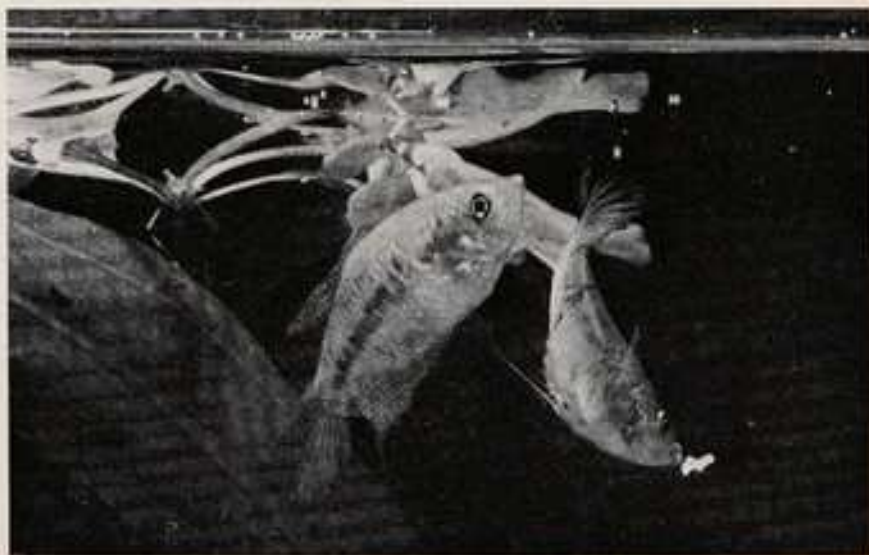
Translated by F. MARSH



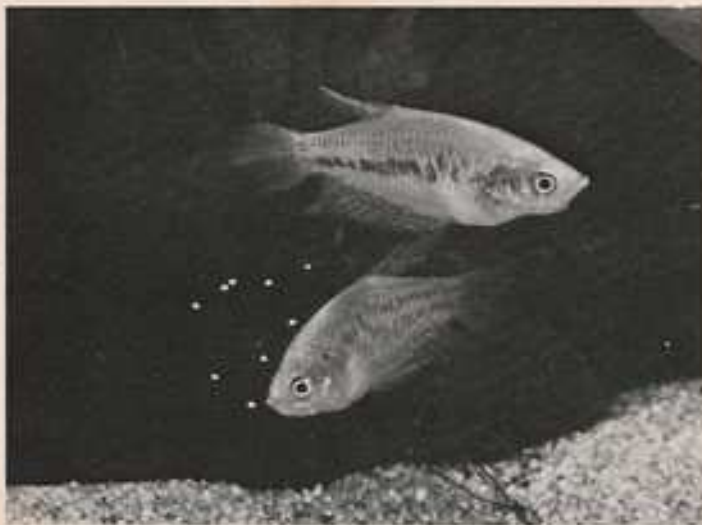
The breeding pair go into the spawning embrace beneath a plant leaf. As the male curves his body around the female she is turned on to her back and eggs are released.

necessary — better, of course, in a larger one — together with some other peaceable companions, but this species does need warmth and the tank temperature should not be allowed to fall lower than 75°F (24°C). The tank should be well planted and contain plenty of floating plants. In particular it must be well covered. This is not just to stop the fish from jumping out but to prevent them from taking in cold air. Members of the labyrinth family, they possess the auxiliary breathing organ that enables them to

utilise atmospheric oxygen and if cold air is allowed in under the cover glass they will gulp it in and can become chilled. Soft, slightly acid water should be provided and, remember, they are particularly susceptible to any drop in temperature. They are omnivorous but prefer live foods. Careful lighting will highlight what is otherwise not very noticeable coloration, and it is a most interesting sight to see two rival males displaying to try to intimidate the other and to hear the 'growling' or croaking noises that they



Five to ten eggs at a time are ejected by the female in a close cluster and fertilised by the male. As the embrace ends the male collects the ball of eggs in his mouth.



Delay in collection of the eggs means that the scattered ones are picked up separately since the original cluster of eggs soon comes apart.

make, which are quite clearly audible.

It is not necessary to supply too large a tank for breeding — a 1-gallon (5 litres) tank will be suitable. Water from the community tank, or tap water that has been standing for some days, can be used to a depth of only about 6 inches (15 cm.) and the water temperature should be raised to 80°F (28°C). Basically, the

spawning resembles that of *Betta splendens* or other labyrinth fishes but with this difference — the bubble nest that the male builds is usually constructed under a bent leaf. During the display and throughout the spawning, croaking noises are made by both partners and can be heard quite clearly. It is a croak that resembles the noise made by a small, revolving rattle.



The male guards the fry, hanging beneath the leaf in rows and making it appear like a hairbrush with fine bristles.

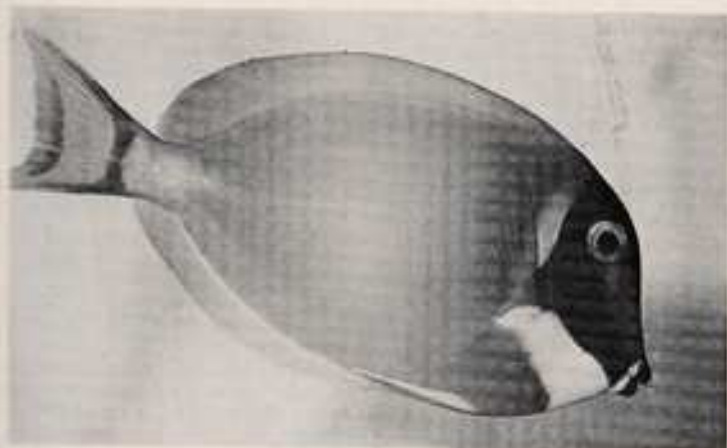
The brood hatches after 36 hours and hang under the leaf like the bristles in a fine hairbrush. The fry has a tiny thread on its head by which it hangs on to the nest and these threads disappear by degrees. The female should be removed immediately after the spawning — the male is responsible for the care of the nest, but I have found that the male does not trouble himself to put back any young that fall out of the nest and simply looks

on, so it doesn't matter if both fish are removed after the spawning.

The number of young is not especially great with each spawning — something between 50 and 100 perhaps. As soon as they are free swimming they must be given very fine food. The height of the water should be raised only after the labyrinth organ has developed (usually in about 4 weeks).

Is it New to You?

Photograph
By CLIFF HARRISON



The powder blue surgeon or tang (*Acanthurus leucosternon*) is perhaps the most attractive of the genus. It is an Indo-Pacific species and individual specimens vary greatly as collectors' pieces, so only medium-sized specimens — they grow to about a foot — which are in really fine condition should be purchased. They are always expensive and are not for beginners. This is partly because it is not very easy to provide them with a satisfactory diet, and partly because the surgeon fish, which possess razor-sharp, fringed protrusions at the base of the tail, often use them unpredictably on their tank companions, with fatal results to the victims. They are really largely herbivorous in nature, and are best introduced to a tank containing a good growth of algae, but as the life of this must be finite, substitutes like boiled spinach may be taken. Fish which can be induced to feed may gradually take a fancy to the available range of dried flake foods, and some accept white worm etc, according to individual taste. The owner should remember that tangs will use their tails on humans as well as on fish, so great care should be exercised both in handling and netting all members of the group. Again, all tangs are perpetually on the move, and need more clear swimming space than many other marine species. It is therefore necessary to allocate the largest available tank to these fish, not only to enjoy their appearance to the full, but also to give them the best chances of survival. This specimen was photographed at St. John's Square, London.

MARINIST'S NOTEBOOK

'Starter Fish' for the New Tank

By ROY PINKS

MUCH misleading information has been offered to the beginner on the subject of starter fish for tropical marine aquaria, but it seems possible that in the course of time the term 'starter fish' will change its meaning. At present it signifies the sort of fish which is hardy enough to withstand the stresses of unseasoned aquaria to a marked degree: in the course of its survival during the first 2 or 3 critical weeks of the tank's existence, its excreta are used by bacteria in the filter medium to nourish and thus to multiply their colonies, and these form the fine point of balance on which the prosperity of the community largely rests. The fact that fish can be 'understudied' during this period by non-living material, like urea, which will bring about the same result, may mean that in the future the technique will be not to introduce fish at all until the tank water can be shown, by means of chemical reagents, to have reached a stage of fitness for the reception of some of the tougher species.

In more enlightened times perhaps 'starter fish' will come to mean those species which can be recommended to the beginner when (but not until) this stage has been reached. Of course, the aquarist who seasons his tank by means other than fish will cut his initial losses most significantly and will be spared much of the repugnance which is experienced by more impatient mortals when they needlessly sacrifice good fish during the honeymoon period — a time when expectations are normally at their highest. It is remarkable what poor advice is often given to beginners at this stage, and I am often asked if there is any one fish which out-classes all others as a very first fish.

It should be borne in mind when making a recommendation for such a candidate that there are factors other than hardness to be considered. It is very important that the fish shall be easy to

feed and that the type of food offered is likely to be accepted with minimum effort on the part of the fish. The appearance of the fish is also highly placed on our priority ladder, and it should show itself unhesitatingly and refrain from any form of skulking. It is asking too much that it should be a good mixer, because few marine fishes fall within this category, and in practice one has to settle for a satisfactory reaction on the other counts. Taking all into account I would unhesitatingly settle for the blue damsel (*Pomacentrus caeruleus*), which hails from the Philippines and which markets in the region of £1.15 even today. To describe it as blue is an example of just how inadequate words can be. It can at times be light green, and at times deep blue, and there are innumerable variations in between. It has a few black streaks and dots on the upper part of the body, but these seem to vary with individuals, though mood may well make these variations seem more intense than they are in fact. This is an extremely lively and vivacious fish and it seems to be constantly on the search for either food or for a cranny to excavate. On account of the former quality, they need no cosetting, and their love of mining results in the tank floor taking on a configuration of some character, quite divorced from the contrived efforts of man. Fortunately, the blue damsel takes refuge in its caverns for only short periods, and is usually seen at the entrance of its current choice, performing a sort of 'sawing' motion which suggests that it is very comfortable indeed in its refuge, and that all comers should take note that it has been established as private property.

This fish can be a terrible bully and it does rather fade as it grows up. Most aquarium specimens seem to grow to about 4 inches, though they may sometimes remain dwarfed if purchased at less

than half this size. Although very able to withstand the poorest of conditions they have not been found by me to be particularly long lived; I have seldom kept one for much more than a year. It remains to be seen from my current round of trials whether improved attention on my part to matters like water changes will make any real difference to those living in

the conditions of my management. I suspect that there will not be a marked improvement because the deterioration of fish like these is probably more on account of their failure to justify themselves in such activities as spawning and hunting than simply because we are not very skilled marine aquarists as yet.

Readers' Queries Answered



Cave Tetras

It has been suggested to me that I might use one or two blind cave tetras in my tanks as scavengers. I have never kept this fish and am wondering whether brightly lit tank conditions will cause the fish discomfort. I do not wish to change my tank set-up to provide special conditions.

It is probably no exaggeration to say that the majority of aquarium fishes live in conditions that are not ideal. Of course, if conditions are too disparate with the fish's requirements it will not survive but there is a large number of species that can adapt perfectly well to living conditions in a well set-up community tank even if these conditions are not specific enough to allow the fish to breed.

To try to emulate the blind cave tetra's natural environment would require the use of hard water in a dimly lit tank (in the London Zoo aquarium this was dramatically displayed in a tank lit only by one spotlight in whose beams the fish appears with a creamy flash and out upon into the surrounding darkness). As far as we know research has not been carried out on the effect of varying light intensities on *Anoptichthys*

jordani but since well-grown vigorous blind cave fish are to be found in innumerable brightly lit aquarium tanks one must suppose they are not unduly affected by the light. It would be sensible to supply good plant growth for shelter and shade but you will find these fish are very robust companions for any community of fishes of like size.

As for its use as a scavenger, it is certainly an eager feeder that does a great deal of searching out of food from plants and gravel. Live foods, frozen foods, dried foods, and even green matter that would not have been available in its natural habitat, are all eaten avidly and any designs to treat it merely as a scavenger of other fish's leftovers will be swiftly dispelled, as it will very likely be the first to reach the food at feeding time.

Marbled Hatchets

I am wondering if I should clear my tank of a lot of its plant growth as I want to keep some marbled hatchets and understand they require plenty of swimming room.

In fact, marbled hatchets would be quite at home in a well-planted tank though for

ideal conditions it is important that the plants grow up to the surface. In Nature, this species is not an invariable surface dweller and spends much of its time lying in the plants. Length of tank is rather more important and a well-planted 36in. or 48in. tank would give very suitable conditions. A tightly fitting cover is a must, however.

Knife Fish

Shall I be able to keep an African knife fish in my large, planted tank? I have been very successful with my plants and do not wish them to be uprooted.

There is no fear of this with *Xenomystus nigri*. It will do no harm to your plants. The fish is a nocturnal one and if it is to be kept in an illuminated tank then it must be provided with good plant growth to enable it to take cover from the light when it chooses.

Half-beak Deformity

I have noticed that a half-beak in my tank has a badly deformed nose. This may have been like this when I bought them but they are very nervous fish and often seem in danger of hitting their snouts on the glass.

Newly imported specimens of this species are very nervous and the damage to the jaw may well happen in transit. Regeneration takes place in time but it is not always an entirely satisfactory replacement that grows. A tank that is heavily planted

at the back and sides does help to protect these fishes from their own panic and plenty of floating vegetation will give them some protection and help them settle in.

Rasboras

Can you please settle an argument? Is *Rasbora vaterifloris* the fire rasbora or the pearly rasbora? I have bought two fish called fire rasboras but in the book I am using they are clearly the same as those labelled 'pearly'.

In this country *R. vaterifloris* is known as either the fire or the pearly rasbora. In 1957 Meinken defined a more coppery, reddish form with a different fin formula and body proportions as *R. nigromarginata*, and in Germany this is known as the red rasbora (Guenther Sterba: *RAUBWASSER FISCHEN* OR THE WOMAN) but the species coming into this country are usually identified as *R. vaterifloris* and are known indiscriminately as the pearly or fire rasbora.

Breeding Mollies

I have bought a pair of golden sailfin mollies which have bred successfully in the shop but refuse to breed successfully for me. Could you advise me on what to do to them? I have had the mollies for over 4 weeks.

The fact that your mollies have not yet bred in your tank

is in no way surprising. Although mollies produce fry throughout the year, unlike other livebearers such as guppies they are not indiscriminate breeders, and the gestation period may vary from 4 to 10 weeks depending on the temperature. Mollies, in particular, react very badly to being moved before breeding and to the absence of plant shelter, and it may well take far longer than 4 weeks before they settle down again. It would speed the process if you could find out from the shop from which you purchased the fish the exact temperature at which they were being kept and the pH and water hardness reading of the water; also whether small amounts of salt were being added to the tank water. Make sure your fish are well fed with regular feedings of scalded lettuce or spinach as well as dried food and daphnia and in due course they will surely breed again.

Water Conditions

As a new fishkeeper I was perturbed when I first came across pH and DH and still find it very difficult to understand. I was cheered by the letter from a reader in May's PFM saying that her harlequins had bred without bothering about it. How important is pH and DH?

The interest in pH readings and hard and soft water is a

fairly modern phenomenon and for the fishkeeper who wishes to keep one or two decorative tanks containing a community of medium-sized fishes, the need to concern himself with these readings is small. The majority of popular aquarium fishes in Nature live in soft water, that is to say water that has very few dissolved calcium and magnesium salts in it and therefore water with a very low DH reading (since DH merely means German degrees of hardness, which happens to be scale used to express the amount of calcium salts in water). But, in spite of this, because they are adaptable, these same fishes can be maintained in ordinary tap water which might have a DH reading of 15-20°. In the same way the fishes will adapt to variations in the acidity or alkalinity of tap water.

With modern ease of transport, however, more and more unusual fishes have been imported. These are the 'difficult' ones to keep, brought in direct from their native habitats, and for these fishes it was soon realised that water conditions were critical. Discus, for instance, do not thrive in ordinary hard tap water, and Malawi cichlids require fairly hard, alkaline water. Then, many fishes that will live in 'alien' water conditions will not breed in them, or, if eggs are laid, they will not hatch or the fry cannot be reared. So for controlled breeding programmes, once again DH and pH readings are essential.

Meetings and Changes of Officers

BRIGHTON & SOUTHERN AS. Meetings: first Monday of month, KT Club, Franklin Road, Portslade, Sussex.
BRISTOL AS. Meetings: 2nd Monday of month, 7.30 p.m., Bishopston Parish Hall. Visitors and new members welcome.
CROYDON AS. Chairman, Mr A. J. H. Smith; vice-chairman, Mr M. Cook; secretary, Mr I. Derrick (5 Glesthorpe Avenue, Croydon, Surrey); assistant, Mrs S. Dryden; show secretary, Mr D. Pope; assistant, Mr K. Dryden; treasurer, Mr H. B. Smith. Meetings: 2nd & 4th Tuesday in month, 8.0 p.m., Woodside Social Club, Emere Road, S. Norwood, London.

FALING & DAS. Social secretary, Mr J. Irvine; phone 01-578 6369.
GLOSSOP AS. New secretary Mrs V. Davies (35 Norfolk Street, Glossop, Derbyshire).
HIGH WYCOMBE AS. Secretary, Mr J. Bushby (3 Hawthorne Walk, Hatfield, High Wycombe, Bucks.; phone Penn 3825). Meetings: alternate Thursdays (10th July on), 8.0 p.m., The White Horse Inn, West Wycombe Road (corner of Oxbridge Road), High Wycombe. Visitors very welcome.
NEW FOREST AS. Chairman, Mr A. Paulty; treasurer, Mr T. Barnes; secretary, Mr R. Travers (6 Auckland Avenue, Brockenhurst, Hants., SO4

7RS). Meetings: Community Centre, Lymington, Hants.
PETERBOROUGH FISHKEEPERS ASSOCIATION. Chairman, Mr J. Butler; secretary, Mr C. A. Brakes (62 Wisbech Road, Thorney, Peterborough, PE6 0SD); treasurer, Mr C. A. Brakes; show secretary, Mr R. Walden. Meetings: 015 Scarriet, Dogsthorpe, Sycamore Avenue, Dogsthorpe, Peterborough.
TONSBRIDGE & DAS. Chairman, Mr J. Ballingham; vice-chairman, Mr C. Punched; treasurer, Mr D. Baker; secretary, Mrs J. Feast (19 Eardley Road, Sevenoaks, Kent).
UXBRIDGE AS. Meetings: fortnightly on Wednesdays, 8.00 p.m., Brookside Pavilion, Spokkids Road, Hayes. New members very welcome.
YATE & DAS. Meetings: first Monday of month, 7.30 p.m., The Half Moon, Coalpit Heath, Bristol.



THE NORTH-WEST LANCAS SECTION of the FANCY GUPPY ASSOCIATION is having a most successful recruiting drive in their area by making use of a wide range of advertising techniques suggested by members, as reported in the *Journal of the FGA*. To quote: 'Firstly, posters were printed and individual members made responsible for ensuring that each meeting was publicised in their local pet shop. Secondly, a full year's programme was devised and programmes printed: these have been given to each member and some distributed through the local shops and library.' The local press was also contacted and local radio will soon be used. As a result, 55 new members have joined, with more to follow. One particularly successful ' gimmick ' was by arrangement with a local aquatic shop whereby anyone buying fish receives them in a bag which bears not only the name of the shop but also the words 'Join the FGA'.

A RED-finned shark entered by Mr H. Chick won the Best Fish in Show award and gold pin at the **PORT TALBOT AS Open Show**. Mr C. Turner of Cardiff achieved the highest aggregate of points, 831, with Mr C. Rupert achieving the award for the highest number of points by a member, 600. The Best Members' Fish award went to Mr C. Morrison. Detailed results were:

All (The Fountains Cup): 1, Mr G. H. Ferguson; 2, Mr P. Thomas; 3, (The Dartford Cup): 1, Mr B. Mrs Deery; 2, Mr J. Egan; 3, Mrs J. Hawkins; 4, Mr K. L. Brown; 2, John Edwards; 3, Mr B. John Guthrie; 4, Mr W. B. Rice; 2, PTAS Cup: 1, Mr D. R. Warrameant; 2, Mr B. Mrs Williams; 3 & 4, Mr C. Turner; 5, (PTAS Cup): 1, Mr H. Chick; 2 & 3, Mr R. Newton; 4, Mr C. Turner; 5, (equipment prize): 1, 2, Mr C. Turner; 3, Mr J. Egan; 4, Mr M. John; 5, (Mrs Walters Cup): 1 & 4, Mr J. M. Morris; 2, Mr

F. Thomas; 3, Mr G. Berryman; 4, (PTAS Cup): 1, Mr J. Egan; 2, Mr W. B. Rice; 3, Mr B. Mrs Williams; 4, Mr B. Mrs Deery; 5, (PTAS Cup): 1 & 2, Mr B. Mrs Williams; 3, Mr M. Smith; 4, Mr P. Merritt; 5, (Brenda Fountains Cup): 1, John Edwards; 2, Mr C. Turner; 3, Mr P. Merritt; 4, Mr B. Mrs Guthrie; 5, (The Betty Williams Cup): 1, Mr P. Thomas; 2 & 3, Mr K. Williams; 4, Mr H. Chick; 5, (equipment prize): 1, 2 & 4, Mr C. Turner; 3, Mr W. G. Best; 3, Mr J. M. Morris; 4, (PTAS Cup): 1, Mr H. Chick; 2, Mr D. R. Warrameant; 3, Mr B. Mrs Deery; 4, Mr R. Perkins; 5, (equipment prize): 1, 3 & 4, Mr C. Morrison; 2, Mr G. Lewis; 5, (Mrs Townsend trophy): 1, Mr R. Newton; 2, Mr A. Chick; 3, Mr T. Edwards; 4, Mr M. John; 5, (Port Talbot Borough trophy): 1 & 3, Mr R. Newton; 2, Mr B. Purdy; 4, Mr V. Lewis; 5, (equipment prize): 1, 3 & 4, Mr M. Bishop; 2, Mr G. Lewis; 3, (Mrs John trophy): 1, 3 & 4, Mr K. Williams; 2, A. B. M. Smith; 5, (equipment prize): 1 & 2, Mr D. R. Warrameant; 3, Mr E. Morgan; 4, Mr E. Jones; 5, (PTAS Cup): 1 & 2, Mr M. Bishop; 3, Mr J. Egan; 4, Mr B. Mrs B. Fountains; 5, (John Wallace trophy): 1, 2 & 4, Mr B. Mrs Deery; 3, Mr M. John; 5, (Mrs D. Davies trophy jointly with class T): 1, Mr H. Chick; 2, Mr R. Newton; 3, Mr C. Turner; 4, Mr D. R. Warrameant; 5, 1 & 4, A. B. M. Smith; 2, John Edwards; 3, Mr C. Turner; 5, (Ladies Rose Bowl jointly with class XOT): 1, Mr P. Kustbrook; 2, Mr P. Merritt; 3, Mr M. Bishop; 4, Mr B. Purdy; 5, (KOT): 1, Mr C. Turner; 2, 3 & 4, Mr C. Morrison; 5, (Dave Croft Cup): 1, Mr C. Turner; 2, Mr B. Mrs Deery; 3, Mr T. Edwards; 4, Mr K. Williams; 5, (Carol Rupert Cup): 1, 3 & 4, Mr C. Rupert; 2, Mr B. Mrs B. Fountains; 5, (FBAAS trophy): 1 & 2, Mr C. Rupert; 3, Mr R. Rich; 4, Rudland B. Green; 5, (PFM voucher): 1, 3 & 4, Mr C. Rupert; 2, Mr D. R. Warrameant.

HIGH WYCOMBE AS meet on alternate Thursdays at 8.00 p.m. at The White Horse Inn, West Wycombe Road (corner of Oakridge Road), High Wycombe. Visitors are welcomed at meetings and there are meetings on 10th July and 7th August (club discussions) and an eight-a-side competition on 24th July. Further details can be obtained from secretary Mr J. Bushby, 3 Hawthorne Walk, Hazlemere, High Wycombe, Bucks: phone Penn 3825. Recent meetings have included a talk by Mr P. Merritt on 'Aspects of Fish-keeping' which members found most informative, discussions on live foods and home-made fish foods and the members' table show for the annual trophy. Judges Mr P. Merritt and Mr A. Gibson of Reading had 81 entries to judge in the time available and found it a hard task. Mr I. Pierce and Mr R. Cox were both awarded 23

points (Mr R. Leslie, 22 and Mr J. Bushby, 21).

21 CLUBS were represented at the **BOURNEMOUTH AS Open Show** and the Society were particularly pleased that smooth-running organisation ensured that the doors were opened to the public at the advertised time — a somewhat rare occurrence, they feel. The FBAS trophy for class J was won by Mr R. J. Hard (Haslemere AS). The Best Coldwater Fish award went to Mr J. Hodder (Weymouth) and the Best Tropical Fish and Best Fish in Show awards went to Mrs. P. Newbury (Gosport AS).

B: 1, Mrs P. Newbury (Gosport); 2 & 3, Mr R. F. Adams (Salisbury); 4, Mr T. Burvill (Basingstoke); Ca: 1 & 3, Mr C. Turner (Cardiff); 2, Mrs P. Newbury; 4, Mr B. Watkins (Bournemouth); Ca: 1, Mrs P. Newbury; 2, Mr K. S. Dowell (Havant); 3, Mr C. Turner; 4, Mr M. Medway (Bournemouth); 5, Mr M. J. Turner (Weymouth); 2, Mr G. M. Fox (Dorchester); 3, Mr A. F. Bigh (Ultrascope); 4, Mr C. Turner; Dr: 1, Mr R. F. Adams; 2 & 4, Mr B. Rize (Chant); 3, Mr L. R. Pierce (High Wycombe); E: 1, Mr D. Warrameant (Cardiff); 2, Mr R. F. Adams; 3, Mr G. M. Fox; 4, Mrs K. Pail (Ultrascope); F: 1, Mr P. Brown (South-ton); 2, Mr A. E. Weaire (South-ton); 3, Mr R. Cox (B'mouth); 4, Mr N. Walker (South-ton); G: 1 & 2, Mr M. Medway; 3, Mr B. S. Dalry (Weymouth); 4, Mr C. Turner; H: 1, 2 & 3 and joint 4, Mr Taylor; 4, Mr T. Watson (Havant); J: 1, Mr R. J. Hard (Haslemere); 2, Mr M. Medway; 3, Mrs P. Newbury; 4, Mr A. Chaplin (Basingstoke); K: 1, Mr B. Onslow (Kingclere); 2, Mrs P. Newbury; 3, Mr J. Edwards (Llanwit Major); 4, Mr B. Mrs Bobb (B'mouth); L: 1, Mr H. Armitage (Havant); 2, Mr A. E. Weaire (South-ton); 3, Mr R. F. Adams; 4, Mr B. Rize; M: 1, Mr T. Burvill (Basingstoke); 2, Mr J. Hodder (Weymouth); 3, Mrs P. Newbury; 4, Mr R. Onslow; N: 1, Mr R. Matley (B'mouth); 2, Mr T. Burvill; 3, Mr M. Medway; 4, Mr B. Mrs Bobb; O: 1, Mr A. Chaplin (Basingstoke); 2 & 3, Mr B. Mrs Bobb; 4, Mr D. A. Lambour (Taunton); Q: 1 & 2, Mr I. R. Pierce (H. Wycombe); 3, Mr G. M. Fox; 4, Mr B. Mrs Bobb; R: 1, Mr M. Carter (South-ton); 2, Mr C. Turner; 3, Mr J. V. Jeffery (B'mouth); 4, Mrs P. Newbury; S: 1 & 3, Mr B. Mrs Bobb; 2, Mr P. R. Dawid (Rhonda); 4, Mr M. Bowles (Rhonda); T: 1, Mr A. E. Weaire; 2, Mr K. S. Dowell; 3, Mr M. Carter; 4, Mr T. Burvill; U: 1 & 4, Mr B. Coombes (Bournemouth); 2 & 3, Mr J. V. Jeffery; Ur: 1, Mr J. Hodder; 2, 3 & 4, Mr D. S. Jendon (Yeovil); W: 1, Mr J. V. Jeffery; 2, Mr D. Warrameant; 3, Mr B. Rize; 4, R. D. N. Burvill; X: Mr T. Mrs P. Newbury; 2, Mr J. C. Dickson (Havant); 3, Mr R. Onslow (Kingclere); 4, Mr B. Mrs Bobb; XOT: 1, Mr W. West (Salisbury); 2, Mr A. E. Weaire; 3, Mr C. Turner; 4, Mr M. J. Turner.

FEDERATION



NEWS

MEMBERS of its NORTHERN SECTION organised the first Open Show of **THE BRITISH KOI-KEEPERS' SOCIETY** in Bury, Lancs., on 11th May. 44 Koi were shown, ranging in size from 6 in. to 16 in. in many varieties and came from as far afield as Cornwall, Bucks. and Essex. The Best Fish in Show was a Parachina Doitsu Ohgon of 11 in. owned by Mr R. Seal (platinum-coloured metallic fish with mirror scales). Second place went to a 15 in. Kohaku entered by Mr R. G. Woodward (red and white fish) and the third prize was won with an 11 in. Aka-Sanke, also entered by Mr Seal (a tri-coloured fish showing black, white and, predominantly, red — Aka — markings).



Mr C. Katritsky

It is with deep regret that I announce the death of Mr Charles Katritsky, on 8th May, at the grand old age of 90. Mr Katritsky was vice-president of the FBAS, and was actually the first Specialist on Plants to enter the lists of the Federation as a lecturer many years ago. He was also a life member of Hendon AS.

His services to the Federation, in extending to us the benefits of his knowledge and experience of the plant world have been second to none, and the hobby is the poorer without him. His gentlemanly manner and respect for others, always held him in high esteem.

I am sure that all members of the FBAS join me in extending to his son, and others of his family circle, our deep condolences in their sad loss.

F. C. TOMKINS,
Chairman FBAS

FORTHCOMING CHAMPIONSHIP CLASS SHOWS*

July 5	Cardiff	Q	Swordtails
July 20	Brighton & Southern	Cb	
Aug. 3	Tonbridge	Bz	Barbs
Aug 4-9	Portsmouth	W	
Aug. 17	Newcastle Guppy	R	Platys
Aug. 30	Hounslow	Ba	Barbs
Sept. 7	Bethnal Green	J	Rasboras
Sept. 14	Three Counties	F	Egg-laying toothcarp
Sept. 14	Torbay	Ez	Female Guppy
Sept. 21	Hastings & St Leonards	O	Male Guppy
Sept. 28	Newbury	Dc	Rift Valley cichlids
Oct. 5	Ealing	Da	Angels
Nov. 16	Walthamstow	Z	Plants

Results

Riverside AS	Cz	Mr M. West (Kingston)
Southampton AS	Db	Mr T. Frazer (Basingstoke)
Mid-Kent AS	G	Mrs M. Nethersall (Riverside)
Catfish Association	Ha	Mrs M. Nethersall (Riverside)
Redhill & Reigate AS	L	Mr K. Groves (Horsham)
Medway AS	Mr	Mr C. Elliott (Medway)
North Kent AS	NO-T	Mr K. Usher (Doncaster)
Southend, Leigh & DAS	T	Mr K. Usher (Doncaster)
Corringham AS	XB-M	Mr P. Moye (Sudbury)
Port Talbot AS	V	Mrs C. Rupert (Port Talbot)

The correct address for Mr M. J. Williams, mentioned in the May issue of 1974 as a new FBAS speaker, is 385 Brockles Mead, Harlow, Essex. He lectures on general aspects of fishkeeping, on the Lake Malawi cichlids and on marines.

* Winners of Federation Championship Trophies in classes for single fish automatically become eligible for the Supreme Championship Trophy Competition (to be staged at The AQUARIUM SHOW '75 at the Royal Horticultural Society's Old Hall, London, SW1, 24th-26th October). Six awards are made at this Competition, and each entrant will receive a Championship 'Certificate'.

THE BRITISH CICHLID ASSOCIATION are hoping that more of its members will undertake to study species of fish in their Species Maintenance Committee programme. The work involves recording day-to-day observations on both adults and young on report forms that have now been prepared. Notes on any

special behaviour such as herding the fry or mating rituals of the parents could be of particular interest. Anyone who would like to join the Association to take part in this work should contact Mr T. Green, 12 Greenwood Meadow, Chinnor, Oxford, general secretary.

Entries Up at Bridlington

A 30% increase on last year's entries was the pleasing result of the **BRIDLINGTON & DAS** second Open Show, with a total of 648 entries benched. Mr J. A. Whiteley (Aireborough) won the Best in Show award, a gold star, YAAS Diploma, Parade Shield and Uno rosette. Messrs McCordle & Kirk of Castleford won the Exhibitor with Most Points award, the Edward Fison shield. A Special Award was made to Mr N. Blenkin of Bridlington as the exhibitor with most entries and Doncaster won the Bridlington shield as the Society with the most points.

Trophy (Amie Datta trophy): 1. 2 & 2. 2. 2. M. Lyvock (Sheaf Valley). **Parade:** 1. Mr & Mrs Green (Castleford); 2. Mr & Mrs Povey (Sheaf Valley); 3. Mr & Mrs Emerson (Castleford). **Molluscs:** 1. Mr & Mrs Emerson; 2. Mr & Mrs Emerson; 3. Mr & Mrs Swaney (S. Humberside). **Swordtails:** 1. 2 & 2. Mr N. Blenkin (Bridlington), adv. Livebearer (magazine subscription): 1. Mr J. A. Whiteley; 2. Mr & Mrs Feasey (Doncaster); 3. Mr Jackson (Doncaster). **Characins - small:** 1. Mr & Mrs Houghton (Scarborough); 2. D. & M. South (Sheaf Valley); 3. Mr & Mrs Chester (Retford). **Characins - large (Horton trophy):** 1 & 2. Mr & Mrs South (Retford); 3. Mr & Mrs Roberts (Doncaster). **Barbs - small (Humber Valley, Coach Co. Cup):** 1. Mr & Mrs Emerson; 2. Mr & Mrs Green; 3. Mr & Mrs Daines (Doncaster). **Betta, large:** 1. Mr M. Jordan (Bridlington); 2. Mr & Mrs Tyeen (S. Humberside); 3. Mr & Mrs Roberts. **Cichlids - small (R. J. Sheppard Engineering trophy):** 1. Mr & Mrs Chester; 2. McCordle & Kirk (Castleford); 3. Mr N. Blenkin. **Cichlids - large:** 1. Mr & Mrs Richardson; 2. Mr & Mrs Taylor (Bridlington); 3. Mr & Mrs Williams (Bridlington). **Angels:** 1. Mr & Mrs (Scarborough); 2 & 3. Mr & Mrs B. Bennett. **Malawi (Rit. Valley) - small:** 1. 2 & 3. Mr & Mrs J. Scott (Sheaf). **Parrots (P. & M. Jordan Shield):** 1. Mr & Mrs (Doncaster); 2. Mr & Mrs Lane (S. Humberside); 3. Mr & Mrs Swenden (York). **Anabantids - small:**

1. McCordle & Kirk; 2. Mr G. Gillespie (Castleford); 3. Mr Blundell (Doncaster). **Anabantids - large (W. & A. Lilly Rose Bowl):** 1. Mr & Mrs Blades (Baxsetlaw); 2. Mr K. Lancashire (Doncaster); 3. Mr M. Jordan. **Egg-laying - toothcarps (R. Milnes & Son Rose Bowl):** 1. Mr & Mrs Blades; 2. Mr & Mrs Greenwood (Immingham); 3. Mr Guy (Doncaster). **Corydoras & Brochis (S. & S. Goddard Cup):** 1. Mr & Mrs Emerson; 2. Pete & Sylvia (Bridlington); 3. Mr N. Blenkin. **Loaches:** 1. Mr & Mrs Binn (Scunthorpe); 2. Mr Comforth (Bradford); 3. Mr P. Northrop (Bridlington), adv. Catfish (R. W. Robson Rose Bowl): 1. Mr & Mrs Scott (Castleford); 2. Mr Blundell; 3. Mr N. Carr (Doncaster). **Sharks & Rays (1975 Burlington shield):** 1. Miss S. Clarke (Aireborough); 2. Mr Darragh (Goole); 3. Mr D. Sugden (Bradford). **Nasboras (magazine subscription):** 1. Mr Blundell; 2. Pete & Sylvia; 3. Mr & Mrs Richardson. **Danios & minnows:** 1. Mr & Mrs Richardson; 2. Miss J. Peacock; 3. Mr & Mrs Roberts.

Pairs, livebearers: 1. Mr & Mrs Feasey (Doncaster); 2. Mr N. Blenkin; 3. McCordle & Kirk. **Pairs, egg-layers:** 1. Mr & Mrs Binn (Scunthorpe); 2. McCordle & Kirk; 3. Mr & Mrs D. Caldwell (Scunthorpe). **Breeders livebearers 1-10:** 1. Mr Blundell; 2. McCordle & Kirk; 3. Mr & Mrs Emerson. **Breeders livebearers 11-20:** 1. Mr & Mrs Povey (Sheaf Valley); 2. Mr & Mrs Scott (Sheaf Valley). **Breeders egg-layers 1-10:** 1. Mr Jackson; 2. Mr & Mrs Fletcher (Doncaster); 3. Mr & Mrs Scott. **Breeders egg-layers 11-20 (magazine subscription):** 1. Mr Darragh (Goole); 2. Mr & Mrs Feasey; 3. Mr & Mrs Fletcher. **av. Female egg-layer:** 1. Mr & Mrs Fletcher; 2. Mr & Mrs Feasey; 3. Mr Rutland (Goole). **av. Female livebearer:** 1. McCordle & Kirk; 2. Mr Jackson (Doncaster); 3. Mr & Mrs Riley (Leeds P.O.). **av. tropical (Tony Mullins Sports trophy):** 1. Mr & Mrs Binn; 2. McCordle & Kirk; 3. Mr Bellard (Hull). **Junior av. Special award:** 1. M. & T. Holmes (Castleford); 2. G. Parkin (Keighley); 3. N. O'Donnell (Independent). **Furnished mini jars (Committee Cup):** 1. Mr & Mrs Chester; 2 & 3. Pete & Sylvia. **Common goldfish:** 1. Mr G. Gribby (Hull); 2. Mr & Mrs North (Hull); 3. Malin D. Felsby. **Fancy coldwater (E. & J. Thewlis Silver Plate):** 1. 2 & 3. Mr C. Whiteley (Accrington). **Shubunkins:** 1 & 2. Mr C. Whiteley; 3. Mr Gregory (Scarborough). **adv. Coldwater:** 1. Mr & Mrs Blades; 2 & 3. Mr & Mrs Woods (York).

In Brief...

... SEVERAL younger members of **BRISTOL AS** were able to experiment with a camera and film taken along for the evening when a slide show on fish photography was given. An auction in aid of Society funds on the same evening benefited by the sale of several lots of fish. Visitors and new members are welcome at meetings on the second Monday of the month, 7.30 p.m., Bishopston Parish Halls.

... A **STEP-BY-STEP** practical demonstration on making an all-glass tank by Mr P. Smith and a talk on marines by Mr M. Barker, in which he described a visit to a marine fish house and his own experience in keeping marines, were very much enjoyed by members of **HORSFORTH & DAS**.

... A **DEMONSTRATION** of glass cutting by Mr R. Houghton to **BRIGHTON & SOUTHERN AS** had many members joining in and practising. Members also judged a mini-aquarium show. The table show for breeders pairs, **FBAS** judge Mr P. Cottle (North Kent) was won by Mr R. Houghton (NB-M, 82).

A new world record? At the first of the proposed six-monthly Aquatic Forums to be held by **ILFORD & DISTRICT A & PS** Mr Harry Berger and Mr R. Saltrick set-up a coldwater furnished aquarium, starting with a bare tank and 170 plants, seven rocks, 30 pounds of gravel, and fish and lights, in 5 minutes 36 seconds. As secretary Mr N. Shadrack adds: "Wind speeds allowing, official ratification is a matter of course." The subject chosen for the inaugural meeting was 'The Home Aquarium' and members heard short talks on equipment, rocks, gravel and aquarium furniture, design, plants and planting techniques, and the audience were invited to try their hands at arranging the rocks and gravel in a variety of aquariums.

Ps. tropheops) and Mr R. Cannon (NO-T, 75, *H. jormosa*). The Society's Open Show and Exhibition is on Sunday, 20th July, at St Barnabas Hall, Sackville Road, Hove (enquiries please to Mr M. Rooney, 41 Kings Road, Southwick).

... **EAST LONDON A & PA** members have been strongly supporting club table shows this year and there are many more planned for members' enjoyment during the rest of the year.

... **MR & Mrs C. Sellars of LINCOLN & DAS** have been presented with a silver badge by the Yorkshire Association of Aquarist Societies for winning over 50 first prizes at Open Shows. The presentation was made by chairman of the YAAS, Mr G. Sibson. They, and president of Lincoln Mr H. Kuhn, also received illuminated addresses on behalf of Lincoln & DAS from chairman Mr J. Woodliffe.

... **SOME** enthusiastic members of **BRACKNELL AS** have joined the Market! Not the Common one — but Bracknell's open air one, where they operated a stall selling tropical fish, books, garden plants and miscellaneous articles and made a profit of over £40.00 for club funds. The Society have also much enjoyed the talk and slide show given by Mr R. Esson (FBAS) on 'The Coldwater Scene' and although the subject became somewhat changed, members found the talk most interesting and very amusing.

... **WINNER** of the Champion of Champions competition at **PETERBOROUGH FA** (judged by Mr & Mrs M. Barns from Spalding) is Mr R. Walden (2, Mr J. Butler; 3, Mr K. M. Fox). Mr K. M. Fox achieved most points throughout the year and was a clear winner with 116 (2, Mr J. Butler, 63; 3, Mr C. A. Brakes, 58).

... **YATE & DAS** thoroughly recommend to other clubs the lecture and slide show by Mr I. Sellick on 'Coloration and Communication in Fishes'. Mr Sellick, of Bristol University and the BCA, recently gave this lec-

ture to the great pleasure of 60 Society members.

... **NEWS** from **UXBRIDGE AS** tells of well-attended meetings, lots of support for club activities such as FBAS talk/slide lectures, a bring-and-buy sale and a very successful dance, and increased membership at meetings held on alternate Wednesdays, 8.00 p.m., at Brookside Pavilion, Brookside Road, Hayes. The Society is not holding an Open Show this year but will hold an exhibition of fishkeeping, in conjunction with Hayes Carnival, the Town Hall Park, Hayes, Middlesex, on Saturday, 12th July.

... **RESULTS** of the annual Points Trophy competition held by **NEW FOREST AS (FBAS)** were: Tropical: 1, Mr J. Jeffery; 2, Mr R. Travers; 3, joint, Mr A. Paulley, Mr B. Higginson. Coldwater: 1, 2 & 3, Mr L. Menhennett. Mr Menhennett also won first, second and third places in the Coldwater Championship table show. Tropical results were: 1, Mr J. Jeffery; 2, Mr R. Travers; 3 & 4, Mr M. Aust.

Dates for Your Diary

5th July, **CARDIFF AS** Open Show, St Margarets Church Hall, Road, Cardiff. Details: Mr R. Gey, 30 Letterston Road, Rumney, Cardiff.

6th July, **BILLINGHAM AS** Open Show, Community Centre, Billingham.

6th July, **BRISTOL AS TROPICAL** Open Show. Schedules: Mr E. N. Bowden, 12 Spensleigh Walk, Knowle, Bristol BS4 2AL (phone: 775355).

6th July, **LYTHAM AS** Open Show, Ansdell Institute, Woodlands Road, Ansdell, Lytham-St-Annes, Lancs. Schedules: Mr Peter Ham, 1 Wyndens Grove, Freckleton, Preston, Lancs.; phone Freckleton 832182.

6th July, **THORNE AS** Open Show, Grammar School, St. Nicholas Road, Thorne, nr. Doncaster, Yorks. Details: Mr C. Jewison, 94 Hewthorne Road, Thorne; phone Thorne 813041.

12th July, **UXBRIDGE AS** Exhibition of Fishkeeping (Hayes Carnival), Hayes Park.

12-13th July, **ROMFORD & BEACONREEF AS** Open Show (Dagenham Town Show), Central Park, Dagenham. Enquiries: Mr W. Baker, 283 Rush Green Road, Romford, Essex.

20th July, **SANDGROUNDERS AS** Open Show, Meols Cop School, Meols Cop Road, Southport. Details: Mr G. A. Waterhouse, 23 Moss Lane, Southport, Merseyside, PR9 7QR.

20th July, **AIREBOROUGH & DAS** Open Show, Menston Community Centre, Main Street, Menston. Schedules: Mr J. S. Hall, 34 Salisbury Street, Calverley, Pudsey, LS23 5PN; phone Pudsey 74609.

20th July, **BRIGHTON & SOUTHERN AS** Open Show and Exhibition, St Barnabas Hall, Sackville Road, Hove. Sussex. Details: Mr B. Severn, 11 Seaview Estate, Southwick, BN4 4AS (phone: Brighton 593551).

26th July, **GOLDFISH SOCIETY OF GREAT BRITAIN** Meeting, Conway Hall, Red Lion Square, Holborn, London, WC1, 2.00 p.m.

27th July, **RUNCORN AS** Open Show, The Granway Youth Centre, Granoway, Runcorn. Schedules: Mr J. V. G. Draks, 50 Cunliffe Close, Falacefields, Runcorn, WA7 2GF.

2nd August, **BLACKPOOL & FYLDE AS** Open Show, Blackpool Boys' Club, Laycock Gate, off Devonshire Gate, Blackpool, 2.00 p.m. Details: Mrs. O. Barlow, 13 St Chad's Close, Poulton-le-Fylde, Lancs.

2nd-3rd August, **TOTTENHAM & DAS** Open Coldwater Show, Harringway Recreation Ground, Lonskip Lane, N.22. GSGB Judges. Schedules: Mrs S. Townson, 1 Hazard Court, Watertail Road, London, N.11; phone 01-368 2091.

3rd August, **TONBRIDGE & DAS** Open Show. Details: Mr S. Feast, 13 Eardley Road, Sevenoaks, Kent, TN13 1XX; phone Sevenoaks 54908.

4th-9th August, **PORTSMOUTH AS** Open Show and Exhibition, Wesley Central Hall, Fritton Road, Portsmouth. Benchings, 2nd August; judging, 3rd August; open to public, 4th-9th August; prizegiving, 9th August. Schedules: Mr J. Stillwell, 34 Seacombe Avenue, Copnor, Portsmouth, Hants, PO3 8LD.

10th August, **GRIMSBY & CLEETHORPES AS** Open Show, Memorial Hall, Cleethorpes. Schedules: Mr T. F. Walker, 51 Cheshire Walk, Grimsby, 5th Humberston; phone Healing 7516.

14th-16th August, **MIDLAND AQUATIC FESTIVAL 75**, Binley Hall, Broad Street, Birmingham. Details: Mr J. Wills, 120 Franklin Road, King Norton, Birmingham 30 (phone: 021-458 5655).

17th August, **HUDDERSFIELD TFS** Open Show, Paddock Civic Youth Centre, Beech Street, Paddock, Huddersfield. Details: Mr D. Hoogh, Flat 5, Sycamore Court, Sycamore Avenue, Golear, Huddersfield; phone Huddersfield 57147.

17th August, **NEWCASTLE GUPPY & LIVEREAPER SOCIETY** Open Show (the only all-livebearer Open Show). Details to follow.

17th August, **OLDHAM & DAS** Open Show, Werneth Park, Oldham. Schedules: Mr A. E. Chadwick, 343 Broadway, Chadderton, Oldham, Lancs OL9 8RN.

24th-26th August, **GREAT YARMOUTH & DAS** Tropical and Coldwater Fish Exhibition, Hopton Village Hall (on A12 between Great Yarmouth and Lowestoft).

30th August, **HOUNSLOW & DAS** Open Show, Hounslow Youth Centre, Cecil Road, Hounslow. Schedules: Mr E. Sneathard, 9 Mooton Avenue, Hounslow, Middlesex; phone 01-570 6127.

6th September, **FRAS** General Assembly, 2.30 p.m., Conway Hall, Red Lion Square, Holborn, London, WC1.

7th September, **BETHNAL GREEN AS** Open Show, Bethnal Green Institute, 229 Bethnal Green Road, London, E.2. Schedules: Mrs S. Hodges, Kol Corner, 160 Ashburton Avenue, Seven Kings, Iford, Essex, IG3 9EL; phone 01-590 3259.

7th September, **BUXTON & DAS** Open Show, Pavilion Gardens, Buxton, opening noon-2.0 p.m. Details: Mr S. T. Broun, 18 Elizabeth Avenue, Fairfield, Buxton, Derbys, SK17 7RL.

7th September, **HOVLAKE AS** Open Show, YMCA, Market Street, Moseley, Moseley, Schedules: Mr D. W. Morris, 9 Pump Lane, Gressley, Moseley, Moseley, LE9 3PW.

7th September, **KILLINGWORTH AA** Open Show, "Communicare", Killingworth Township, Schedules: Mr D. S. Hickman, 14 Crumstone Court, Ludlow Meadows, Killingworth, Newcastle, NE12 0SZ.

7th September, **WELLINGBOROUGH & DAS** Open Show, Weavers Road Sports Centre, Weavers Road, Wellingborough, Northants. Show scheduled: Mr D. Bitchener, 1a George Street, Wellingborough, Northants.

12th September, **BRISTOL AS** Cold-water Open Show, Schedules: Mr S. N. Bowden, 12 Stoneleigh Walk, Kingsley, Bristol BS4 2RL; phone 773222.

14th September, **CLEVELAND AS** Open Show, Church Hall, Whisby Road, Guisborough, Cleveland. Details: Mr S. Welford, 50 West Road, Loftus, S42 9BN, Cleveland.

14th September, **21st THREE COUNTIES GROUP** Open Show (to be run by Basingstoke AS, Bracknell AS, Didcot AS, High Wycombe AS and Reading AS), Reading University, 52 classes including special 3-class exhibition. Details: Mr M. Strang, 70 Lodon Court, Neville Close, Basingstoke, RG21 3HJ; phone Basingstoke 67039.

14th September, **TORBAY AS** Open Show, Torquay Town Hall. Details: Mr J. R. Davis, 43 Haldon Road, Torquay, Devon.

21st September, **CHESTERFIELD & DAS** Open Show, Clay Cross Social Centre, Chesterfield Road, Clay Cross, nr. Chesterfield, Derbyshire. Details: Mr F. Morton, 58 Salisbury Crescent, Newbold, Chesterfield.

21st September, **HUCKNALL & BULLWELL AS** Open Show, Details: Mr J. R. Wakcott, 9 Royce Avenue, Westville, Hucknall, Notts.

27th September, **GOLDFISH SOCIETY OF GREAT BRITAIN** Open Show, Sutton Adult School, Beehill Avenue, Sutton, Surrey. Schedules: Mrs M. Dudley, 163 South Park Road, Wimbledon, London, SW19 3RX.

28th September, **NEWBURY & DAS** Open Show, The Plaza, Market Place, Newbury, Berks. Schedules: Mr S. Canning, 6 South End, Thatcham, Newbury, Berks.

28th September, **NORTHAMPTON & DAS** Open Show, The Drill Hall, Clare Street, Northampton. Schedules: Mrs D. Taylor, 25 Rawley Crescent, New Duston, Northampton, NN5 6PU.

4th October, **EAST LONDON AQUATIC & PONKEEPERS** Open Show, Details to follow.

8th October, **EALING & DAS** Open Show, Details to follow.

8th October, **SCUNTHORPE & DAS** Open Show, Details: Mr L. Sur, 6 Saxon Road, Scunthorpe, S. Humberside.

11th-12th October, **BRITISH AQUARISTS' FESTIVAL**, Belle Vue, Manchester.

12th October, **VAUXHALL MOTORS AC** Open Show, Schedules: Mr A. D. Philip, 15 Hollybush Road, Luton.

24th-26th October, **THE AQUARIUM SHOW '75** at the Royal Horticultural Society's Old Hall, Vincent Square, London SW1. Presented by the Federation of British Aquatic Societies.

Aquarium society fishkeeping exhibits invited. Details from the organizer, PFM, 554 Garratt Lane, London SW17 0NY; phone 01-847 2805.

26th October, **DONCASTER & DAS** Open Show, Brodsworth Mixers Welfare Hall, Welfare Road, Woodlands, nr. Doncaster. Schedules: Mr A. Feeley, 20 Hills Close, Sproborough, Doncaster, DN5 7NW, South Yorks.

2nd November, **BLACKBURN AQUARIST WATERLIFE SOCIETY** Open Show, Windsor Hall, Blackburn. Details: Mr T. Burton, 21 Henry Street, Rishton, nr. Blackburn, BB1 4JJ.

9th November, **GLOSSOP AS** Open Show, Adult Education Centre, Talbot Street, Glossop, Derbyshire. Details: Mr S. Turner, 56 Arundal Street, Glossop; phone Glossop 4409.

9th November, **HALIFAX AS** Open Show, Forest Cottage Community Centre, Cooles Lane, Ilkley, Halifax. Schedules: Mr D. Shields, Cobblestones, Garfield, King Cross, Halifax; phone Halifax 60118.

22nd Nov, **GOLDFISH SOCIETY OF GREAT BRITAIN** Meeting, Conway Hall, Red Lion Square, Holborn, London, WC1, 2.00 p.m.

27th November, **FUR, FEATHER & AQUARIA SHOW**, King's Hall, 39 Lower Clapton Road, London, E5. Schedules: Mrs S. Hedger, Kai Corner, 150 Ashburton Avenue, Seven Kings, Ilford, Essex, IG3 9EL; phone 01-590 3239.

30th November, **HORSFORTH AS** Open Show, New Civic Hall, Pudsey, Yorks. Details: Mr C. Corns, 15 Thornleigh Grove, Leeds, LS9 8GR.

6th December, **FBAS Annual General Meeting**, 2.00 p.m., Conway Hall, Red Lion Square, Holborn, London, WC1.

DAVE'S AQUARIUM

347 DERBY STREET, BOLTON

Worldwide Importers of
TROPICAL and MARINE FISH
Wholesale and Retail

TRADE LIST SENT ON APPLICATION

Ring Bolton 63561 for any further information

Open Mon., Tues., Wed., Sat. 9.30 a.m. - 6 p.m.; Thur. 9.30 a.m. - 8 p.m.
Fri. 9.30 a.m. - 7.30 p.m.; Sun. 10 a.m. - 4 p.m.

Classified ADVERTISEMENTS

AQUATIC SUPPLIERS

M.S. TROPICAL FISH (Maurice Stray—Aquarist), 47 St Georges Street, Cheltenham. We have the finest selection of tropical marines in Gloucestershire; also a comprehensive selection of freshwater tropicals, plants, and all other aquarists' requirements. Phone 38000. Open till 8 p.m. Thursday and Friday.

AT LEAST 150 VARIETIES tropical, marine and pond fish—for personal shoppers only. Kingfisheries, 308 Croydon Road, Beckenham, Kent. Phone 01-650 3716. Closed Wednesdays.

EQUIPMENT

AQUARIA FRAMES, STANDS AND HOODS plus ornamental stands. Frames from 1½ X 1½ X 1 angle steel. 48 X 15 X 12 £5.60; 48 X 15 X 15 £5.85. Plain stands, 2-tier: 48 X 12 X 30 in. high £7.60; 48 X 15 X 30 in. high £8.15. Aluminium hoods: 48 X 12 £4.40; 48 X 15 £4.85. VAT plus carriage paid. Money back undertaking. All sizes quoted. Send s.a.e. for full price list to Hockney Engineers Ltd., Derwent Place, Leeds, LS11 9TW. Tel.: 455061.

RUSTPROOFED AQUARIA, ornamental stands, glazing cement. Equipment manufacturers: s.a.e. Westbys, Barton, Ormskirk.

DYNAFLO MOTOR FILTER: magnetic drive, 60 gallon per hour rate, fully guaranteed, all spares available, £18.79 post paid. C.W.O. From Keith Barracough, Aquarist, Ltd., Hayfield Mills, Haycliffe Lane, Bradford 5. Also available at your local aquarists' shop.

CLASSIFIED ADVERTISEMENTS

Rates: 5p per word (minimum charge 50p); Box no. 15p extra if required. Remittance with order to be sent to

PetFish Monthly
554 Garratt Lane,
London, SW17 0NY

MISCELLANEOUS

BADGES. Every society needs bright enamel badges. For best service and quality contact R. E. V. Gomm (PF) Ltd., 14-15 Frederick Street, Birmingham B1 3HE.

GROUND DRIED SHRIMPS. Small Whole Shrimps, Daphnia and Cuttlefish. Samples and prices at your disposal. Wholesale only. H. E. Daniel, Longfield Road, Tunbridge Wells, Kent.

EXPERIENCED FISH BREEDERS capable of producing fish eggs (ova) required for full/part-time or weekend job. Write Box 605.

KING BRITISH FREEZE-DRIED RED TUBIFEX, big 4 oz. can £2.98 post paid, C.W.O. From Keith Barracough, Aquarist, Ltd., Hayfield Mills, Haycliffe Lane, Bradford 5. Or from your local aquarists' shop.

DUE TO RETIREMENT, offers are wanted for full issue of PetFish Monthly, Volumes 1-9 complete.—Box no. 280.

1lb. BEST QUALITY FLAKE FISH FOOD for £1.50; 1lb. £2.50; 2 lb. £4.89, all post paid. C.W.O. From King British Aquarium Accessories Co. Ltd., Hayfield Mills, Haycliffe Lane, Bradford 5. Also available from your local pet shop.

FISH FOR SALE

FANCY GUPPIES. Fish-house Breeder, several types/strains. Write for list, s.a.e. please. Trade enquiries invited. Box no. 701.

COLDWATER ENTHUSIASTS: NEW TO EUROPE. Long finned lionheads (adults), blue moors, blue orandas and other varieties of aquarium and pond fish for sale. H. G. Berger, Ilford; 01-550 0511.

BOOKS

FBAS Show Fish Guides and Technical Information. Booklet nos. 1, 2, 3, and 4; 25p each post free. P.F. Publications, 554 Garratt Lane, London SW17 0NY.

NEW FBAS Show Rules, Constitution & Technical Information Booklet No. 5, 25p each post free. **FBAS National Show Fish Sizes & Technical Information Booklet No. 6**, 35p each post free. **Booklet Sets Nos. 1-6**, £1.50 post free. P.F. Publications, 554 Garratt Lane, London, SW17 0NY.

GOLDFISH SOCIETY OF GREAT BRITAIN STANDARDS BOOK. Revised (1972) 40-page publication. Standards for 13 approved fancy goldfish varieties, illustrated in line, 40p post paid. P.F. Publications, 554 Garratt Lane, London, SW17 0NY.

WINGATE & GOLDING LTD. Tel. SUTTON SCOTNEY 792-3
BARTON STACEY, WINCHESTER, HANTS.

A complete service to the aquatic trade. Wholesale suppliers of Freshwater and Marine fish, Aquariums & Accessories. Regular van deliveries in the South. U.K. Distributors for hw MARINEMIX and other hw products.



BONA-FIDE
TRADERS ONLY

Check your fish for vitamin deficiency.

The latest scientific research into fish nutrition has shown that any of the following symptoms can result from vitamin deficiency.

Anaemia? Can be caused by a deficiency of choline, Vitamin B₁₂, E or K.

All of these important vitamins are present in PHILLIPS SUPERFOOD.

Dark or dull colouration? To maintain good colour biotin is essential.

And Biotin is an essential ingredient in PHILLIPS SUPERFOOD.

Loss of appetite? If your fish won't eat, it could be because you're not feeding them foods that contain sufficient Vitamin B₁, C, riboflavin, pantothenic acid, nicotinic acid and pyridoxin.

PHILLIPS SUPERFOOD is a rich source of all of them.

Sluggishness? Lethargic fish are not much fun. So combat this symptom with a food containing folic acid and nicotinic acid.

As present in PHILLIPS SUPERFOOD.

Skin disturbances? Unsightly skin disturbances are often the result of diets that lack inositol, biotin and nicotinic acid.

But give your fish PHILLIPS SUPERFOOD. It contains all three vitamins.

Poor growth? Growth can be retarded in fishes lacking Vitamins B₁ and B₁₂ and Vitamins A and E.

Ensure good growth with PHILLIPS SUPERFOOD. It contains all these vitamins.

Swollen gills? Often an indication of a deficiency of nicotinic acid in the fishes diet.

This deficiency can be made good by PHILLIPS SUPERFOOD.

These and many other deficiencies can result from a poor unbalanced diet. For full nutrition always feed PHILLIPS SUPERFOOD, the extra high vitamin flaked food for all freshwater tropicals and marines.

PHILLIPS SUPERFOOD

Phillips Yeast Products Ltd, Park Royal Road, London NW10 7JX.



"I saw your advertisement in PFM"

R. J. COOK

ONE OF BRITAIN'S LARGEST & MOST PROGRESSIVE CASH AND CARRY WHOLESALERS

Why not pay us a visit?

A completely modern fish department
with TROPICAL, FRESHWATER and
MARINE FISH always in stock

Fully displayed
SHOWROOMS
containing over 5,000 products

GOLDFISH and FANCY
COLDWATER FISH in
stock throughout the year

**UNIT 3B, SHAW STREET, HILLTOP
WEST BROMWICH, STAFFS. Tel:- 021-556 4341/2**

MON.-FRI. 9 a.m.-6 p.m.

SUNDAY 10 a.m.-1 p.m.

TRADE ONLY

Please mention PFM when writing to advertisers

With **POND PRIDE** your fish will rise whatever their size

Small ones will nibble enthusiastically from pellets as they float and soften at the water's surface. Large ones snap up whole pellets.



- **POND PRIDE SINGLE SIZE PELLETS SUIT THEM ALL !**
- **POND PRIDE FLOATS MORE RELIABLY**
- **IN LARGE PELLET FORM**

enabling you to match your fish as they feed at the surface on this high protein, vitamin enriched, nutritionally balanced diet.

Obtainable in container sizes of 200 (standard) 450 (maxi) 3,000 (Breeder) gms containers. from pet shops and garden suppliers everywhere

In case of difficulty write to:



Cooper Nutrition Products Limited
SPECIALITY DIVISION
Stepfield, Witham, Essex CM8 3AB.
Tel.: 0376 513651



"I saw your advertisement in PFM"

Sera

fish foods are now back in **BRITAIN**

Vipan Basic Flake

GVG — Mixed Foods

Flora Vegetable Diet

Mikropan : Tubipan : Sanipan : Goldy : Bloodworm
Tubifex : Daphnia : Shrimp : Artemia

ALSO THE RANGE OF REMEDIES

Morena Complex : Costapur : Mycopur : Plistopur
Snail Remover : Oodinopur



FROM SOLE UNITED KINGDOM DISTRIBUTORS

NEWPET LTD

PET TRADE DISTRIBUTORS

BROUGH PARK NEWCASTLE UPON TYNE 6

Tel.: (0632) 657428/9

WHOLESALE & RETAIL ENQUIRIES INVITED

Please mention PFM when writing to advertisers



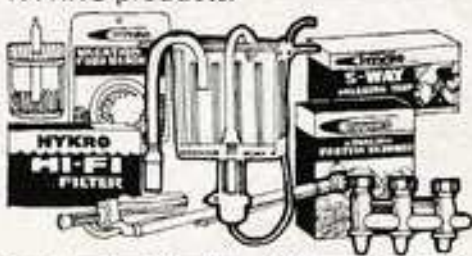
When it comes to the
total environment...

HYKRO KNOW— HYKRO CARE

As an aquarist you know that nothing short of total concern for their living environment can ensure the complete well-being of your fish — or your own complete satisfaction with the most fascinating of hobbies. You can rely on HYKRO to share this ultimate concern with you.

Our range includes everything for the aquarist: from filters and all filter components and accessories ... through air pumps, syphons, cleaners, gang valves and breeding traps ... through skimmers, feeding rings and aquaria decor. All have been developed through a careful, expert study of the total ideal environment and its many different demands. Which may help to explain why we are known as "the aquarist's aquarists". Not an easy

thing to say — but easy enough to understand, when you come to know the specialist quality and comprehensive service offered by HYKRO products.



HYKRO

the aquarist's aquarist

*Hykro products are distributed solely by Peterama Limited, the pet care specialists who touch nothing but the best.

Peterama

The Bilton Estate, Waterhouse Lane, Chelmsford, Essex.

"I saw your advertisement in PFM"

'SAND DESIGNING' AND 'SAND PAINTING'

Are two terms for the newest idea associated with Aquaria, Vivaria, Cactus growing and in fact the artistic decoration of any glass container.

They are also the titles of T.F.H.'s new books on the Subject.

"SAND DESIGNING"
For Terrariums and
Aquariums by
Agnes Pamela Miller
R.R.P. 36p (Please add 10p postage
if ordered direct)

A basic book to encourage you to try this fascinating new aspect to the Aquarium and Vivarium hobby. Shows you how to create your own sand designs, etc. Numerous colour and black and white illustrations.

STOP PRESS !! Following the introduction of the above two new books (available at better Aquarist stockists throughout the U.K. from July onwards, — our associated Company Fantasy Pet Products Ltd., will be introducing mixed coloured sand packs (6 colours) as basic sand designing kits. These should be available at your local suppliers from August onwards. Ask for the FANTASY SANDPACKS!

"SAND PAINTING"
For Terrariums and
Aquariums by
Dr. H. R. Axelrod
R.R.P. £1.30 (1.50 inc. Postage)

This larger, 128 page book, sets out the whole method of sand designing in more detail, also gives step by step instructions how to decorate your aquarium, terrarium or even how to create your own sand background. Many pages in full colour.

T.F.H. (GREAT BRITAIN) LIMITED, 13, NUTLEY LANE, REIGATE, SURREY.

Telephone : Reigate 45191

Reigate 47305



**KING
BRITISH
VIT-A-MIN
EVERY DAY FLAKE**

for aquarium fish

Feed it daily . . . it's the quality of food your fish need at a price you can afford.

IN 7 POPULAR SIZES.
PLUS LARGE FLAKE.

Ask for King British VIT-A-MIN at your local Aquarist or Pet Shop.

KING BRITISH
AQUARIUM ACCESSORIES CO LTD
Hayfield Mills,
Haycliffe Lane, Bradford
BD5 9ET, West Yorkshire

TELEPHONE BRADFORD
76241 (3 lines) STD 0274

THE BRITISH AQUARISTS' FESTIVAL

Saturday 11th, Sunday 12th October
Belle Vue Zoological Gardens, Manchester

TABLEAUX PRIZES INCREASED
1st. £50; 2nd. £40; 3rd. £30; 4th. £20.

Organised by:
Federation of Northern Aquarium Societies
(Member of the Confederation of United
Kingdom Aquarists)

TUBIFEX TUBIFEX

Ring 01-348 3011

for a regular supply, or write

D and V

114 Rathcoole Gardens,
Hornsey N8 9TH

Please mention PFM when writing to advertisers

Coldwater fish must have a complete diet.

Whether kept in ponds or aquaria, coldwater fish need a complete, balanced diet to give them the essential protein, vitamins and minerals.

From extensive trials Phillips nutrition scientists have evolved

a range of Fish Foods that more than meet these requirements.

In fact, Phillips Fish Foods are as nourishing as live foods and the best you can buy. Which explains why they're the choice of leading aquarists and pond-

keepers.

And when you feed Phillips Fish Foods you can vary the diet with three highly nutritious staple foods—Phillips Flaked or Phillips Granular Foods or Phillips Maxi-flakes.



Phillips Flaked Fish Food.

A special blend of liver, fish and meat meals, insects, crustaceans, vegetable matter, seaweed, yeast, milk powder and cod liver oil. Rich in proteins, minerals and vitamins. Drums 15p, 1 jar 29p, 4 jar 67p, 20oz £2.33.

Phillips MaxiFlakes

Large flakes for hand feeding the larger coldwater fish.

Cost 42p, 14oz £2.31.

Phillips Fish Food Granules

A highly nutritious and balanced food for all coldwater fish. Water 18p, 3oz 36p.



Phillips Fish Foods—the best that cost less.

PHILLIPS YEAST PRODUCTS LIMITED, PARK ROYAL ROAD, LONDON NW10 7JX.

"I saw your advertisement in PFM"

NORWOOD AQUARIUM

London's Leading Wholesale Suppliers of Aquatic Equipment
 Prompt and Reliable Service to Retailers
 24 KNIGHTS HILL, LONDON S.E.27 Phone 01-670 6908
 Members of the National Association of Pet Trade Wholesalers

**THE
BASINGSTOKE
AQUARIST**

7 Church Street, Basingstoke, Hants.
 Telephone 22010

Tropical and coldwater fish, marines, live foods and plants,
 large selection of equipment.

Open Monday-Saturday 9.30 a.m.-4 p.m., later by appointment
 Sunday—Closed all day

Open 6 days a week, late night Friday
CATFORD AQUARIA

72 Bradgate Road, Rushey Green, S.E.8
 Tel. 01-690 3834

2 minutes from new shopping centre and
 main car park.

**OVER 80 TANKS OF TROPICAL, COLD-
 WATER AND FANCY GOLDFISH, PLANTS
 AND EQUIPMENT.**

Have you tried our Plants By Post Service?
 Our Mail Order Dept. now open
 S.A.E. for price list.

ROSEWOOD

ARE NOW SOLE U.K. DISTRIBUTORS FOR
BIORELL
 ONE OF THE LEADING CONTINENTAL
 FISH FOODS

OBTAINABLE FROM YOUR LOCAL AQUARIST OR PET SHOP
 ERIC WOODS (ROSEWOOD) LTD, 113 WATLING STREET,
 WELLINGTON, TELFORD, SHROPSHIRE TF1 2NJ
 Tel: Wellington 2261/2

**The 1975 BRITISH AQUARISTS FESTIVAL**

Venue: Belle Vue Zoological Gardens, Manchester

SATURDAY 11th and SUNDAY 12th OCTOBER

Schedules available later (approximately to 1974) Tableaux and all fish-species as before

Please mention PFM when writing to advertisers

ALGARDE BIOLOGICAL UNDER-GRAVEL FILTER

FOR TROPICAL AND MARINE OR COLDWATER AQUARIA



REGD. DESIGN
NO. 954486

Fit it - Forget it!

This filter, which will operate from a standard air pump, was designed especially to meet the exacting demands of the modern aquarist.

The design of the base and the large bore air-lift (which can be fitted either end) give the high rate of filtration necessary even for marines.

Sealed edge prevents gravel from entering sub-gravel region.
Three sizes used singly or in multiples will fit standard size Aquaria.
9in. x 17in. 11in. x 17in. 11in. x 23in.

Obtainable from your usual supplier now!
Manufactured in England by ALGARDE, Hall Lane, Upminster, Essex.

Aquatabs make feeding time fun to watch.

Aquatabs are a great idea. Feed one on to the inside of your tank and at once you'll see it begin to dissolve.

As if by magic, your fish will come swimming to it, eager to feed.

It's something that is great fun to watch. And good for them too.

Each Aquatab contains a balanced mixture of flaked and freeze-dried foods. Good things like roe, shrimp, liver, beef heart, spinach, lettuce, cod liver oil, milk powder, brewers' yeast and vitamins.

So they couldn't feed better.

And Aquatabs are a boon when you have to leave the feeding to someone else. It's easy to give the right amount of food with Aquatabs so you avoid trouble from overfeeding.

Ask for Aquatabs. 24 Tablets 17p.



PHILLIPS YEAST PRODUCTS LTD.
PARK ROYAL, LONDON.

THE AQUARIUM-KEEPER'S PARADISE...



... is where all the aquariums are clean and full of healthy fish and plants, many of them rare and unusual ... where there is every conceivable accessory and piece of equipment plus a wide selection of instructive books ... where the beginner can get friendly, helpful advice and the more advanced can discuss their needs with experienced people ... and where everyone can look round at leisure, inspecting all these wonderful things.

WHERE IS IT?

Keith Barraclough (Aquarist) Ltd.,
K.B. Tropical Fish, Haycliffe
Lane (Off St. Enoch's Road),
Bradford 5.

Open 6 days 9 a.m. to 6 p.m. Closed Sundays.
PLENTY OF PARKING

"I saw your advertisement in PFM"

The DATAM range of PRODUCTS —
LEADERS in the field of AQUATICS for 20 YEARS!
THE ESTABLISHED BRAND
 For **RELIABILITY — For QUALITY — For GOOD VALUE**

DATAM FISH FOODS Pond Food : Pool Diet Pellets : Goldex Fish Food : Shredded Shrimp
DATAM FILTER MEDIA Filter Fibre : Filter Carbon : Glass Wool : Filta Pads : Activated Carbon : Diatom Powder
DATAM AQUARIUM AIDS Aquarium Salt : Aquarium Peat
DATAM REMEDIES White Spot Cure : Velvecure : Oodinium Remedy : Aquarium Steriliser : Methylene Blue Solution
DATAM ACCESSORIES Stainless Steel Heater—Thermostat Clips : Silicone Sealer : 3-D Aquarium Backgrounds : Plant Weights : Aluminium All-over Aquarium Hoods : The new "Molly-Hoods" : Pool Netting : Aeration Tubing : Air Compressor : Dial Thermometers

ALL THE BEST DEALERS STOCK DATAM PRODUCTS



Wholesale and Trade Enquiries to:

DATAM PRODUCTS PRINCESS WORKS, STATION RD,
 BEESTON, NOTTINGHAM NG9 2AL
 LIMITED



**MARINE
 AND
 TROPICAL
 FISH**

WE HAVE A LARGE SELECTION OF
 MARINE AND TROPICAL FISH AND A
 FULL SELECTION OF EQUIPMENT,
 KRYSTAL ALL-GLASS AQUARIA, BOOKS
 AND FROZEN FOODS.

BARCLAYCARD AND ACCESS CARD
 WELCOME

Weekdays: 12.00 noon-7.00 p.m.
 Saturday: 9.00 a.m.-6.00 p.m.
 Sunday: 10.00 a.m.-4.00 p.m.
 Closed Tuesday

371 DUNSTABLE ROAD, LUTON, BEDS.
 Phone Luton 57745

OVER
250

Varieties of Tropical, Coldwater and
 Marine Fish & Invertebrates.
 Coral, Coral Sand and all Tank and
 Pond Accessories

AT

WOKINGHAM AQUARIUM LTD.
 Bean Oak Road, Wokingham, Berks
 Tel.: WOKINGHAM 788885

Tues., Thurs., Fri. 10-8; Sat., Sun. 10-5.30

METAFRAME

DYNAFLO

the finest power filter in the world

Now in 3 sizes. Spares readily available
 SEE IT AT YOUR LOCAL AQUARISTS' OR PET SHOP.

U.K. DISTRIBUTORS

South Essex Aquarist Ltd

WATFORD ROAD, WATFORD, Herts. AL10 9JH

Please mention PFM when writing to advertisers



WHY ARE MORE AND MORE AQUARISTS FEEDING PROMIN TO THEIR FISH?

BECAUSE THEY CARE FOR THEIR FISH. THEY KNOW THAT PROMIN IS PRODUCED BY PEOPLE WHO CARE FOR FISH. START FEEDING YOUR FISH ON PROMIN.

TOGETHER WE'LL HAVE A COLLECTION OF FISH TO BE PROUD OF

Promin Granulated 58% Protein	
Standard	39p 1½ oz. approx.
Economy	72p 4 oz. approx.
Breeders	£3.14p 21 oz.

Freeze-Dried Natural Foods	
Tubifex	39p 10 gm.
Daphnia	39p 14.5 gm.
Brine Shrimp	47p 14.5 gm.
Small Shrimp	47p 18 gm.
Fairy Shrimp	47p 18 gm.

PROMIN LIMITED, Manor Lane, Holmes Chapel, Cheshire CW4 8AB
 Telephone : HOLMES CHAPEL 33832

THE GOLDFISH BOWL



The retail tropical fish showroom at 253 LONDON ROAD, HEADINGTON, OXFORD (tel.: Oxford 62904) just ¼ mile from the A.40 London to South Wales Road. Closed all day Thursday, late 'fishing' Fridays until 8.00 p.m.



A section of our spacious wholesale warehouse with more than 550 aquaria from which the retail trade is supplied. 118-120 MAGDALEN ROAD, OXFORD. Tel.: Oxford 41825 (24-hour answering service) B 46750.

TRADERS REQUIRING A WHOLESALE PRICE LIST SHOULD WRITE ON LETTER-HEADING AND QUOTE PET SHOP LICENCE NUMBER. HEATED VAN DELIVERIES TO MANY PARTS OF THE COUNTRY

"I saw your advertisement in PFM"



Where you see the symbol of the **Aquatic Development Group** you can be assured that the company has an avid interest in the hobby of fishkeeping.

The **ADG** is a consortium of leading manufacturers, importers, wholesalers and retailers who have banded together to encourage more people to keep fish and swell the growing ranks of enthusiasts throughout the UK.

Each member makes a financial contribution towards the operation of the Aquatic Information Centre which aims to welcome and offer assistance to newcomers to the hobby.

Group members also devote valuable time and effort to publicising the enjoyment of fishkeeping through press, television and radio.

You too can help, by encouraging a friend or next door neighbour to start an aquarium. And you can be sure that when you purchase from an **ADG** member, you are helping to support a company which is making a genuine contribution for the good of the hobby.

Details of the **Aquatic Development Group** are available from the membership secretary, Mrs Maureen Bull, 119 Sandy Lane South, Wallington, Surrey, SM6 9NW, or the Aquatic Information Centre, Fleet Communication Services, Ludgate House, 107 Fleet Street, London, EC4.



The Ark Aquatic Centre

We use and recommend **TRUE-LITE** the revolutionary new lighting system for all aquariums and vivariums. **TRUE-LITE** not only promotes plant and coral growth but actually helps control disease due to its unique ultra-violet content. No other artificial lighting system gives you the benefit of natural outdoor light.

If you are disappointed with your hobby, then you haven't tried **The Ark**. Change all that this week, or better still today and call in at **The Ark** for one of the best aquatic displays in Britain.

The Ark Aquatic Centre
24 High Street, Bramley
Guildford, Surrey
Tel. Bramley 2770 (STD Code 048-647)

VISITORS To BRIGHTON

You are cordially
invited to pop in and see our
large stocks of

FRESHWATER and MARINE FISHES

Should you want **Foods,**
Filters, Tanks, Pumps, Spares, etc.
we have a large selection of these too.

ANIMAL MAGIC
174 Edward Street
Brighton
Tel.
Brighton 683920

9 a.m.-6 p.m.
Half-day
Wednesday
Late Night
Friday till 8 p.m.

Please mention PFM when writing to advertisers

TACHBROOK TROPICALS LTD

244 VAUXHALL BRIDGE ROAD LONDON S.W.1 Telephone 01-834 5179

The Aquatic Specialist Store With its Own Fish and Aquatic Plant Nurseries

NEWFLO—

*Nature's Own
Biological Filter*

From WINDMILL PRODUCTS — first to design biological undergravel filters for the aquarist

Unseen inside
your aquarium
NEWFLO
requires no
attention

The Windmill Newflo Biological Aquarium Filter consists of a grid of perforated tubes laid down in the gravel of an aquarium. These tubes draw water into the gravel by means of a power air lift which also helps to aerate the water. In the current thus set up between the stones any organic matter in the water is sucked down into the gravel where the bacteria, which live on the surface of each stone, feed on the sediment. Aided by the ample supply of air dissolved in the water, the bacteria change the sediment into simple salts, which fertilize the plants. Thus the sediment is completely disposed of.

**NEWFLO NOW
AVAILABLE FROM
ALL HIGH-CLASS
AQUATIC DEALERS**

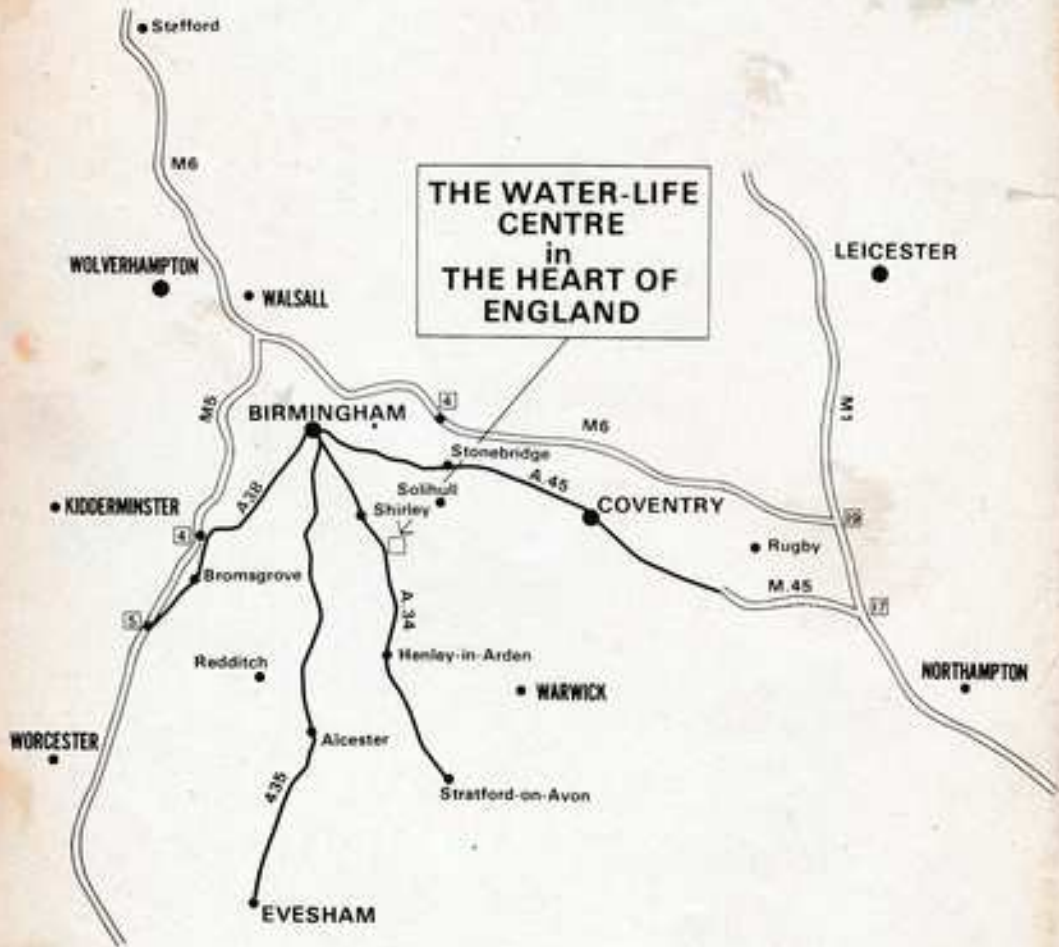


Size S £1.80 inc VAT
Size L £2.05 inc VAT

Tank length	Filter to fit
16 in.	One size 'S'
18 in.	One size 'S'
36 in.	Two size 'S'
24 in.	One size 'L'
30 in.	One size 'L'
48 in.	Two size 'L'

SHIRLEY AQUATICS LTD

WATER PLANT NURSERIES AND FISH HATCHERIES—Phone: 021-744 1300
Stratford Road, Monkspath, Shirley, Solihull, Warwickshire



PLEASE NOTE—An entrance requiring a levy MUST be accompanied by O.A.E. Our premises are situated on the right (Stratford) Birmingham road, 8 miles from Birmingham. Midland 'Red' Bus No. 165 from Bus Station, Birmingham, passes the door (right of 'The Green', Birmingham).

CLOSED ALL DAY SUNDAY AND MONDAY

HOURS OF BUSINESS—NOVEMBER—MARCH 10 a.m.—6 p.m. APRIL—OCTOBER 10 a.m.—6 p.m.
TERMS OF BUSINESS—Cash with order please. Cash with delivery. Minimum order £20.00. Maximum customer indebtedness £1,000.00 and £2,500.00. Please pay your minimum order £2.00 please and parking on occasion please and fill in your order.

Printed by Ruislip Press Ltd., Ickenham, Uxbridge, Middx.