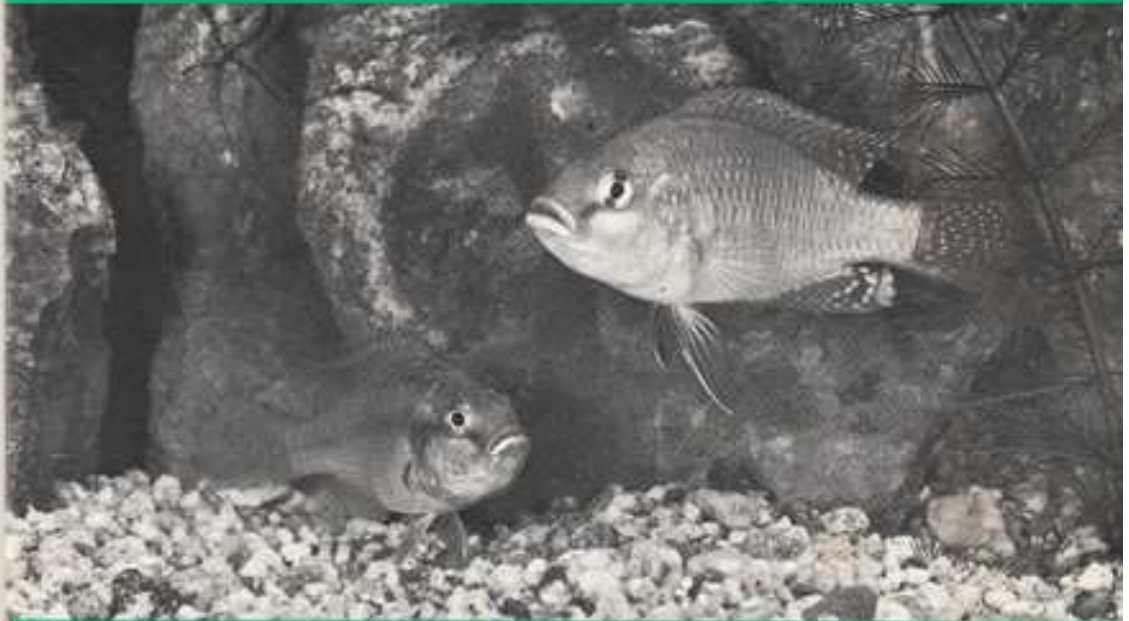


MARCH 1975

20p

Pet **Fish**

PRACTICAL FISHKEEPING MONTHLY



Contents include:

Mouthbreeder from Baira
Conditioning Goldfish
What's New?
Argentine Pearl-Fish

Marrist's Notebook
Water Surface Plant
Female Guppies
Personal Comment, etc.



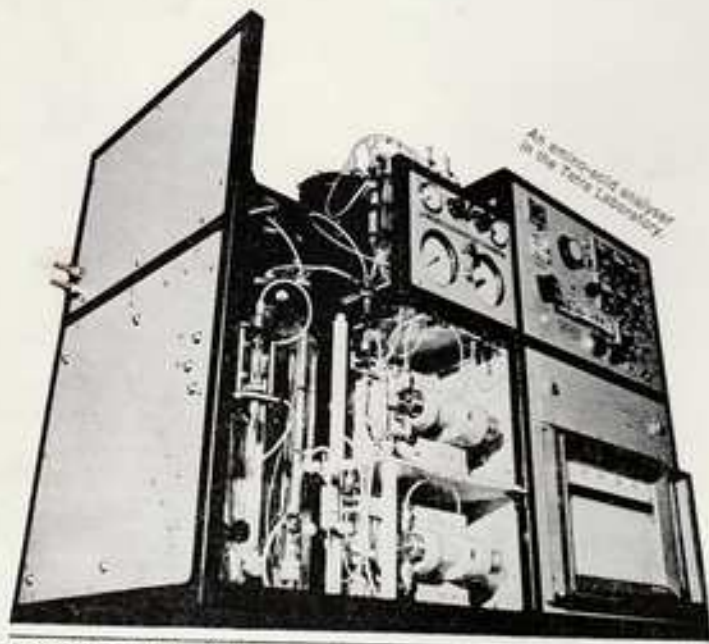
Can TetraMin be improved? With Tetra the answer is "Yes". In 1970 we were the first manufacturer of fish food in the world to have the courage to publish a complete analysis of TetraMin. This analysis has become a standard today.

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





p f m

PetFish Monthly 20p

Vol. 9 No. 11

March 1975

Subscription rates: £3.00
for 12 issues; £1.50 for 6
issues (U.S.A. and Canada
\$7.50 for 12 issues)

Editor: Anthony Evans

Advertisements:

G. Bellenger

In This Issue

	Page
Comments and Quotes	517
Letters	525
Beauty of the Pampas	526
Meetings and Changes of Officers	531
The Female of the Species	532
Popularity Stakes	533
Coldwater Scena	534
Fairy Moss at the Surface	537
Marinist's Notebook	538
A Blue Mouthbreeder from Beira	539
Personal Comment	543
What's New?	545
AquaGlossary	545
Readers' Queries Answered	546
Club News	547
In Brief	549
Dates for Your Diary	550

© 1975

P. F. Publications

554 Garratt Lane
London, SW17 0NY
Telephone 01-947 2805

Comments and Quotes

- Can summer be far behind?
- Grand Tours for fishkeepers

Season's Advance

THERE is always the danger in making a comment about present weather conditions in a monthly magazine that by the time the words reach your readers the whole situation has turned inside out. However, we'll take the risk and state that (as viewed early in February) this is probably the mildest winter for the southern and midlands areas of Britain in the memory of anyone alive today. Certainly for pondkeepers things are moving 2 to 3 months ahead of schedule. Typical of reports we have had is one from Mr Stan Freeman of London whose pondkeeping and aquarium-keeping experiences go back 40 years. Newts were well in evidence in his ponds at the end of January, a time at which they are normally still under cover. Mr Freeman was finding that his goldfish, far from accepting the usual winter routine of an occasional feed when any extra activity on their part appeared to indicate the need, were demanding a full daily feeding schedule. "What is going to be happening by the Spring?" he wondered. What, indeed, shall we be seeing the first pond spawnings in late March? At present it looks as if Nature's spring is well ahead of calendar spring. But being fully aware of the truth of the 'many a slip' adage, we dare not ven-

ture to suggest that summer cannot be far behind. Readers' records of forward events observed in their ponds this year will, however, as always be welcome.

East- West?

IF you have what is known as the necessary (and hardly ever can it have been more necessary) this is the year of the Grand Tours for aquarists. Japan and Thailand are the destinations of the tour organised especially for fishkeepers by the British Koi-keepers' Society that starts on 31st March, and in June this year the "Amazon Adventure" is the title of a 15-day escorted tour by Keith Barraclough Aquarist Ltd, which includes 2 days in the Caribbean and a weeks' fish-catching on the Amazon. Two good opportunities to make really memorable visits under circumstances where everything is planned for you in advance.

But How's It Done?

UNHELPFUL comment department: the distinguished scientific journal NATURE prints each week a paragraph from an issue of 100 years ago, and one of these, originally dated 29th October 1874 should drag a wry smile from marinists a century later.

The study of 'seaweeds' is probably affected as much by the general public as that of fish; and whether or not the great mass of people who visit the Brighton Aquarium and other similar resorts really go there with any idea of becoming more intimately acquainted with the wonders of the deep, there is no doubt that the exhibition of varieties of ocean plants would be as popular as that of fish. A seaweed growing in water is very different from seaweed cast up on the shore, and a careful selection and arrangement of specimens would greatly enhance the interest of the tanks, while at the same time their presence would prove beneficial to the fish. We recommend the hint to the notice of the authorities of the Brighton, Crystal Palace, and Southport Aquariums.

It's a great pity the writer didn't back up his 'hint' with some practical details for the curators of the aquariums on how to keep the plants alive in their tanks. Poor old Brighton, Crystal Palace and Southport — what an undeserved criticism!

SLIDES presented by Mr Ernie Hicks on Vancouver's public Aquarium (founded by several dedicated businessmen) started a discussion by members of THE AQUARIUM SOCIETY OF VICTORIA (AUSTRALIA) as to the desirability of a city the size of Melbourne having its own Public Aquarium. The task in persuading local, state and federal governmental departments of the value of such an institution to undertake research, school training programmes and a permanent exhibition of aquatic life for the local population as well as tourists would be a most formidable task but the determination of this Society, founded in 1933, to accomplish the impossible (they acquired their own club rooms in 1970 after years of effort) augurs well for the ultimate achievement of this aim.

London Convention in March

FINAL details reach us of the **HENDON CONGRESS** being held this month. Mr R. S. Thompson writes: "Hendon & DAS are once again pleased to announce the highly successful Hendon Annual Congress on Saturday, 15th March, commencing at 6 p.m. at Whitefield Secondary Modern School, Claremont Road, Hendon, NW2. The purpose of the Congress is to give the ordinary hobbyist fishkeepers the opportunity to hear from the most experienced and expert authorities in this hobby, on how to keep and breed fishes and maintain their aquariums. We have been fortunate this year in obtaining the services again of Mr W. A. Tomney of Holland. To most he will need no introduction as he is a regular contributor of articles in PetFish Monthly. Mr Tomney returns to Hendon's Congress because of public demand following his excellent programme in 1973. His subjects, synchronised with colour slides, will be freshwater and marine aquarium-keeping, his recent fish expedition to Indonesia and, of course, the general hobby of fish and plants. Thus there will be an

evening that will appeal to all. Mr Tomney's English is excellent and we can promise no language barrier. Mr Tomney is renowned for the professionalism of his photography, and the quality of his colour slides is rarely surpassed.

Many of the important personalities in the hobby will be in attendance and once again they will be on hand to discuss the various aspects of fishkeeping. Refreshments are available from 5 p.m. for early arrivals and once again during the long interval, so there is every excuse to make this occasion a day out in London.

Hendon are confident that for 1975 the standard will be as high as it has been since the first Congress in the 1950s. The occasion also gives the opportunity to renew friendships with some of the other 300 aquarists who regularly attend this important aquatic occasion. Hendon welcome all hobbyists whether a member of an aquatic society or not. Tickets, priced at 50p each (juniors half price), are available from the secretary, Miss Y. Longuet, 2 Marsh Drive, London, NW9; phone 01-202 5049*.

"The biggest thing since the great train robbery, you said . . . Thousands of silver dollars, you said!"



Keep your fish safe and lively

Armitages

GUSSIE AIR PUMPS



To be sure of the well-being of your fish, the Aquarium Air Pumps you choose must have two prime qualities – efficiency and reliability. Gussie Pumps from Armitages have both these, plus other advantages; they are powerful, yet quiet; they are 'trembler' pumps with long-life moulded diaphragms; in the opinions of many users they are more efficient than costlier pumps. So all in all, these are the pumps which give you top value – as well as peace of mind.

Available in single or twin versions. This is the twin pump with two diaphragms and two outlets. Spare diaphragm kits are available.

Armitages *the firm that cares for your fish, also supply a wide range of fish foods (including Flakes for tropicals and cold water fish), aquarium accessories and ornaments.*

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

"I saw your advertisement in PFM"

R. J. COOK

**Wholesale Aquatic
Supplies**

**VISIT ONE OF
& MOST PROGRESSIVE CASH**

All your requirements for the
AQUATIC and PET TRADE

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

GOLDFISH and FANCY
COLDWATER FISH in
stock throughout the year

OPEN: MONDAY - FRIDAY 9 a.m. — 6 p.m.
SUNDAY 10 a.m. — 1 p.m.

TRADE ONLY

Please mention PFM when writing to advertisers

R. J. COOK

for **ALL** your **AQUATIC**
and **PET TRADE NEEDS**

**BRITAIN'S LARGEST
AND CARRY WHOLESALERS**



Fully displayed showrooms containing over 5,000 products

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

TRADE ONLY

"I saw your advertisement in PFM"

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.

- | | |
|---|---|
| <input type="checkbox"/> Anaemia? Can be caused by a deficiency of choline, Vitamin B ₁₂ , E or K. | All of these important vitamins are present in PHILLIPS SUPERFOOD. |
| <input type="checkbox"/> Dark or dull colouration? To maintain good colour biotin is essential. | And Biotin is an essential ingredient in PHILLIPS SUPERFOOD. |
| <input type="checkbox"/> Loss of appetite? If your fish won't eat, it could be because you're not feeding them foods that contain sufficient Vitamin B ₁ , C, riboflavin, pantothenic acid, nicotinic acid and pyridoxin. | PHILLIPS SUPERFOOD is a rich source of all of them. |
| <input type="checkbox"/> 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. |
| <input type="checkbox"/> 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. |
| <input type="checkbox"/> Poor growth? Growth can be retarded in fishes lacking Vitamins B ₁ and B ₁₂ and Vitamins A and E. | Ensure good growth with PHILLIPS SUPERFOOD. It contains all these vitamins. |
| <input type="checkbox"/> 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.



Please mention PFM when writing to advertisers

"You are looking at the finest filter in the world"

DIATOM FILTER

- ★ **Positively Does not Change pH or Water Chemistry**
- ★ **Fresh or Salt Water**
- ★ **150 Gallon Per Hour**

Rec. Retail Price

£24.95 + V.A.T.

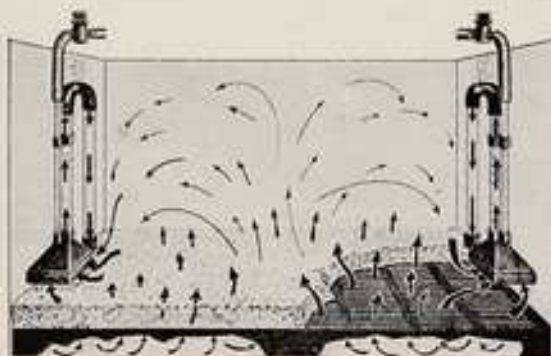
Additional charge 55p postage and packing

Filter material and all parts readily available in U.K.

Write for up-to-date list of aquatic wholesalers who carry the DIATOM FILTER



Reverse-Flow Undergravel Filter



We reverse the process . . . we want waste matter **BENEATH** the filter, **NOT ON TOP**. Keeps gravel clean and water clear.

NOTE: Test indicates that **50% BOTTOM COVERAGE** with a Reverse Flow actually outperforms conventionals with full bottom coverage.

D 2-10 Total Filtering Area 9½ in. x 19½ in.—£1.80

D 2-15 Total Filtering Area 11½ in. x 23½ in.—£1.92

D 2-20 Total Filtering Area 11½ in. x 29 in.—£2.05

Prices are subject to Postage and VAT.



For best results allow 15-30 days for proper bacteria bed to form.

43 WHITE HART LANE, LONDON, SW13

"I saw your advertisement in PFM"

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 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, brewers' yeast, milk powder and cod liver oil. Rich in protein, minerals and vitamins. Drums 15p, 1 jar 2p, 4 jar 4p, 20 jar £2.35.

Phillips Maxi-flakes

Large flakes for home feeding the larger coldwater fish. 1½ oz 4p, 14 oz £2.11.

Phillips Fish Food Granules

A highly nutritious and balanced food for all coldwater fish. In drum 15p, 3 oz 5p.



Phillips Fish Foods—the best that cost less.

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

Please mention PFM when writing to advertisers



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

Taking Up Killies

MAY I, through you, answer Mr Brian Tate (PFM, January, 1975). If the Killifish Association is not a closed shop, I have yet to find one! My reasons are as follows: 2 years ago, when I thought it might be nice to keep a few fish, I spent the day at Belle Vue Show, looking at fish, equipment etc. and asking questions. Having decided to try several types of fish before deciding the ones to concentrate on, I found all the stallholders most helpful. I could buy gouramis — which I did, and am pleased to say now have two tanks full, most of which I have bred myself, and I also have a tank of livebearers, mainly from the ones I bought 2 years ago. But, although I would have liked to try killifish, I would had to have joined the Association before I could obtain any. Now, I did not have to join a gourami club or a livebearers association, although I obtained fish and a great amount of help.

Last year I attended the show again and bought a few of the less common fish, but was met with the same lack of advice or help, unless I joined the Killifish Association. I don't think I need add any more. I'm proud of my five tanks of fish. I still think I'd like to try hatching some killifish, but I don't intend to join anything until I have had a chance to try that particular branch of the hobby.

Closed shop — or pay up before you try out — it's all the same thing in my opinion.

A KEEN AMATEUR
(Name and address supplied)
Carlisle, CA3 9NN.

Working for Your Fish

ZUMMER' is a-coming in — for us that is, in February, and it's always a most interesting time piscatorially. After the monsoon rains abruptly stopped back in October we had to clear the pond of

unwanted species with derris 'milk' and start again. Now we've had 4 months of the 'dry' and the roadside ditches are approaching dryness and the local people empty out the residual water by bailing. I've just been watching three old ladies dam a large ditch, spend all day under a blazing sun bailing it out with a Heath Robinson contraption and finish at sunset with a mere handful of aquarium-size fishes. It might be an aquarist's dream, but as the fishes are all destined for the table, it wasn't a very good haul for a long day's work!

Bangkok 9, Thailand

N. L. WAKE

Fish Behaviour

IN reference to the letter about fish behaviour in your January issue, I cannot speak for tropicals as I have never kept them, but coldwater fish are far from stupid. Judged, of course, by fishy standards and not compared with other pets.

For 10 years I owned a small garden pond which I very occasionally cleaned out. One year when I decided to do this job, three goldfish and a tench had lived together for 9 years. (The tench never came to the surface, I only saw him at cleaning time.) I placed the goldfish in a shallow bowl and the tench in a pail whilst the cleaning and maturing of the water went on. I put the tench back first and he immediately dived to the bottom and hid. Next day I put back the goldfish. They swam hesitantly together up one end of the pond, obviously very put out and puzzled. Then suddenly, from the depths at the other end appeared the tench. He swam swiftly and as straight as the usual arrow up to the surface just by the goldfish, and they, at once, all turned and followed the tench down to the bottom, where no doubt they had a union meeting about pond cleaning! I thought it was all rather clever and very friendly!

(MISS) JOAN EDGCOMBE
St. Leonards-on-Sea, Sussex

Beauty of the Pampas

By W. A. TOMEY

Photographs by the author



Above: the slate-blue male Argentine pearl fish *Cynolebias bellotti*



Right: the female, less brightly coloured than the male and with a deeper, wider egg-filled belly

FROM 1952 to 1955 *Cynolebias bellotti* stood high in the interest of hobbyists in and outside Europe and a number of articles were written about this Argentinian jewel. Some 20 years later, in 1973, one of my killie friends said to me: "Tell me, do you ever see *Cynolebias bellotti*? Are they still being bred by enthusiasts?" and then, with a shock you realise that this beautiful fish has disappeared — 'gone with the wind'! A fish which thus appeared from the blue as a novelty phenomenon — and then disappeared in the same way!

It was while I was visiting the Belgian Society 'Aquatou-Berghem' that I met the family Wouters, very well known there as killifish breeders. "Have you seen *Cynolebias bellotti* in these last few years?" I asked them. I already knew the answer. In Belgium as elsewhere on the Continent, they had disappeared as if they had never existed. So imagine my astonishment when, 14 days later, the telephone rang. Mrs Wouters was on the phone. "You were looking for *Cynolebias bellotti*, weren't you? I've bought six pairs for you here." When I asked the price — 50p each, and if you knew the price paid at a killifish Congress in Germany for one pair — about £12! Let us hope that *Cynolebias* will not be degraded into a novelty phenomenon again, because this fish is more than worthy to be promoted to the list of fishes permanently found in our tanks.

First, the name. *Cynolebias*: With the teeth of a dog; *bellotti*: the name of the discoverer, the Italian Dr. Bellotti. The fish are distributed in Argentina, in pools and small streams, in the province of Buenos Aires, in the south of the Entre Rios and Santa Fé provinces down to Mar del Plata. We will come back later in this article to the shape and disposition of the teeth of this fish — they must, of course, be adapted to the food that the fish lives on.

These interesting fish, the males of which are slate blue or steel-blue coloured, are found particularly in shallow pools with a muddy bottom and fairly turbid water in which there is a ready and abundant supply of plankton. These waters



As the male (lower fish in the picture) displays before the female she remains close by him denoting her readiness to spawn.

belong to the so-called 'dried-up biotope' and are usually dry in the summer, filling up with rain and muddy water at the beginning of the rainy season. The build-up of organic waste forms a wonderful base for the formation of a rich supply of animal organisms and plankton. These muddy waters also form the cradle of many water insects and numerous aquatic larvae and are sometimes, though not always, overgrown with plants. These are the intensely varied conditions that the reproductive physiology of the killie is designed to cope with. (The term 'killifish' comes from the name 'kills', which is what the American colonists called these dried-up pools.) *Cynolebias bellotti* are also found in small streams where the water level varies greatly with the succession of the seasons.

Just as for most of the killies, the natural food of *C. bellotti* consists of small crustaceans such as cladocerans (daphnia), copepods (cyclops), ostracods, amphipods,



With powerful diving movements the spawning pair penetrate the peat used as a layer on the aquarium base

hemipterids, chironomids (midge larvae), culicids (mosquito larvae), molluscs (water snails), Molluscs, hemipterids and ostracods are food animals with a hard shell and that's why the toothcarps, just as their name suggests, are provided with more or less sharp teeth, which, in *Cymolebias bellotti*, are spread over a great part of the upper and lower jaws. *Cymolebias bellotti* are not finicky feeders as long as the food is live. Grindal worms are very suitable with little pieces of chopped white worm and tubifex to lend variety to the menu. It is good practice to have a constant supply of live food present.

As we have seen, *C. bellotti* live under difficult conditions in limited amounts of water, even in small water-filled holes. When the pools dry out, the *Cymolebias* die, but in the bottom of the hole are left their numerous eggs in which the embryos develop, waiting for the day when the biotope fills again with water. Once the

pool or hole is filled up, the hatching takes place and the fry grow very rapidly until they become adult fish; they are sexually mature in a very short time. The vagaries of the seasons mean that the length of the periods of drought and of rain can vary a great deal. In a wet year, when the water does not entirely disappear, the adult fish stay alive but their eggs, without a dry period, fare less well. We can only guess why this is so. Possibly fungus and bacteria take their toll under such circumstances. But given a sufficiently long dry period greater numbers of fish will be produced.

The normal cycle in Nature goes as follows: when the pools are filled with water in March, the youngsters are hatched. They grow very fast, especially as during this period there is a great amount of food available for them, and by the end of August they are fully grown and sexually mature. This process takes about 5 months. They are 2-2½ inches (5-7 cm.) in length by this time and mating begins. This lasts for a period of 4 months till the end of December, during which time *Cymolebias* is very productive. During December the pools gradually dry out and the fish population dies. Under normal circumstances the dry period for the eggs is about 3 months, until in March the rain falls once more, again great numbers of young fish appear and the cycle is completed.

C. bellotti do not require much room for breeding and so even the smallest breeding tank is suitable for them. They don't even make any special demands as regards water conditions, while the temperature can be kept a little lower than is normal for tropicals: 68-72°F (20-22°C). In order to make certain of continual production of eggs, the fish must be brought into condition and kept that way! This is only possible with correct feeding of a varied diet, and an ample supply of live food must always be present even in the breeding tank — which is something that we try to avoid with most other species. The tank must be kept as clean as possible, of course, but probably the presence of food remnants in the bottom layer acts in much the same way as the dried organic material in the dried-out pools in Nature that help provide a rich growth of food when the pools fill up with the next rainy season.

For a variety of reasons coarse peat is

the best to use as substrate for many of the egg-laying toothcarps, *C. bellotti* included. Coarse peat has a number of important physical properties; its structure makes it buoyant, and it has the ability to hold water even in the smallest quantity, which means that the peat, when it has been squeezed, retains just enough moisture over a long period to enable the eggs to be kept in good condition. Another extremely important biological property of peat is that the weak acid reaction it has works as a brake on the development of bacteria and moulds so that the eggs/embryos come to no harm. This also preserves the remnants of foods left in the peat and prevents decomposition until, with contact once again with water, a bacteria and Infusoria culture quickly springs into life, by means of which the shells of the eggs are attacked and weakened to enable the fry to be born.

The layer of peat on the bottom of the breeding tank should not be too thin — about 1½ inches (4 cm.) in depth, so that the mating *Cymolebias* can dive right under it. Where the breeding couple disappear into it the peat is flung upwards. Whilst almost entirely buried, the fish lay their eggs in the peat. It has been shown that these fish will mate without any substrate at all, but fewer eggs are produced and since the eggs can then be seen so much more easily the parents become egg-cluttons. In the fibrous peat the eggs are hidden from the parents' eyes. Peat that has become hard must be avoided as it may damage the fish's skin and eyes, especially those of the male, who mostly takes the initiative in the mating and bores down into the substrate with some violence.

A male in good condition can be slate-to steel-blue, its sides crossed by seven to eight diagonal lines of white spots. The dorsal, anal and caudal fins look like the sky on a clear tropical night. Females are brown-grey, smaller than the male and clear of spots. With good feeding the females will turn out to be real 'egg-machines' with a very high production rate. But rather than keep the breeding couple together all the time I prefer to give my fish a week's rest every 10 days. To my way of thinking this gives even better egg production.

With a great show of force and many haphazard movements the male, in his dark-blue colours, takes the initiative until

the female is ready for mating, when she seeks his company. With the female at his side, the male takes a header into the place he has already chosen and together with the female bores into the peat. The partners are often totally hidden under the peat and they then emerge out of the bottom of the peat to prepare themselves for the next mating. All this takes place at first at a great pace but as tiredness sets in they gradually calm down. If the substrate is not soft enough and the mating dive not successful the female becomes aggressive and attacks the male, so that a certain amount of fin damage can take place.

If, after a time, we see that a great number of eggs are in the peat, the breeding pair can be removed from the tank. Then the water and the peat are poured through a fine net. The peat remaining in the net must be gently squeezed till a firm ball remains, which is then put into a plastic bag, and the bag is tied and labelled with the date. How dry does the ball of peat



The pair spawning side by side above the base medium, which is always the position adopted if the bottom layer is too hard for the fish to dive into for egg-laying

have to be and at what temperature should it be kept? The ball can be pressed between the hands until finally when further pressure is applied only a few drops of water appear. This way the ball holds only enough fluid to prevent the eggs from drying out.

The eggs have a very tough, hard shell and are anyway cushioned in the soft peat, so you don't need to be afraid of breaking them. As to the duration of the 'dry period' and at what temperature the eggs should be kept, there are a number of different opinions about this. With regard to the time limit, from 6 weeks to 3 months gives the best results. Even after a longer period than this eggs will hatch, but the percentage goes down. Some breeders maintain that the temperature at which the peat is kept during this period influences the number of males or females obtained. I can't say if this is really so because many of these pronouncements contradict each other. There is much yet



Eggs of *Cynolebias bellotti*, which are produced in very great numbers. The female will eat eggs not concealed in the bottom medium if she gets the chance

to be discovered in this area. But when the temperature is maintained during this period at above 77°F (25°C), then it is possible that the development of the eggs is retarded and the eggs take much longer to hatch.

Again there is divergent opinion as to the age that *C. bellotti* can reach but we do know that they will live more than 1 year. But, of course, compared with, say, *P. thomasi*, which reaches an age of 7 years in the aquarium, *Hyphessobrycon scholzei*, 14 years, and *Hemigrammus erythrozonus*, which can become very old indeed, the 'bellottis' do live only a short spell, but their activity is very intense and impetuous in that time!

It has to be admitted that here we do not have a fish with qualities suitable for the community tank. Especially if there are swift swimmers present who are also hearty eaters. Furthermore, *C. bellotti* may bite other fishes. The males fight together until their fins are in shreds and there is very little beauty left then. Males and females fight as well and the stronger of the two can inflict some damage on its partner. I can only advise not to crowd too many of this species into one tank. One male with a few females, in a tank fitted with a dark bottom medium and some plants, and the beauty of *C. bellotti* is really shown up.

As with all 'annual fishes' the growth of the fry is surprising — at least if they are given enough food (which they will eat in unlimited quantities). At first they can be given cyclops and daphnia nauplii and all kinds of microscopic food. Later on they can be fed on chopped Grindal worm and tubifex and, of course, the excellent brine shrimp. Only live food is accepted!

Because these fish in Nature thrive in water with a high degree of natural organic pollution, this is no reason for allowing the water in the breeding tank to become polluted. Large numbers of fish being fed a nourishing diet produce a great many waste products. For that reason it is necessary to keep the aquarium water regularly freshened. After 4 weeks' growth the difference between males and females can be clearly seen, especially as regards fin growth, and later on the colour and the size serve to differentiate the sexes as the males grow larger than the females.

In Nature, there is little oxygen at the bottom of natural waters or in the mud of

a dried-out hole. In such an environment, the development of the eggs is delayed until oxygen reaches the eggs with the advent of the rains. Research has revealed that about 10% of the eggs have only a short period of development, 80% require a normal duration of time, and about 10% stay in the bottom for 2 years or so in a sort of suspended state before hatching. A fine example of the protection of the species.

Following from this, an excellent method to stimulate the development of killie eggs and speed up the process is to fill the plastic bag in which the peat-ball and eggs are kept with pure oxygen instead of air. In this way, the eggs of, for instance, *Nothobranchius rachoti*, which normally need 7 months to develop, need only 3 months. This means a profit in half the time! The same method is effective for other killies including *C. bellotti*.

Meetings and Changes of Officers

ABERDARE AS. New Society. Chairman, Mr T. Bruce; vice-chairman, Mr C. Wilkins; treasurer, Mrs A. Brad; show secretary, Mr D. C. Davies; assistant, Mr R. Jenkins; Minutes secretary, Mrs J. Griffiths; secretary, Mr Lyn Jenkins (23 Bushyhope Park, Aberdare). Meetings: 1st & 3rd Tuesday of month, Gadiys Arms, Robertstown, Aberdare. New members very welcome.

CATFISH ASSOCIATION GREAT BRITAIN. P.O.: Mr V. E. Valley (29 Oaklands Road, Harwell, London, BT 2DF). Meetings: 8:00 p.m., St. Eulovius Church Hall, Cobbold Road, London, W12. Next meetings 10th March and 12th May. Visitors welcomed.

EALING & DAS. Chairman, Mr T. Cruckshank; vice-chairman, Mr J. Healy; secretary, Mr J. Myrtle (8 Wentworth Road, Southall, Middlesex); show secretary, Mr V. Valley; assistant, Mr C. Chesney; social secretary, Mr M. Murphy; P.R.O., Mr L. Sandford (28 Leighton Road, London, W13 8LL). Meetings: 1st & 3rd Tuesday of month, Northfields Community Centre, Northcott Road, Ealing, London, W13.

HAVANT & DAS. Chairman, Mr H. Ambridge; secretary, Mr P. Meek, 113 Blackbrook Road, Farnham, Hants; phone Tichfield 43857; treasurer, Mr P. Pink. Meetings: alternative Wednesdays (5th and 19th March), St Thomas's Church Hall, Badbury, Hants. New members welcome.

HYDE AS. New secretary, Mr G. L. Dooly (1 Denison Road, Hatton Moor, Stockport, Cheshire; phone 061-432 8817). New venue, Astley Arms Hotel, Chapel Street, Dukinfield (or Hyde), Cheshire. Every other Wednesday. New members welcome.

HUDDERSFIELD TFS. Chairman, Mr J. E. Wain; vice-chairman, Mr H. Ackroyd; treasurer, Mr O. Harrold; editor, Mr J. J. Sangham; show secretary, Mr D. Hough (Flat 6, Sycamore Court, Sycamore Avenue, Colcar, Huddersfield, Yorks); assistant, Mrs V. Hough; secretary, Mr F. D. Allcock (Dunstable Hill Cottage, Dunningley Lane, Tingley, Wakefield, Yorks).

KIDDERMINSTER & DAS. Chairman, Mr A. Howard; vice-chairman, Mr J. Jones; secretary, Mr P. R. Allan (Farnside, 13 Park Lane, Bawdley, Worcs); show secretary, Mr M. Wain; treasurer, Mr P. Mullens.

MERSEYSIDE AS. Secretary, Mr J. Eales (111 Aldrum Road, Liverpool, L13 8B).

MID-CORNWALL AS. Chairman, Mr G. Hall; vice-chairman/show secretary,

Mr B. Daves; treasurer, Mr J. Avery; secretary, Mr B. Lane (5 Hillswal Shortlandsend, Truro; phone Truro 4007). Meetings: 1st Wednesday of month, Community Centre, Playing Place, Truro. New members most welcome.

MID-SUSSEX AS. Chairman, Mr R. Johnson; vice-chairman, Mr D. Soper; secretary, Mr B. Slade (Sandstone, Botney Road, Anstey, near Haywards Heath, Sussex; phone Haywards Heath 53747); treasurer, Mr C. Corbin; show secretary, Mr J. Burtles.

MOUNT PLEASANT AS, GATESHEAD. Chairman, Mr G. A. Liddell; secretary, Mr N. Kinnefick (43 Glenhurst Drive, Clavering Grange, Whickham NE16 8SJ).

MUNSTER TFS. Secretary, Mr T. O'Leary (27 McDonagh Road, Lt. From Wall, Ballypharano, Cork, Eire).

QUINNIVILLE AS. New Society. Secretary, Mr J. Grimes (337 O'Malley Park, Southill, Limerick, Ireland).

REIGATE & REDHILL AS. Secretary, Mr C. Thorp (26 Waltham Road, Dorking, Surrey); treasurer, Mrs J. Thorp; show secretary, Mr M. Sandford (6 Victoria Road, Sarisbury, Redhill, Surrey).

RIVERSIDE AS. Secretary, Mrs. P. Lambourne (7 Wheeler Court, Flogsh Road, Battersea, London, SW11 3AX; phone 01-223 2630).

RUNNYMEDE AS. Chairman, Mr H. Nichols; treasurer, Mr T. Butler; show secretary, Mr D. Hily; social secretary, Mr P. Grosvenor; P.R.O., Mr L. Garmard; secretary, Mr P. Calra (1 Manchester Road, Ashford, Middlesex, TW16 2HL). Meetings: 2nd & 4th

Tuesday of month, Ashford Community Centre.

SCUNTHORPE & DAS. Chairman, Mr A. Shocksmit; secretary, Mr G. White (26 Audens Road, Bomesford, Scunthorpe, S. Humberside; phone Scunthorpe 60097); treasurer, Mr G. Wreswell; show secretary, Mr L. Bar (6 Saxby Road, Scunthorpe); entertainments secretary, Mr D. Davey. Meetings: 2nd & 4th Mondays of month, St. Pauls Church Hall, Ashby High Street, Scunthorpe, 7.30 p.m.

SLOUGH & DAS. Chairman, Mr R. Winder; vice-chairman, Mr R. Knight; secretary, Mrs E. Knight (52 Aldin Ave South, Slough); show secretary, Mr A. Ferns. Next meeting: 19th March, The Friends Meeting House, Ragstone Road, Slough.

SOUTH SHIELDS AS. Chairman, Mr L. Ruffell; vice-chairman, Mr C. Enright; secretary, Mr P. Wright; assistant, Mr M. Douglas; treasurer, Mrs E. Ruffell; assistant, Mr I. Ruffell; show secretary, Mr B. Riddiger, 13 Chesterton Road, Biddick Hall Estate, South Shields; assistant, Mr F. Askew; induction officer, Mr W. Scott; librarian, Mr L. Southall; social secretary, Mrs L. Scott; assistant, Mrs A. Tunstall. Meetings: alternate Wednesdays. Emergency Service Headquarters, Waterloo Vale, South Shields.

THORNE AS. Secretary, Mr E. Breakwell (12 Churchill Avenue, Hatfield DN7 6L), nr Doncaster, Yorks; phone Doncaster 840546; show secretary, Mr C. Jevison (94 Hawthorne Road, Thorne; phone Thorne 812041).

WALTHAMSTOW & DAS. Chairman, Mr D. Goodbody; vice-chairman, Mr C. Woodley; treasurer, Mr B. Basson; secretary, Mr G. Smith (22 Ardleigh Road, Walthamstow, London, E17; phone 01-527 6303); show secretary, Mr A. Chandler (233 Forest Rd, Leytonstone, London, E11.)

DERBY Regent AS appeal for the return of their annual trophies for the last open show—in particular, the award for the Best Large Cichlid. This is a valuable gold-plated award and was won by a competitor from Burton. Address for return or any information, please, to Mr R. G. Harlow, 180 Mansfield Road, Derby DE1 3RB. All postage refunded.

R. G. HARLOW
Show Secretary, Derby Regent AS



BREEDING FANCY GUPPYS

The Female of the Species

IT is often said that 'the female of the species is more deadly than the male'. In applying it to guppies the word 'deadly' may be a little too strong but there is no denying the fact that it is the female guppy which causes the death of enthusiasm within the breast of many a would-be guppy fancier. Conversely, it is the attractive male guppies which cause the birth of enthusiasm.

We see a tank full of colourful male guppies with a wide spread of caudal fin

By F. CAMPBELL

and, knowing how readily guppies breed, we think how nice it would be to breed some of our own like them. So we acquire one and, having learned the facts of life, we get a female as well and this is where our troubles start. Female guppies are entirely different in appearance from the

An attractive specimen of the fast disappearing pin-tail guppy (bred by Mrs P. Young). This male has the half-black pattern with yellow caudal and dorsal fins. The factor for the 'pin' is carried on the X chromosome of the male and this variety is a frustrating one for the guppy specialist to work with.



Photographs by
ALAN CHARLTON

Veiltail guppy male, basic grey colour with multicoloured caudal and dorsal fins. Where a line-bred strain of females had been established and out-crossing was desirable such a male would be suitable to use (owned by Mr D. Greenhalgh).

male. He flaunts the pleasing characteristics which he is capable of passing to his offspring whilst she, although possessing many pleasing characteristics which can be passed to her offspring, does not display them.

Only an experienced breeder who has line-bred his females can say with any certainty what characteristics they carry, so it is more than likely that the female we have bought is a first-generation hybrid that will be carrying factors, which, when passed on to her babies, will shatter our dreams of easy guppy breeding.

The first lesson we must learn, therefore, is a very hard one. We must ignore the beautiful males and the sensational names that have been given to them, such as 'king cobras' and 'champagne greens', and concentrate on the comparatively drab females. In selecting a female with which to start we must look for one which presents a healthy, active appearance; conforms to size and shape and holds its fins erect; gives an impression of strength, usually conveyed by the thickness of the caudal peduncle; and if we can find one with pigmentation in the caudal and dorsal fins so much the better.

There is another very important factor to consider. If we can start with a virgin our task will be much less complicated, so we ignore all those which appear to be pregnant. Even so, having made our choice, we can only be certain of her virginity by keeping her in isolation for 28 days.

We are now ready to start breeding and can put our carefully selected female to a suitable male. We will, of course, choose a good-looking one displaying the colours and shape which we fancy. When the female eventually brings forth a brood of

young she has fulfilled our requirements and can be pensioned off. She will, of course, drop successive broods but whether we keep them or not depends on the circumstances and the space available. Our objective is a strain of females which we know are identical in their genetical make-up, so it is imperative that we keep them virgin until they are ready for mating. The appearance of the males will indicate whether we are succeeding or not and only those conforming to our fancy should be used. Very often a good-looking male will appear, displaying a pleasing trait which is absent in his brothers, but we should not be tempted to experiment with him; it could destroy all our previous work.

We may have to go through three or four generations of inbreeding before a pure strain is established. We can then continue line-breeding but the time will eventually arrive when we need to introduce new blood or, as it is often termed, hybrid vigour. This is where the importance of our line-bred females is manifest. We know exactly what traits they carry and how they will pass them on to their offspring, so under no circumstances should we interfere with the distaff side of our line. All out-crossings should be with unrelated males resembling as far as possible the males in our strain. Out-crossings to unrelated females, however attractive they may be, could result in a step back to square one.

The unrevealed traits which the female guppy is capable of transmitting to her young, plus her ability to store sperm we may know nothing about, are the main contributions to the initial failure of would-be breeders. Hard work on the lines I have indicated should eventually bring success.

Popularity Stakes

OF all tropical fishes the guppy is placed third in the 'popularity league' by Mr Max Gibbs, of the Goldfish Bowl, Oxford, in his review of 1974 in the *PET STORE TRADER*. 'Most popular of all I find is the red and blue delta guppy and it usually proves one

of the strongest varieties too' he writes. 'The green king cobra guppy competes with the multi-coloured delta guppy for the next position in guppy popularity and both sell well as such outstandingly pretty fishes deserve to. The flamingo guppy with golden body lightly splashed with bright red and green markings and blood red tail is becoming increasingly popular although the blonde red and black delta is probably just ahead of it in the sales league'.

COLDWATER SCENE



By FRANK W. ORME

Conditioning the Fish for Early Breeding • Spawning Tanks • Pond Cleaning

TROPICAL and marine hobbyists cannot be as acutely aware of the eager anticipation with which we coldwater fishkeepers view the harbingers of the spring, after the relative lack of activity which exercises our patience each winter. Gradually temperatures are rising and life in the water is now beginning to respond to these first calls of spring. Before long frogs — clasped in nuptial embrace — will be laying their masses of spawn.

The protected environment of the indoor tank has encouraged an earlier response from the fish, and they are searching for food. Having used up their fat reserves during the cold period, it is now essential that they replenish themselves. The quality of the food will have a strong bearing upon how soon that peak of condition is reached that ensures a good spawning. The obvious signs of well-being that a healthy fish exhibits, by its well-spread fins and alert appearance, is brought about by the contributory factors of good nourishing food and ample light and space. Given these requirements the lengthening periods of sunlight and warmer water temperatures will result in most coldwater fish developing that instinct which urges them into the spawning act.



It is at this time of the year that the goldfish keeper who hopes to breed his fish will bring them into the peak of condition by feeding plentifully, in small amounts at frequent intervals, with such foods as chopped earthworms. This is generally recognised as one of the finest foods for conditioning. It is therefore worth going to some trouble to collect this lowly creature in sufficient quantity to provide an adequate supply. The worms can then be stored for a time in a box of damp peat or leafmould.

If possible, for the period of conditioning, make earthworm the basic diet of the fish by chopping the worms into suitably short lengths with a razor blade. Vary the feeding schedule by including white worms and daphnia and other meaty live foods when available; in addition an occasional offering of dried food can be given. Trout pellets are a very suitable type of dried food for all varieties of goldfish, as are the koi pellets that can be obtained from some suppliers such as the Midland firm of Shirley Aquatics Ltd, who advertise regularly in *PFM*. Variety and quality in sufficient quantity is the secret of feeding and, at this time of the year, it is more necessary that the rule should be observed if the selected adults are to be encouraged to spawn.

After a period of time it will be seen that the female goldfish has put on weight: when viewed from above she will, more than likely, appear lop-sided owing to her eggs distending one side of her abdomen more than the other. The male will be seen to have developed his sexual characteristics. These are small white 'pimples' of pin-head size that appear on the first rays of the pectoral fins and the gill plates — the correct term for these tiny pimples is tubercles. These signs are the outward proof that the fish are in breeding condition and, when the right conditions of temperature and light etc. coincide, Nature will provide the final spur that will encourage them to spawn.

It often pays to separate the sexes during the period of conditioning; whether or not absence makes the heart grow fonder it certainly makes the male show eager interest when he is introduced to a female. Perhaps fish have their natural preferences and separation helps to overcome any reluctance, that either fish may have, to spawn with the partner that has been selected for it by the breeder.

In last month's *PFM* I suggested that the size of tank, suitable for breeding goldfish in, should not be less than 36 inches by 15 inches and that it should be no more than 12 inches deep. Place the tank of water where it will receive the light of the early morning sun. Although water plants can be used as 'spawning medium' to receive the eggs it is more usual these days to make use of an artificial medium. Spawning 'mops' can be constructed from nylon wool, raffia or string, and placed in such a way that they hang down into the water, at either end of the tank. These mops should not be so dense as to be impenetrable nor so thin as to allow the fish to find the eggs freely after spawning. The correct quantity will allow free, but limited, passage of the fish whilst spawning and will conceal the eggs from the hungry eyes of the fish after they have been shed.

When the thermometer tells you that the water temperature is remaining around 60°F (16°C) and it seems that a spell of bright sunny weather may be setting in, then the selected parent fish can be placed into the prepared spawning tank. If this is done during the evening you may have the good fortune to find the fish spawning the next morning. A good sign is when the male takes an interest in his partner and commences to nudge and chase her around the tank, this being the usual pre-spawning activity which induces the female to release her eggs.

If the fish do not spawn as quickly as you had hoped, do not become anxious; they will spawn when the conditions are right. If, however, they have refused to co-operate after, say, 14 days separate them and recondition them. Patience is part of the coldwater game and, provided that all of the previously mentioned conditions have been provided, the fish will spawn when they are ready to do so.

Having obtained the spawning, remove the adults to another tank. If they are not removed you will lose most of the eggs, for goldfish love caviar! They are also cannibalistic to very small fish and fry would stand little chance of survival in the same tank as their parents.

Raise the temperature of the tank, which contains the spawn, to around 70°F (21°C); this will give a moderately quick hatch of about 3 days. Try not to interfere with the tank until the eggs have hatched and the small, glass-splinter-like, alevins have

become free swimming. In order to become free swimming these minute transparent bits of life must struggle to the water surface and gasp in air, to fill their tiny swim bladder. Should they be disturbed it is quite possible that they will sink to the bottom of the tank. Imagine the insufferable task that lies before the alevin as it fights against gravity and the water pressure to reach the surface, in the short space of time that Nature has allotted, to fill the swim bladder. If it fails in the energy-consuming struggle it is almost sure to die!

When the fry are seen to be swimming freely they can be given their first feed of brine shrimp nauplii — the culturing of this food was described in last month's issue of *PFM*. Upon this food rapid growth will be made, and before long the fry will be demanding larger food in ever-increasing amounts. Make sure that you are able to satisfy the appetites of the young fish so that they do not suffer a setback through partial starvation. It is essential that, during the early life of a fish, it should keep up a steady rate of growth and this calls for a sufficiency of food at all times; the successful breeder makes sure that his fish get it!

Another point about the successful breeder of fancy goldfish is that he keeps the varieties pure. He does not, for instance, cross a moor with a veiltail. If he did breed such fish what good would it do? Would you be pleased to find that the fish that he sold to you produced progeny with moor-type eyes? Of course, you would be annoyed and would refuse to purchase any further stock from that particular breeder. No serious goldfish keeper will be interested in mongrel cross-bred varieties. Let me therefore emphasise that the newcomer to breeding must make up his mind never to mix his varieties. In fact, if he can discipline himself to keep and breed only one variety he will be unable to make this mistake. Alternatively, he should keep varieties that are totally dissimilar. Whilst the breeder might be tempted to cross moor with veiltail there would be no such temptation if only veiltails and Bristol shubunkins were kept.

Having decided upon the variety you are going to breed it takes very little more discipline to commence a line-breeding programme. One method of building a strain by line breeding was detailed in these columns of *PFM* for December, 1974.

With the continual escalation of the cost of living it is surprising that prices of many of the necessities of the fishkeeping pastime have not risen as much as might have been expected. Possibly with the increasing cost of transport together with higher charges for electricity our hobby will also be caught in the spiral before long. Certainly I can foresee fish prices rising — especially for tropical species.

The cost of raising fish is greatest, with fancy goldfish at least, during the early life of the fish, and this cost will have to be offset by the amateur breeder in the charge he makes to purchasers of his stock. Fortunately the coldwater section of our hobby will not suffer to the same degree as the tropical freshwater and marine sections.

Serious thought will now have to be given by these fishkeepers to ways of conserving heat in their tanks, in an effort to reduce the consumption of electricity. It may be that many may decide to transfer their interest to the coldwater fish, as some have already done, for various reasons other than economics of maintaining the temperature of a tropical fish tank for 365 days of each year, small though this cost may once have been.

★ ★ ★

It may be that you are not interested in breeding your own stock, perhaps because you do not have sufficient space to devote to the extra tanks that would be required, or perhaps your interest lies in water gardening and such fish that you have are housed in a pool. Whatever turn your interest takes you must attend to certain

tasks, and in this respect I can do no better than quote a friend, who has kept coldwater fish, of most available varieties, for 45 or more years — "Cleanliness is next to godliness for fish". This is a sentiment with which I fully agree and one which my fish appear to appreciate.

Although I advocate giving an annual clean-up to a pool, this advice must be taken in the correct context — obviously a very large expanse of water would not require so much attention. However, the average pool, such as most of us have, will benefit and at the same time undesirable specimens of fish can be removed. If the pool contains such fish as Bristol shubunkins it is advisable to cull periodically before Nature takes a hand — almost invariably she will get rid of the very specimens you would wish to keep!

Koi-keepers have given some thought to the problems that the large size of their fish create with their habit of stirring up the mulm as they grub for food. In order to preserve a reasonable degree of cleanliness in the large pools, which koi require, most have installed some form of filtration and water exchange. The usual system that they employ preserves clarity of the water and, at the same time, removes excess of sediment. If during the coming year, the reader is considering the construction of a new pool it could well be an advantage to try to incorporate similar labour-saving devices — it helps to make life easier! Otherwise don't reject the idea of sparing some time to cleaning the pool. It may not do much good but it will certainly do your fish no harm, and, who knows, you may benefit from the exercise!

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
564 Garratt Lane, London, SW17 0NY

FLOATING PLANTS

Fairy Moss at the Surface



Azolla carolineana

To achieve certain lighting conditions in the aquarium it may be necessary to reduce the amount of light reaching the tank depths either in general or to one particular part of the tank. For example, the intensity of light reaching one part of the tank may be just right, but the end of the tank planted with, for instance, cryptocorynes, may be receiving just too much light. Floating plants restricted to the area serve a most useful purpose in this respect and we give here the first pictures in a short series by Mr W. A. Tomey illustrating the surface water plants available.

A small surface plant, *Azolla carolineana* grows so rapidly in the aquarium that it tends to become a nuisance unless regularly thinned. Native to North America, Mexico, the West Indies and parts of South America, it has a pretty pale-green leaf that becomes somewhat roddish under strong lighting. For best results, the plant

By W. A. TOMEY

Photograph by the author

must be kept at a minimum of 68°F (20°C). Another azolla, *Azolla filiculoides*, a native of South America, is a rather larger plant than *A. carolineana* but is very easily kept in the aquarium. Its small, divided leaves have a rosy tint.

Characin Study Society

THE CHARACIN STUDY SOCIETY holds its inaugural meeting with a table show on Saturday, 22nd March, 5.30 p.m. at The Community Centre, 155 Harlesden Road, Willesden, London NW10. Those interested please contact Mr M. West, 76 Lingfield Avenue, Kingston, Surrey: 01-546 3381.

MARINIST'S Notebook

By ROY PINKS

IT is several years now since I started up a small experimental tank to try out some tropical marines, and whilst I have reached certain conclusions about tank management (mainly what not to do), I am far from convinced about any set formula for achieving a consistent level of longevity with fish, save in the case of the commoner species like damsels, which certainly take a lot of punishment. Even they, however, have their limitations, and some species, like dominoes, proved to be very patchy, even given reasonable chances of proving their worth, and in my tank tended to upset the theory that the commoner species are, ipso facto, the hardiest.

I have read very many words from all manner of sources in the meantime about this very subject — for how long may fish be expected to live — and for tropical marines an interesting pattern seems to emerge. On the one hand there is a solid mass of evidence that there are consistent failures with nearly all species during the period up to a year. Then there is undeniable evidence that some fish live as long as 5 years or more, though this sort of achievement is not so much widely spread through the hobby as being typical of the experience of a small number of fishkeepers. In between these two extremes it seems that individual specimens do live for various periods of up to 3 or 4 years, but there is nothing consistent about this particular tendency. In other words, it is not only tomato clowns which tend to live for 3 years: some live for only a few months, some live for 7 years. Of six tomato clowns bought on the same day from the same source, the apparently fittest three do not necessarily live for 3 years. Two may die within a month and the remainder may survive for a year or more and then fail in quick succession.

Unlike the majority of freshwater fishes, marines do seem to fail erratically. With

freshwater tropicals, and outbreak of disease apart, a fish will tend to die within a short time of its acquisition, or to live for, say, 4 to 6 years with a high degree of consistency. The specimen may be regarded as having run its natural life-expectancy, possibly with a year or so added because of the more favourable conditions which they experience in well run captivity. Its appearance gradually belies its age and in a good many cases one wonders if euthanasia isn't perhaps the answer. One thing is quite clear, though: the pattern of the average freshwater fish is predictable to some degree. With tropical marines we are still in the developmental stage of the hobby, and we are only gradually learning how to deploy our resources to maximum advantage.

A very notable feature of marine fish is the manner in which an apparently healthy fish can conceal its real nature. Very many marine fish fail because they harbour latent parasites, which, when conditions are right for the parasites and wrong for their host, become activated and wreak the most devastating damage. Worse still, the symptoms are usually of some disease actually quite easily identified as one of the commoner maladies. Yet when one comes to treat it the failure rate tends to be very high indeed. It is most important to recognise this fact and to allow for it in our judgement of our management techniques. This failure rate will occur whether we are top-class managers or merely indifferent ones, and it is mere speculation whether, in many cases, tank conditions make the slightest difference to success or failure.

I should like to hear of more and more success stories of keeping tropical marines for long periods. There is no doubt that

Continued on page 542

A Blue Mouthbreeder from Beira



Hemihaplochromis philander dispersus

By RUDOLPH ZUKAL

NOT every fish sparkles with brilliant colour but this does not prevent their being kept, valued and bred by aquarists. Indeed with the experienced hobbyist it is seldom the appearance of the fish that matters — the great objective is breeding and if there are problems the greater is the pleasure when the goal is achieved. This blue mouthbreeder from Beira is certainly no outstanding beauty, but nevertheless I recommend this fish to the beginner both for its ease of maintenance and for its ability to breed easily.

Photographs by the author

Its body shape is very similar to that of its near relative, the better-known *Hemihaplochromis* (*Haplochromis*) *multicolor*, but our fish is considerably larger and can grow to some 4½ inches (11 cm). Also its coloration is softer and not at all conspicuous, though if the lighting is right and against a darker substrate its golden and bluish glints, enriched with red, become opalescent. When the male fish is stimulated, its anal fin becomes cobalt blue in front, reddish or purple at the back with a light red fleck, while the gills and belly also become reddish. Compared with this the female remains insignificantly coloured though diagonal stripes often

Translated by F. MARSH



In the shallow depression made in the gravel by the pair of mouthbreeders the male (right) is seen raising his body in such a way as to display his anal fin to the female

appear prominently that are not visible on the adult male.

The males are quarrelsome amongst themselves; they swim round each other giving and receiving blows with the fins and mouths but I never saw one wounded. Nor have I ever seen them attack other species.

My specimens were a source of great interest to me. I kept four males and six females in a 30 gallon (120 litres) tank. Each male was able to maintain its own territory because I provided flower pots, roots and coconut shells for them to hide in. A male would swim to and fro out of its hiding place, its whole body trembling.



The female appears to bite at the coloured 'egg-fleck' markings on the male's anal fin and it is likely that sperms from the male then enter her mouth ready to fertilise the eggs she picks up

Here the female fish is in the nest in the gravel and the male stands by as she deposits eggs singly before taking them into her mouth.



stretching its anal fin in front of one or other of the females and display. At this another male would react jealously, and so there was always something to observe in the tank. They are not demanding about water conditions nor about water temperature, but although they can survive at 68°F (20°C) they should be kept at 72-75°F (22-24°C). They do require live foods, however.

This mouthbreeder spawns in a hole in the bottom substrate that is prepared by the male beforehand and then enlarged by both partners. Just as with *H. multicolor*, the fish move around each other before spawning. The female always ejects single

eggs, which she then picks up in her mouth. It is usually stated that the eggs are, upon being laid, immediately fertilised by the turning of the partners and then taken up by the female into her mouth. I don't dispute this or confirm it but I would like to quote my own personal observations — during the spawning movements in the hole I have clearly seen, and indeed it can be seen in the photographs, that the male raises himself up while the female touches his anal fin with her mouth. This also takes place in reverse. It seems to me from this that the male's sperm gets into the mouth of the female and that it is in her mouth that fertilisa-



After the spawning the distended throat sac of the female denotes the presence of eggs in the mouth.



The female with her youngsters. At this stage they still seek the shelter of mother's buccal cavity if danger is suspected — signalled by a change of colour of the parent.

tion takes place. Indeed I could not explain the spawning behaviour of most mouthbreeders in any other way. I could see this clearly happening with *Haplochromis burtoni*. The 'egg-flecks' on the anal fin point to it as does the female's interest in this fin. But I quote this merely to underline how the aquatic discipline we follow is always providing something more for the enthusiast to meditate over, ponder, experiment with and eventually find the answer.

After the spawning the full throat sac of the female can be seen clearly. With the eggs in her mouth, she will then gain

possession of an undisturbed corner and stay there for 10-14 days without eating anything. It is necessary at this stage to keep other fish away from her as she requires quiet. As the young fish become ready to swim they leave the mother fish more and more but at any danger they are taken up into her mouth again. At signs of danger the mother fish's colour changes — the young see this and vanish into the safety of her mouth. By the time they are free-swimming, the young fish are already fairly large and will eat quite coarse live food. When the fry are free-swimming the female will herself start taking nourishment again.

Marinist's Notebook

continued from page 338

there can be consistently good — or acceptably good — results with experienced professionals, and I recall a highly interesting account from Mr Keith Hobbley some time ago on the subject of Moorish idols, some of which he had kept in good condition for several years. What would also be of great interest would be some

indication of longevity against all the odds, and I have in mind survival of fish in such situations as those in which the tank water has never been changed, or where feeding was restricted to flake food, or where overcrowding persisted. There may even be worse horrors than these, and probably combinations thereof, but those who have nonetheless succeeded in overcoming some elusive factor or another despite an apparently hopeless proposition may somehow manage to help us further in devilling out some of the mysteries of this fascinating subject.



by
ARPEE

Personal COMMENT

We were examining recently the possibilities of tanks containing fish of a single colour, with the object of matching them to home décor. The species then dealt with, with red as the main theme, were reasonably plentiful and easy to obtain. Since writing that article I have noted the emergence of a new colour food from Peterama called Tetramin Colourpride Ruby. This contains, amongst other things, carotene, and this is a well known colouring agent in animal and bird culture, so might be expected to prove useful to fishkeepers who decided to see how my recommendations would work out in practice. Colour food is not, of course, anything new in the fish world, but it would certainly be interesting to know just how effective this new preparation proves to be.

I regret I have nothing as promising for those who want to collect blue fish. Colour foods on the market some 10 years ago promised all sorts of things for fish of all colours, but in my hands these foods seldom lived up to the makers' claims. There is, perhaps, no real substitute for disciplined maintenance, good stock and thoughtful feeding routines. The seeker for blue must take this to heart, as there seem to be no short cuts and no really outstanding blue fish (marines apart).

The more one thinks about fish and décor, the more imperative does it seem that one should avoid collecting into one tank lots of different species of blue fishes, but rather that one should aim to assemble perhaps just single outstanding species, or alternatively, two species which would complement one another — one large and one small. In the first category the blue discus must be regarded as the prime contender, and it is indeed suggestive of all that is luxurious and regal and stately. But it is highly expensive, too, and not a little diffi-

cult to handle. I admit to not having kept this species, but it figures in my future plans, and one day I shall get round to it. One thing is certain, however: I shall turn myself into an absolute beginner for this project and read up everything on the subject I can lay hands on. The discus fish is such a fine creature that it demands treatment from tutored hands. Fools and vandals therefore try something else (marbles, for preference), and anyone who is still unsure after reading the books is firmly referred to their dealers or their local clubs. Above all, if you obtain some blue discus and get them going nicely, do lavish care on them and feed them properly. Few fish are ultimately so rewarding, so beautiful and so full of character.

The blue gourami (*Trichogaster trichopterus*) is another possible single species, particularly as it grows quite rapidly to 5 inches or more. It is about as trouble-free from the culture point of view as the discus fish is trouble-prone, so here are two opposites indeed. Temperamentally, though, this species is less reliable than the discus and as it gains in size it develops a degree of aggressiveness which can make it a positive embarrassment. Whether you accept or not rather depends on the size of the tank, and in really large ones it becomes more tolerable. If it is to be associated with smaller fish it should grow up with them, but it would be quite foolish to introduce a mature pair to a tank containing small to medium tetras. Blue gouramis are good, showy, fish, and move about quite freely, often delighting their owner with a spawning of monstrous proportions but of a minimal survival rate.

There are some truly beautiful Siamese fighters in the various shades of blue, but I cannot really recommend them because they do not mix well and are short-lived. What a pity — here are some of the finest colours in fish which have resulted from man's manipulation of Nature.

To achieve any sort of impact with a tankful of tiny blue fish, one must accept that only a large shoal of 30 or more of the same species will do. The zebra danio



Blue gouramis are popular tank fish although their fairly rapid growth to 5 inches or so in length is a disadvantageous feature. This is a pair of the opaline or Cosby variety

(*Brachydanio rerio*) and the pearl danio (*B. albolineatus*) can be relied upon to provide a constantly moving spectacle, and they are both ridiculously easy to look after. To some eyes their movement is just a bit too fast and furious, and their maximum effect is seen when they thread their way through dense *vallisneria* after darting away from the aquarium's open spaces.

The blue eyes (*Oryzias latipes*) is a most delightful fish for use in a blue colour scheme. The rather sombre olive body is dramatically highlighted by the electric blue dash above the eye, and the fish is rather transparent, too. A tankful is a remarkable sight, and the only problem is what fish one might associate with this species. It could be argued that the neon tetra (*Hyphessobrycon innesi*) or the cardinal (*H. cardinalis*) would overshadow it, but one has to play second fiddle, so it might as well be the blue eyes.

An association of these three would be a very happy combination for medium to large tanks, and the larger the better, because the shoals will have space to diverge, which allows them to display to greatest advantage in their own right.

It is just possible that the rather rarely seen blue limia (*Limia melanogaster*)

would fit into this scheme, though I would personally not like too much the appearance of a third species of similar size without a larger foil. Nevertheless this little livebearer is a quite charming fish, and as it displays a speckled, mirrored, blue, it presents quite a contrast to the other species mentioned here. At the close of this series, I will, incidentally, nominate a few 'foil' fish which can be associated with our one-colour selections, to add balance. In general I shall seek fishes which are larger than average, but which can be counted on to enhance the overall effect without any displays of violence.

There are several other species which do display blue, but which I find somewhat difficult to combine successfully. The blue acara (*Aequidens latifrons*), which grows to 6 inches or so, is really a claimant for a single tank, but the cichlid tendency to crop the available plant life makes this a doubtful contender for the décor stakes. One of my very favourite fish, *Aptotogramma ramirezi*, is no plant-eater, certainly, but its rather secretive habits de-

Continued on page 346

What's New?

Marine Booklet

JUST published by Aquarium Systems Inc. is a 28-page booklet with full-colour cover on SALT WATER AQUARIUMS: PRINCIPLE AND PRACTICE by marine biologists, John M. King and William E. Kelley. The booklet provides basic details, including an introduction to the salt water aquarium, the necessary equipment, how to set up the aquarium, the 'run-in' and the introduction of the various animals. Maintenance, feeding and disease prevention are also discussed. Free samples of the booklet are available to wholesalers and retailers upon request to Laboratory Equipment Consultants, 1 Shore Road, Ainsdale, Southport, Lancs.

Amazon Adventure

AN 'Amazon Adventure' is being presented by Keith Barraclough Aquarist Ltd. — or, in other words, a 15-day, 12,000 mile escorted tour to the Amazon to catch your own tropical fishes. The journey includes a 2-day coral-fishing trip to the Island of Rosario off Colombia's Caribbean coast and a 5-day expedition into the Amazon jungle. The tour, led by Keith Barraclough and Gordon Holmes, leaves London on 24th June. Co-organisers are Worldspan International/KLM and all enquiries should be directed to Keith Barraclough Aquarist Ltd., Hayfield Mills, Haycliffe Lane, Bradford 5, West Yorkshire: phone 76241.

Aqua GLOSSARY

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

Coeruleum, coeruleus (Latin): blue. Pronounced 'see-rue-lee-um'. Names of the killifish *Aphyosemion coeruleum* ('aff-ee-oh-sem-ee-on see-rue-lee-um') and the marine *Pomacentrus coeruleus* ('poh-mah-sent-russ see-rue-lee-uss') and blue demoiselle (*Abuddefduf coeruleus*; 'ah-bew-deff-duff see-rue-lee-uss') denote in the trivial parts the conspicuous blue coloration of these fishes.

Dermo (Greek): skin. Pronounced 'der-moh'. The generic name of the half-beak, *Dermogenys pusillus* ('der-moh-gen-iss pew-sill-uss'), literally means skin-cheek (genys, Greek: cheek) and refers to the protrusible mouth structure of the fish.

Gyrino (Greek): round. Pronounced 'gy-ry-noh'. The generic name of the sucking 'loach', *Gyrinocheilus aymanieri* ('gy-ry-noh-ky-luss aim-oh-neer-eye'), refers to the round lips of the mouth sucking organ (*chilo*, Greek: lip).

Lucius (Latin): river pike. Pronounced 'loo-see-uss'. Used in the trivial name of the pike *Esox lucius*: ('ee-soks loo-see-uss') and also in the names of pike-like fishes: the pike-head, *Luciocephalus pulcher* ('loo-see-oh-keff-ah-uss pul-ker') and the pike-perch, *Luciopeca luciopeca* ('loo-see-oh-perk-ah').

Nema, nemato (Greek): thread. Pronounced 'nee-mah', 'nee-mah-toh'. For example, the stone loach *Nemacheilus barbatula* ('nee-mah-ky-luss bar-bat-tew-lah'), derives both parts of its scientific name from the barbels around the mouth (*chila*, Greek: lip; *barb*, Latin: beard). The emperor tetra *Nematobrycon palmeri* ('nee-mah-toh-bry-kon palmer-eye') has thread-like extensions to the caudal fin.

Nilotica. Pronounced 'ny-lot-ick-ah'. (Geographical: River Nile.) For example, *Tilapia nilotica* ('till-ah-pee-ah ny-lot-ick-ah').

Personal Comment

continued from page 544

tract from its appeal in the present context, and I cannot recommend it.

For those who will, there is always the guppy with blue in it and the platy with blue in it, but there is something unsatisfactory about both as a show spectacle. A

final suggestion to anyone concerned with this colour grouping is the bloodfin (*Aphyocharax rubripinnis*), which, like the neon and the cardinal, is neither red nor blue, but a bit of each, and as such can come in very useful to provide an accent. Bloodfins come in small and king sizes, it may be remembered, which is a hint towards at least one of my future 'foil' species. They are no trouble at all and one of their many great charms is a ready shoaling habit.

Readers' Queries Answered



Curing Concrete Rocks

I am proposing to make some concrete rockwork for a very large tank and I remember there is a way of speeding up the curing process, but I haven't the details. Could you help me?

The alkali from the concrete can be neutralised by using a dilute solution of hydrochloric acid. Place the rockwork in a plastic container and cover with water to which hydrochloric acid is added until a strip of neutral litmus paper shows a red colour when dipped in the water. After some hours the acid will have neutralised the alkali and the litmus test paper will turn blue when dipped. Add further amounts of the acid for several days to keep up the acidity, so that ultimately when the litmus paper is applied to the solution the paper remains red all the time. Leave the rockwork in the solution for another 4 days, and then remove it, wash it and scrub it. Then soak it in a large volume of fresh water for a further week. After this the rockwork is safe to put into your tank.

'Giant Hygro'

My giant hygrophilus have recently lost a lot of lower leaves and now look rather ridiculous. Will they grow if I nip off the tops and replant them?

Nomaphila stricta can become rather weedy-looking in the winter months. Lighting that was sufficient for these plants during the summer period, when the natural light was of greater intensity and served to boost the overhead illumination, suddenly is no longer reaching them and unless care is taken to increase the length of time artificial lighting is available during the winter months to counteract this the lower leaves may die off. New plants, however, can be produced from the sprouting tops. But do not throw away the remaining stems. Cuttings made from the stems will root themselves in time.

Large Aquaria

I am contemplating setting up two tanks, each 7 ft. 6 in. long, 16 in. high and 15 in. deep. I

want the frame to be non-rusting and believe this can be achieved by buying a purpose-made galvanised angle-iron frame which I propose glazing myself with $\frac{1}{4}$ in. plate glass. I think $\frac{1}{4}$ in. plate will also be suitable for the base? Is my plan a viable one?

For an aquarium of this size the thickness of glass required for the long panels and the base is 9.5 mm. ($\frac{3}{8}$ in.). The end panels, 15 in. by 16 in., could be 6.4 mm. ($\frac{1}{4}$ in.) glass, although, for the amount involved, it would be better to use the thicker glass all round. The best type of rust-proof frame is the nylon-coated type. A galvanised frame could be used, although this would not be as durable as the nylon-coated one. Remember that the frame should carry cross-struts across the bottom for added strength.

Soft Water

Can you tell me the name of a small water-softening unit suitable for use with aquaria?

The Elgastat 500 Purified Water Kit is sold for use by fishkeepers and consists of an ion-exchange unit that is attached to the domestic water supply tap. One cartridge is

stated to give about 20 gallons of purified water in a region with a water supply of average hardness. The makers are The Elga Group, Lane End, Bucks.

Sticklebacks

The children are anxious to keep sticklebacks this year so that they can watch the breeding. Can these fish be kept in with our goldfish and are there any special rules to follow to make certain that they breed?

Do not keep the sticklebacks in with the goldfish. Their spines make them a danger to other fishes and at breeding time in particular they can be very pugnacious. You will need a separate tank for them. A male and several females is the ideal combination for breeding — the males should already have coloured up and there will be no difficulty in distinguishing between the sexes. The tank should be set up with well-washed gravel or sand and contain plenty of aquarium plants, either planted in the gravel or floating so that the male can build his nest out of the leaves, twigs and bits of stalk.

The male not only builds the nest but undertakes the nest and egg-care. Eggs will hatch in about 47 days. After hatching the fry can be fed on hard-boiled egg yolk squeezed through nylon, or on Liquifry for egg-laying species. Very soon, however, they require live food — at first newly hatched brine shrimp, fine sifted daphnia or microworms to be followed, as the youngsters grow, by daphnia, glass worms, tubifex worms and white worms. Sticklebacks must be fed on live foods if they are to live for any length of time.

Breeding Flame Tetras

I have a small shoal of flame tetras and am hoping to breed with them. I have only had them for a couple of months and they have grown a lot but they are still fairly small. When are they likely to start breeding?

Flame tetras can be mature sexually at 6 months of age and can then reproduce but they must have grown to something near their mature size (1½ in.) by that time, and females should

be really full of roe and ready for spawning. If the fish are put into the breeding tank in the evening they can be expected to have spawned by the next morning.

Decorative Wood

I have several small pieces of driftwood that seem ideal for decoration in my tank but I cannot get them to stay down. I've tried wedging them in the gravel and tying them to stones but they are always getting disturbed.

It would be advisable first of all to check that your driftwood is suitable for the tank. Pieces that tend to float could be rotten inside, so bore a small hole to check this. One method that has been used successfully to anchor driftwood, though this does depend on the size of the pieces available, is to drill holes at one end, on the side away from that expected to be viewed, and to fill the hole with marbles or small, heavy, stones, or strips of lead can be secured to one end and this part hidden in gravel or behind rockwork.



THERE were 19 classes making up a total of 62 fishes at the EALING & DAS 1974 Closed Show. Judge was Mr Ray Fox (FBAS 'B' Judge). The best fish in the show was a litterale owned by Mr E. Tagg (83 points, class G). Mr T. Cruickshank carried off classes A, K, M, N and W, with a miniature furnished aquarium (71 points), *D. wolabaricus* (70), *E. kollopterus* (73), *Callichthys* (74) and a bitterling (76). Mr Cruickshank's wife Doris backed up the family success nobly by winning classes B, C, J, L,

S with a *B. phasianus* (86), *N. tritacnatus* (81), green-eyed rasbora (75), kuhli loach (78) and green Sphenops (69). Mr V. Valtely won classes Dc, E and H with a *P. auratus* (82) *C. labiosa* (76) and class H. Other winners were: Mr M. Murphy, classes R and T, blue comet platy (71) and a mosquito (72). Mr L. Sandfield class Db, *P. rupestris* (68). Mr J. Healey, class Q, red swordtail (86), Mr K. Burnett, black velifera mollie (67).

EAST LONDON AQUATIC AND PONDKEEPERS ASSOCIATION

were very pleased with the support they received at their Open Show, results of which are as follows:

XB: 1, Mr M. Pearson (ELAPA); 2, Mr J. Boss (ELAPA); 3, Mr F. Vickar (ELAPA). XC: 1, B. 3, Mr J. Boss; 2, Mr M. Pearson, XD: 1, B. 2, Mr D. Sheridan (Newbury); 3, Mr K.

Wrightson (ELAPA). XD: 1, Mr R. Thoday (Dunmow); 2, Mrs. P. Harris (ELAPA); 3, Mr K. Lloyd (ELAPA). XE: 1, Mr Baulson (WADAS); 2, Mr L. Shady (Welwyn); 3, Mr Pearson (ELAPA). XF: 1, Mr Corby (ELAPA); 2, Mr L. Baker (ELAPA); 3, Mr E. March (Dunmow). XEa: 1, 2 & 3, Mr F. Vickar (ELAPA). XM: 1, Mr D. Lambourn (Roehampton); 2 & 3, Mr Pearson, XJK: 1, Mr Pearson; 2 & 3, Mrs Harris, XT: 1, Mr P. Roach (Dunmow); 2, Mr R. Milligan (ELAPA); 3, Mr D. Byfield (Roehampton). XR: 1, Mr J. Boss (ELAPA); 2, Mr Wrightson (ELAPA); 3, Mr G. Smith (WADAS). Ag: 1, Mrs P. Harris; 2, Mrs R. Boss; 3, Mr L. Baker. Aa: 1, Bethnal Green AS; 2, East London APA. Adc: 1, Mr A. Field; 2, Mr C. F. Salt, XA: 1, Mr L. Baker; 2 & 3, Mr F. Vickar, ZBC: 1, Mr J. Boss; 2 & 3, Mrs S. Hodges.

AT the BOURNEMOUTH AS AGM the treasurer reported that the Society had had a good year financially mainly because a profit was made on last year's Open Show for the first time for many years. Unfortunately, however, annual subscriptions are to be increased

by 50p and a charge of 20p made for 'expensive evenings', with an increase of 5% from 20% to 25% on all auctions just to cover today's soaring prices. The chairman presented the annual trophies for 1974. It seemed that the partnership of Mr & Mrs Bebb have been successful yet again, for they won the Tropical Breeders Cup, the O.B. Pairs Cup, the Coldwater Breeders Cup and the Annual Points Trophy. Mr E. Chatfield won the O.B. Pairs Egglayers Cup (2, Mr Chatfield and joint 3rd Mr Coombes and Mr Middleton), Mr B. Coombes won the Open Show Points trophy, and Mr K. S. Gibbs won the Home Aquarium Competition trophy. Table Show results: Platys: 1 & 3, Mr E. Chatfield; 2, Mr Travers. Swordtails: 1, Mr Middleton; 2, Mr Bebb; 3, Mr K. Gibbs. Siamese fighters: 1, Master S. Haskins; 2, Mr Bebb. O.B. Pairs: 1, Mr Chatfield.

AT a meeting of the **ILFORD & DISTRICT AQUARISTS & PONDKEEPER'S SOCIETY** 33 members enjoyed talks by Mr Henry Gove and Mr John Burridge of the Essex Water Company, who explained the chemistry of the water coming from our taps, its origins and how it is filtered, and showed some interesting slides of the wild life on the Company's reservoirs. Cheap and effective methods of water analysis were also discussed.

A later meeting made use of winter's darkness and a full programme of freshwater and marine aquatic colour films, hired from various libraries, was presented by Mr John Horley. The 31 members present then heard a short address from the secretary announcing the result of the Society's growth experiment. Over 70 of the 114 original swordtail fry that were distributed to members in August 1974 were returned to the club together with their information sheets. After measuring and judging, prizes were given to the owners of the largest specimens. Al-

though the fry had all been produced in one brood they were by now all different sizes and qualities and a paper is to be published containing possible explanations.

Table shows for eichlids, danies and White Cloud Mountain minnows were held but the entry was under 12 per class. The club shop and the Bring and Buy table both did brisk trade. The Society meets once per month, usually the second Monday, at the Fulwell Cross Library, Barkingside High Street, Ilford, Essex, and details may be obtained from the secretary, Mr Michael Shadrack, 61 St. Barnabas Road, Woodford Green, Essex.

PRESENTATION of the annual awards at **SCUNTHORPE & DAS** were made by Mr Frank Toyne of Sheaf Valley AS at a social evening. The Society would like to express great appreciation to the aquarists and friends from as far afield as Retford, Sheffield and Worksop for helping to make the social evening such an enormous success. The annual awards were made as follows: Aquarist of the Year, Mr L. Burr. Furnished Aquaria under 30 in.: 1 & 2, Mr B. Wressell; 3, Mr S. Mason. Furnished Aquaria over 30 in.: 1, Mr D. Davey; 2 & 3, Mr A. Binns. Table Show trophy: 1, Mr D. Caldow; 2, Mr L. Burr; 3, Mr A. Binns. Open Show trophy: 1, Mr D. Caldow; 2, Mr A. Binns; 3, Mr G. White. It was also announced that in 1974 Scunthorpe gained eight Best Show awards at Open and Mini-Open Shows.

THE first meeting in 1975 of the **CATFISH ASSOCIATION GREAT BRITAIN** included a very interesting and informa-

tive talk, supported with slides and fossil exhibits, by life member Mr Gordon Howes on "What is a Catfish?" The 33 members and 6 guests present very much enjoyed the lecture. An auction of fish after the discussion included bids ranging from 50p to £18.00.

Meetings are held at St. Saviours Church Hall, Cobbold Road, London, W12, at 8.0 p.m. and the next two meetings will take place on 10th March and 12th May. Any persons interested in catfish are invited to attend. An Open Show is being held at the same venue on 26th April and readers are asked to support it with as many entries as possible. For details please contact the P.R.O., 39 Oaklands Road, Hanwell, London, W7 2DP.

AT the **SWILLINGTON AS** first quarterly members' table show results were:

Mollies: 1, Mr L. Nicholson. Swordtails: 1, Mr M. Walker; 2 & 3, Mrs A. Hislop. Plants: 1, Mr M. Walker; 2, Mr J. Abbott. Platys: 1, Mr M. Walker; 2, Mr J. Parkin.

Judge was Mr P. Reynolds and the Best in Show award was made to Mr M. Walker (77 points). While judging took place a very enjoyable slide show and talk on setting up a marine tank and on fishes to keep in it was given by Mr G. Binks.

THE annual trophies of **COVENTRY P & AS** have been awarded as follows: Hogarth Cup, all classes, B. & F. Hirst, 251 points; (2, Mr A. Nash, 137; 3, Mr J. C. Bailey, 134). Stone Cup, tropical classes (not broods), B. & F. Hirst, 186; (2, Mr A. Nash, 137; 3, Mr J. C. Bailey, 112). Essam Bowl, egglayer broods, B. & F. Hirst, 45; (2, Mr E. Keeble, 8; 3, Mr S. Walker, 3). Society Cup, livebearer broods, B. & F. Hirst, 20; (2, Mr P. Watts, 5; 3, Mr T. Manning, 3). Bradbury Cup, coldwater (not tank or pool), Mr & Mrs Watts, 56; (2, Mr R. Hancock, 34; 3, Mr D. Easingwood, 23). Dymond

WOULD all those who won trophies at the **REGATE AND REDHILL AS** Open Show, please return them to Mr M. Sandford, 5 Victoria Road, Earlswood, Redhill, Surrey, as soon as possible.

Cup, garden pool competition, Mr D. Easingwood and Mr A. Simmons, joint 71); (3, Mr D. Hancock, 69j). Court plaque, tropical home aquaria, Mr J. C. Bailey; (2, G. & D. Ketchell, 3, Mr R. Cleaver). Society Cup, cold water home aquaria, Mr J. McIntyre; (2, Mr T. Manning; 3, Mr A. Brown). Clarke plaque, best fish of year, Mr J. C. Bailey (*C. melanostus*) and Mr & Mrs Watts (goldfish), joint 84. Farran plaque, Best Member, Mr. A. Simmons, 148. Mayer Cup, best junior, A. Simmons, 101; (2, Mr S. Watts, 26; 3, Mr P. Watts, 10).

BASINGSTOKE & DAS third closed Show was a hectic affair, writes secretary Mr M. Strange. While the judging took place, Mr Harmsworth showed a variety of slides dealing with Tableaux shown at The Aquarium Show and the British Aquarists' Festival and Mr A. Blake showed some slides of his visit to the Dutch Federation, illustrating the marvellous Dutch furnished aquaria. Mr H. White and Mr K. Purbrick of Hendon & DAS were present as guests. There were 137 entries in the Show from 23 exhibitors and FBAS judges were Mr J. Stillwell of Portsmouth AS, Mr M. Carter of Bracknell, Mr D. Lambourne of Riverside and Mr D. King of Kingston. Mr R. Onslow won the Speedy Edmonds-Bill Locke-Bowers trophy for Best Fish with a *Platy coriatus*. Jason Fraser won the junior class and Mrs I. Strange won the Enfield Cup for Best Lady's entry. The most popular class was pairs with 13 entries. Each class winner received a key ring with the Basingstoke AS badge on it and these were presented by the president, Mr A. Blake.

EVERY member of **HOUNSLOW & DAS** attended their annual dinner-dance, each of them taking several guests. The highlight of the evening was the presentation by Mr Bert Pratt of the 1974 trophies, winners of which were: Coldwater: Mr

PORTSMOUTH AS are holding an Inter-club Show on 25th May at the Portsmouth Community Centre, Malins Road, Portsmouth. Clubs in the South will be notified by post as soon as the information is printed and judges will be from the FBAS panel. Entertainment and refreshments will be available at the Hall. Clubs who took part last year were: Kingston AS, Basingstoke AS, Roehampton AS, Godalming AS, Havant AS, Bournemouth AS, South Park AS, Portsmouth AS, Southampton AS, Brighton AS, Bracknell AS, and Petersfield AS, though, owing to circumstances beyond their control, Gosport AS and Salisbury AS were unable to take part.

H. Pratt; cichlids: Mr M. Alexander (2 & 3, Mr M. Alexander); pairs: Mr R. Pook (2, Mr D. Brooks; 3, Mr R. Pook); Corydoras: Mr M. Alexander (2, Mr R. Hart; 3, Mr M. Alexander); killies: Mr D. Brooks (2 & 3, Mr M. Collins); aos livebearers: Mr A. Rowe

(2, Mr M. Alexander; 3, Mr R. Hart); swords and platys: Mr J. Curtis (2, Mr R. Hart; 3, Mr E. Sheppard); labyrinths: Mr E. Sheppard (2, Mr J. Curtis); characins: Mr R. Pook (2, Mr R. Pook; 3, Mr M. Alexander); danios, rasboras, minnows: Mr R. Piggott (2, Mr E. Sheppard; 3, Mr M. Alexander); breeders egg-layers: Mr M. Collins; breeders livebearers: Mr H. Pratt (2, Mr H. Pratt); aos: Mr J. Curtis (2, Mr Sean Ward); barbs: Mr H. Pratt (2, & 3, Mr R. Pook); cats and loaches: Mr E. Best; 2 & 3, Mr R. Hart).

Furnished jars: Mr R. S. Hart; plants: Mr A. Constantine; home furnished aquaria: Mr E. Sheppard; junior HFA: Gordon Wright; best fish of the year: Mr M. A. Alexander; breeder of the year: Mr M. Collins; Open Show trophy: Mrs S. Parrish; highest points: Mr M. Alexander; junior highest points: Sean Ward.

Special thanks were given to the committee and in particular to Mr M. Alexander for his tremendous efforts in making the evening a very memorable occasion.

In Brief...

... A NEW Society has been formed and is called **QUINNAVILLE AS**. The secretary is Mr J. Grimes, 337 O'Malley Park, Southill, Limerick, Ireland.

... 30 MEMBERS of **GLOUCESTER AS** very much enjoyed a slide and tape lecture on loan from Hendon & DAS dealing with general topics. Mr K. Gill was the projectionist and Mr C. Freshney the sound operator and members commented on the enjoyable standard of the evening. Mr F. Timmins won in the monthly table show for cichlids (2, Mr C. Rossiter; 3, Master M. Freshney).

... **ANSON AQUATIC CLUB** would welcome new members,

whether novice fishkeeper or experienced aquarist. The club meets every Tuesday evening at 8.00 p.m. at The Kings Hall, Kings Hall Community Association, Harlesden Road, London, NW10. For details please contact Mr R. M. Fox, 44 Ivy Road, London, NW2; phone 01-452 3668.

... **RECENT** meetings of the **MID-CORNWALL AS** have included talks on breeding discus by Mr B. Skipper, setting up a tank by Mrs G. Skipper and a tape/slide show on barbs. Club meetings are held on the first Wednesday of each month at the Community Centre, Playing Place, Truro and new members are most welcome. Information from Mr B. Lean, 5 Hillcrest Shortlanesend, Truro; phone Truro 4092.

... **SLOUGH & DAS** will be holding a meeting on Wednesday, 19th March, at The Friends

Meeting House, Ragstone Road, Slough, when there will be a talk by Mr Mervyn Strange. All welcome, and more details can be obtained from the secretary, Mrs E. Knight, 52 Aldin Avenue South, Slough.

... **WHEN SUFFOLK AQUARIST & PONDKEEPERS' ASSOCIATION** met at the Sporting Farmer in January, the first business of the evening was to discuss lessons learnt from the

Association's exhibition in 1974, 'Colourfish'. Then Mr V. Green answered questions about fish-keeping and the breeding of tetras. This developed into a general discussion and it was only reluctantly that members closed the meeting at 10 p.m.

... **AT REIGATE & REDHILL AS AGM**, the Annual Points trophy was awarded to Mr T. Stacey and the Novices trophy to Mr T. Petherick.

Dates for Your Diary

1st March, **FBAS Assembly**, Conway Hall, Red Lion Square, Holborn, London, WC1, 2.30 p.m.

2nd March, **KEIGHLEY AS** Open Show, The Leisure Centre, Victoria Park, Keighley, Banching 72.2 p.m.

8th March, **BRITISH AQUARISTS STUDY SOCIETY** Symposium on Fish Diseases at the London Zoological Society Lecture Hall, Regent's Park, 2.30 p.m. Tickets £1.50 each (including tea) from Mr F. Keene, Highcliffe, Old Hill, Woking, Surrey.

15th March, **HENDON & DAS CONGRESS**, Whitefields School, Claremont Road, London, NW2. Speaker: Mr W. A. Torrey from Holland.

16th March, **DON VALLEY AS** Open Show, Sea-F Dining Rooms, Brittek, Steel Corporation Works, Stocksbridge, nr. Sheffield. Details: Mrs B. Hartley, 13 Hall Road Walk, Silkstone Common, Barnsley, Yorks.

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

23rd March, **TYNE-TEES AREA ASSOCIATION OF THE FBAS CONVENTION**, Bay Hotel, Whitburn (Sea Front), Tyne & Wear, 2.0 p.m. Tickets, £1 incl. buffet. Enquiries: Mr G. Liddle, 2 Cromer Avenue, Gateshead, NE9 6UJ.

23rd March, **WORKSOP A & ZS** Open Show, North Notts College of Further Education, Blyth Road, Worksop, Notts. Schedules: Mr A. Maxwell, 56 Waverley Way, Manton, Worksop, Notts.

30th March, **SHEFFIELD & DAS** Open Show, Granville College, Granville Road, Sheffield. Details: Mrs J. Sanderson, 12 Greytona Rise, Ecclestone, Sheffield, S11 7JP, Yorks.

30th March, **HYDE AS** Open Show, Watersley Community Centre, Watersley Road East, Watersley (nr. Hyde) Cheshire. Details: Mr G. L. Darby, 1 Deniston Road, Heaton Moor, Stockport, Cheshire, SK4 4RF; phone 061-432 8817.

31st March, **SOUTHAMPTON AS** Open Show, The Avenue Hall, The Avenue, Southampton. Details: Mr D. Mills, 30 Fendens Way, Bitterne Park, Southampton.

3th April, **RIVERSIDE AS** Open Show, St Saviour's Church Hall, Cobbold Road, London, W12. Details: Mr D. Lamborne, 7 Wheeler Court, Ploagh Road, London, SW11 0T23 2630.

13th April, **WARRINGTON AS** Open Show, Fair Hall, Palmira Square, Warrington, FRAS Rules. Schedules: Mr J. Higham, 42 Hood Lane, Sarnley, Warrington, Lancs WA5 1LJ; phone 369339.

13th April, **NELSON AS** Open Show, Nelson Civic Centre, Stanley Street, Nelson, Lancs. Details: Mr R. McKenna, 52 Bath Street, Nelson, BB9 0WR.

15th April, **CORRINGHAM & DAS** Open Show, Details: Mr D. C. North, 188 Southend Road, Stanford-le-Hope, Essex.

19th April, **YATE & DAS** Open Show, King Edwards School, Yate, Nr. Bristol (New Venue). Schedules: Mr C. Strickland, 20 Burgess Close, Chipvinge Sodbury, Bristol BS17 6DZ.

19th April, **REIGATE & REDHILL AS** Open Show, Market Hall, Redhill, Surrey. Details: Mr M. Sandford, 5 Victoria Road, Earlswood, Redhill, Surrey RH11 02330.

20th April, **COVENTRY POOL AS** Open Show, Tempers Junior School, Tivoli Lane, Coventry. Banching: 11.00 a.m.-1.00 p.m. Schedules (large sale): Mr S. Woodridge, 23 Lime Tree Avenue, Tilehill, Coventry.

20th April, **MERSEYSIDE AS** Open Show, Rainhill Village Hall, Exchange Place, Rainhill, Lancs. Details: Mr E. Wilson, 3 Thorpe, Skelmersdale, WN8 8DQ, Lancs.

20th April, **STOCKTON-ON-TEES AS** Open Show, St Peter and Paul School, Durham Road, Stockton (adjacent to the Mile House Hotel). Details: Mr C. W. Buck, 22 Banby Green, Thornaby, Cleveland, TS17 8BX.

26th April (noon change of date), **CATFISH ASSOCIATION OF GREAT BRITAIN 2nd Open Show** (catfish only), St Saviour's Church Hall, Cobbold Road, London, W12. Details: Mr D. Lamborne, 7 Wheeler Court, Ploagh Road, London, SW11 2AX; phone 01-223 2630.

26th April, **BRISTOL TFC** Open Show.

27th April, **BLAKEBOROUGH AS** Open Show, The Canteen, J. Blakeborough & Sons Ltd., River Street, Off Birde Road Lane, Brighouse, West Yorks. Schedules: Mr M. E. Garvey, 37 St. James Street, Brighouse, W. Yorks, HG6 4BE.

27th April, **NORTH KENT AS** Open Show, Details: Mr K. Saxon, 5 Roman Close, Meopham, Kent; Meopham BT2429.

... **THE formation of a new Society is announced in South Wales. This is the ABERDARE AS (FBAS, CNA) and the secretary is Mr Lyn Jenkins, 23 Birchgrove, Landare Park, Aberdare. Meetings are held at the Gadlys Arms, Roberts-town, Aberdare on the first and third Tuesday of each month. New members, to swell the 40 already enrolled, will be made more than welcome.**

4th May, **RUNNYMEDE AS** Open Show, St. Anne's Middle School, Crane Road, Staines, Middx. Details: Mr D. Riley, 123 Kingsmill Avenue, Northolt, Middlesex, UB5 8NY; phone 01-845 4169.

10th May, **PORT TALBOT AS** Open Show, YMCA Building, Port Talbot. Schedules: Mr A. E. S. Fourcres, 3 Cross Street, Velindre, Port Talbot, Glam. SA13 1AZ.

10th May, **SOUTHEND, LEIGH & DAS** Open Show, St Clements Hall, Leigh-on-Sea, Essex. Club and individual furnished aquaria, aquascapes, marines and junior classes. Details: Mr D. Durgan, 1172 Trinity Road, Southend-on-Sea; phone 610576.

11th May, **BOURNMOUTH AS** Open Show, Kinon Community Centre, Millhams Lane, Kinon, Bournemouth. Details: Mr J. Jeffery, 30 Breamer Avenue, Southbourne, Bournemouth BH9 4LF.

11th May, **YEOVIL & DAS** Open Show, Details: Mr P. C. New, 8 Mayfield Road, Yeovil.

11th May, **GLOUCESTER AS** Open Show, The Chequers Bridge Centre, Painwick Road, Gloucester. Schedules: Mr G. Perkins, 243 Bodiam Avenue, Goodley Court Estate, Tuffley, Gloucester.

17th May, **TROWBRIDGE & DA & PS** Open Show, The Rowing Club, Bradfords-on-Avon, Wills, FBAS Standards. Schedules (next month) from show secretary, 43 Marsh Road, Hinton, Trowbridge, Wills.

24th May, **GOLDFISH SOCIETY OF GREAT BRITAIN** Meeting, Conway Hall, Red Lion Square, Holborn, London, WC1, 2.00 p.m.

25th May, **CORBY & DAS** Open Show, Corby Civic Centre, FBAS Rules. Schedules: Mr A. Slow, 176 King Street, Kettering, Northants. (Mid-March).

25th May, **PORTSMOUTH AS** Inter-city Show, Portsmouth Community Centre, Malina Road, Portsmouth. Details: Mr W. Ryder, 202 Kirby Road, Portsmouth, PO2 0QB.

1st June, **NORTHWICH & DAS** Open Show, Hanford Secondary Boys School, Chesser Road, Hanford, Northwich, FRAS Standards. Details: Mr N. R. Thompson, 54 Grahams Road, Frodsham, via Warrington, Lancs, WA6 1LQ; phone Frodsham 32745.

1st June, **NEWCASTLE TROPICAL FISH SOCIETY** Open Show, St John's Church Hall, Westgate Road and Grahame Street Junction, Newcastle-upon-Tyne. Schedules shortly: Mr L. R. Lawson, 84 Grosvenor Road, Jesmond, Newcastle-upon-Tyne 2.

1st June, **HAVANT & DAS** Open Show, The Merchiston Hall, Woodman Halls. Schedules: Mr K. Taylor, 5

Hollybank Close, Cowplain, Harms.:
phone Roman Way 4140.

8th June **SHERWOOD AS** Open Show, The Thoresby Miners Welfare Hall, Edwinstowe, Olton, nr Mansfield, Notts. Schedules: Mr J. 1908, 25 Marples Avenue, Mansfield, Woodhouse, Notts; phone Mansfield 32349.

14th June, **DUNMOW & DAS** Open Show, Details: Mr A. V. Galt, 26 River View, Braintree, Essex, CM7 7HX.

14th June, **LLANTWIT MAJOR AS** (CNAA/FBAS) Open Show, The Town Hall, Llantwit Major, Quality plaques all classes. Schedules (March): Mr J. J. Edwards, Glaston, Mill Park, Llanblethian, Cowbridge, Glam. CF7 7BD.

14th June, **KINGSTON & DAS** Open Show, Sutton Adult School, Berhill Avenue, Sutton, Surrey. Details: Mr D. J. Mackay, 12 Victoria Road, Twickenham, Middx; phone 01-572 0632 daytime till 6.0 p.m.

15th June, **SWILLINGTON AS** Open Show, John Smooton School, Barwick Road, 169 York Road, Leeds 15. Details: Mr & Mrs S. Hisslop, 1 Fir Tree Gardens, Moorhouse, Leeds, LS17 7ED.

15th June, **GOSPORT & DAS** Open Show, Details: Mr J. Clarke, 37, Rowser Close, Romner, Gosport; phone Fareham 86106.

22nd June, **ALFRETON & DAS** Open Show, Adult Education Centre, Alfreton Hall, Alfreton. Details: Mr S. Hicling, Parkview, 13 Coedice Drive, Eastwood, M016 3PW; phone 07737 5104.

22nd June, **SOUTH SHIELDS AS** Open Show, Solingbroke Hall, Details: Mr P. Wright, 11, Barton Crescent, Town End Farm, Sunderland, Tyne/Wear.

22nd June, **LINCOLN & DAS** Open Show, The Oyle Hall, Broadgate, Lincoln. Details: Mr G. S. Hill, c/o 38 Richmond Road, Lincoln LN1 1LG.

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

20th July, **SANDROUNDERS' AS** Open Show, Meads Cop School, Meads Cop Road, Southport. Details: Mr G. A. Waterhouse, 23 Mass Lane, Southport, Merseyside, PR8 7GR.

20th July, **AIREBOROUGH & DAS** Open Show, Menston Community Centre, Main Street, Menston. Schedules: Mr J. S. Hall, 34 Salisbury Street, Calverley, Pudsey, LS28 5FN; phone Pudsey 74609.

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

3rd August, **TONBRIDGE & DAS** Open Show, Details: Mr S. Feast, 19 Erdley Road, Sevenoaks, Kent, TN13 1XX; phone Sevenoaks 5499E.

10th August, **GRIMSBY & CLEETHORPES AS** Open Show, Memorial Hall, Cleethorpes, Schedules: Mr T. P. Walker, 51 Chesters Walk, Grimsby, 5th Humber-side; phone Healing 751E.

17th August, **OLDHAM & DAS** Open Show, Wernham Park, Oldham. Schedules: Mr A. E. Chadwick, 241 Grosoway, Chadderton, Oldham, Lancs OL9 8RN.

7th September, **BETHNAL GREEN AS** Open Show, Bethnal Green Institute, 229 Bethnal Green Road, London, E2. Schedules: Mrs S. Hedger, Kol Corner, 150 Ashburton Avenue, Seven Kings, Ilford, Essex, IG3 9EL; phone 01-590 3239.

7th September, **KILLINGWORTH AA** Open Show, Communions, Killingworth Township. Schedules: Mr G. B. Hickman, 14 Crumstone Court, Londonsdows, Killingworth, Newcastle, NE12 0SZ.

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

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

5th October, **SCUNTHORPE & DAS** Open Show, Details: Mr L. Burr, 6 Saxby Road, Scunthorpe, S. Humber-side.

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 organiser, PFM, 654 Gerratt Lane, London SW11 6NY; phone 01-947 2806.

2nd November, **BLACKBURN AQUARIUM SOCIETY** Open Show, Windon Hall, Blackburn. Details: Mr T. Bunton, 21 Henry Street, Rinton, nr. Blackburn, BB1 4JJ.

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

22nd November, **FUR, FEATHER & AQUARIA SHOW**, King's Hall, 39 Lower Clapton Road, London, E5. Schedules: Mrs S. Hedger, Kol Corner, 150 Ashburton Avenue, Seven Kings, Ilford, Essex, IG3 9EL; phone 01-590 3239.



FEDERATION OF BRITISH AQUATIC SOCIETIES

TAPE-SLIDE LECTURES

For Hire to All Aquarium Societies

- | | | |
|-----------------|---------------------------------------|------------|
| FBAS AquaTalk 1 | Non-U Goldfish by R. D. Esson | 49 minutes |
| FBAS AquaTalk 2 | Why Corydoras? by C. A. T. Brown | 44 minutes |
| FBAS AquaTalk 3 | Barbs by P. Ginger | 63 minutes |
| FBAS AquaTalk 4 | G is for Catfish by Derek Lambourne | 41 minutes |
| FBAS AquaTalk 5 | Keeping Killies by C. A. T. Brown | 60 minutes |
| FBAS AquaTalk 6 | Down Amongst the Z Men by Bernard Pye | 58 minutes |

Each Programme is accompanied by notes and operating instructions. Tape speed 3½ in. per sec. Tape spool size 5 in. Affiliated Societies: £2.50 per Programme. Non-affiliated Societies £3.50 per Programme.

Enquiries (SAE please) to R. C. Mills, 70 Lee Road, Perivale, Middlesex UB6 7DB

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.



SONA-FIDE
TRADERS ONLY

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 28000. 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 3718. Closed Wednesdays.

1 LITRE OF "OFF-IT", the wide-spectrum general medication, £2.45 post paid, C.W.O. From King British Aquarium Accessories Co. Ltd., Hayfield Mills, Haycliffe Lane, Bradford 5. Or trial size 35p post paid. Also available from your local pet shop.

REPTILES

REPTILES, AMPHIBIANS. Free list. J. & D. Naturalists, 51 Sandy Road, Seaforth, Liverpool, 21.

EQUIPMENT

AQUARIA FRAMES, STANDS AND HOODS plus ornamental stands. Frames from 11" X 11" 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.

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

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.

BUILD YOUR OWN ALL-GLASS AQUARIUM. Set of cut glasses, sealer and instruction book: 24" X 12" X 12" £2.95; 24" X 15" X 12" £4.35; 36" X 15" X 12" £5.45. Other sizes available. For collection only. Keith Barraclough, Aquarist Ltd, Hayfield Mills, Haycliffe Lane (off St. Enoch's Road), Bradford 5. Phone 76241.

BOOKS

FBAS Show Fish Guides and Technical Information. Booklet nos. 1, 2 and 3. 24 pages each; 23p each post free. P.F. Publications, 554 Garratt Lane, London SW17 0NY.

MISCELLANEOUS

KING BRITISH FREEZE-DRIED RED TUBIFEX, big 4

oz. can £2.98 post paid C.W.O. From Keith Barraclough Aquarist Ltd, Hayfield Mills, Haycliffe Lane, Bradford 5. Or from your local aquarists' shop.

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.

YOUNG MALE PROFESSIONAL AQUARIST, with varied experience and clean driving licence seeks further position. Anything considered. — Box No. 511.

GROUND DRIED SHRIMPS AND CUTLEFISH. Samples and prices at your disposal. Wholesale only. H. E. Daniel Ltd., Longfield Road, Tunbridge Wells, Kent.

KING BRITISH FREEZE-DRIED PURE SHRIMP TABLETS, ideal for salt-water or freshwater fishes. Small pack 33p, or 64 oz. can £2.20, post paid, C.W.O. From Keith Barraclough, Aquarist Ltd, Hayfield Mills, Haycliffe Lane, Bradford 5. Or from your local aquarists' shop.

LONDON COMPANY requires partner to establish an independent local branch of expanding business in one of a number of selected areas throughout the British Isles. Box no. 517.

WANTED. PetFish Monthly. Volume 1, nos. 5, 6, 9, 10, 11, 12; volume 2, nos. 1, 2, 3; volume 3, nos. 1, 3. In good condition. Box no. 512.

'Algarde' Filters - Naturally!

Make the diet balanced and varied.

Fish are quite human in one respect. They do like a varied diet. But it must be a balanced one.

The best way to make sure they get it is to give them the

best food you can. And that means Phillips Fish Foods - the result of scientific research and comprehensive trials in experimental aquaria.

Leading aquarists and fish

breeders know this. And they vary the diet with Phillips Flaked Fish Foods, Phillips Maxiflakes and Phillips Multifreeze.

Make sure your fish get these nourishing foods.



Phillips Flaked Fish Food

A nutrient-rich high-protein food containing liver, fish and meat meals, insects, crustaceans, vegetable matter, brewers' yeast, milk powder and cod liver oil. Rich in vitamins and minerals. 46% protein. Drum 13p, 1 1/2oz 37p, 4 1/2oz 73p, 20oz £2.34

Phillips Maxiflakes

Larger flakes for hand feeding the larger tropical fish. 1 1/2oz 42p, 14oz £2.11

Phillips Multifreeze

A 100% freeze-dried blend of seven nourishing foods for tropical and marine. Drum 38p



Phillips Fish Foods - the best that cost less.

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

"I saw your advertisement in PFM"

THE GOLDFISH BOWL



The retail tropical fish showroom at 253 LONDON ROAD, HEADINGTON, OXFORD (tel.: Oxford 62904) just $\frac{1}{2}$ mile from the A.40 London to South Wales Road. Early closing Thursdays, 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) & 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

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



Please mention PFM when writing to advertisers

minifilter



The EHEIM MINIFILTER is a three-chamber external filter suitable for marine and fresh water aquaria up to a capacity of 75 litres (20 gallons). Utilising three different filter media, the EHEIM MINIFILTER cleans aquarium water quickly and efficiently. The first chamber serves as a mechanical pre-filter. The EHEIM filter medium used here protects the more delicate filter materials in the next two chambers from damage by large particles. The fine cartridge in the second chamber blocks the smallest particles and arrests most bacteria. In the third chamber, EHEIM CARBON absorbs harmful organic material in the water.

When the flow of water back into the tank is noticeably reduced, the filter has accumulated dirt and needs to be cleaned.

EHEIM POWER FILTERS

ACCESSORIES
SPARE PARTS
REPAIR SERVICE

U.K. DISTRIBUTORS

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

"I saw your advertisement in PFM"

Where to Buy PFM RETAILERS' DIRECTORY

BEDFORDSHIRE

Polypets (Dunstable 603753)
129 High Street, North
Dunstable
M T W 8.30-5.30 Th 8.30-1
F 8.30-6 S 8.30-5.30
Trop F Plants Equip

BERKSHIRE

Berkshire Aquatics Ltd.
(0734 582162)
359 Oxford Road, Reading
Th open till 7 Sun 10-12
Trop F Coldwater F Plants
Marines

BUCKINGHAMSHIRE

Bourne End Aquarium
(Bourne End 25100)
24 Purling Road, Bourne End
Daily 9-1 2.15-5.30 Th 7-9
S 9-1 2.15-5.30 Sun 10.30-1 2.30-5
Trop F Coldwater F Plants
Equip
**Desborough Road Pet Store
and Aquaria**
(High Wycombe 20996)
124 Desborough Road, High
Wycombe HP11 2PU
M T Th F S 9-5.30 W 9-1
E.C.D.W.
Trop Marines Coldwater F
Plants Books Equip

DERBYSHIRE

Chester Green Tropicals
(Derby 364470)
166 Mansfield Road,
Chester Green, Derby
M-S 9-7.30 Sun 10-2
Closed all day Tuesday
Trop F Coldwater F Plants
Accessories Books
Matlock Waterlife Centre
(Matlock 4221, 4699)
(Adj. Matlock Garden Centre)
Nottingham Road, Tansley,
Matlock
M W Th F S 10-1 2-6 Closed T
Dec, Jan, Feb. close at 5
Marines (spec. invert.) Trop F
Coldwater F Equip Books
Terry J. Aquatics
(Derby 21335 & 23716)
129 St Thomas Road, Derby
DE3 8RH
M T W 2-8 F 9.30-8 S 9.30-7.30
Sun by appt
Trop F Plants Equip Marines

DURHAM

G. R. Metcalf (65591)
187 Northgate, Darlington
M T Th F S 9-6 W 9-1
Trop F Coldwater Fish Plants
Access Pools Lilies Pumps etc

ESSEX

Harlow Aquarium Supplies
(20098)
Service Bay No. 6, Perry Road,
Staple Tye, Harlow
M T W Th F 4-10 S 10-1 2-10
Sun 10-1 2-6
Marines Freshw F Tank Equip
Plants Displays instll.
(Wholesale & Retail)

HAMPSHIRE

Atlantis Aquarium
(Bournemouth 53593)
466 Wimborne Road, Winton,
Bournemouth
M T Th F S 9-6 W 9-1
Trop F Pond F Plants Equip
Liphook Tropicals
(Liphook 722713)
32 The Square, Liphook, Hants
M 10-Noon T-Th 10-5.30 F 10-8
S 10-5.30 Sun 10-1
Trop F Coldwater F Plants
Equip Tubefox

HERTFORDSHIRE

Happy Pets Centre
(Stevenage 4121)
10 The Hyde, Shephall Way,
Stevenage
M T 9-5.45 Th F 9-6 S 9-5.30
Trop F Coldwater F Plants
Equip Books Live Food
Polypets (Watford 22080)
51 Market Street, Watford
M T Th S 8.30-5.30 W 8.30-1
F 8.30-6
Trop F Reptiles Plants Equip

KENT

Aquarium Supplies
(T. Wells 30791)
1 Castle Street, Tunbridge Wells
M T W Th F S 9-6
Trop F Pond F Marines Plants
Equip

LANCASHIRE

Aquascope (Blackburn 55049)
78-80 Whalley Range,
Blackburn BB1 6EA
M T F S 9-6 Th 9-6.30
Trop F Marine F Coldwater F
Equip Plants Books Gdn Pools

K. S. Price (061-432 5406)
265 Burnage Lane,
Manchester M19 1EW
M T W Th F 9-1 & 2-6 S 9-5.30
Closed Sun
Aquaria Trop F Coldwater F
Plants Live Foods Accessories
General Pets Books

LEICESTERSHIRE

The Root Aquaria
(Leicester 27788)
196/200 Belgrave Gate, Leicester
M T W F 9.30-7 S 9-6
Early close Th
Trop F Pond F Plants Equip
Marines

LONDON

Bonner Aquaria (01-980 1488)
205 Roman Road, E2
M T W S 9-7 Th 9-1 F 9-8
Coldwater F Trop F Marines
Foods Accessories
Mayfair Aquarium & Pet Store
(Mrs Dorothy Stone) 01-672 7977
122 Upper Tooting Road, SW17
M T Th F S 9.30-6 W 9.30-1
Trop F Pond F Plants Equip
Books Ponds
Norwood Aquarium
(01-670 6908)
24 Knights Hill, SE27
M T Th F S 9.30-6 Closed W
Trop F Plants Equip Foods
Ponds Pond F (Whol & Ret)
Pet Shop
120 Ferndale Rd., Brixton, SW9
M T F 9.30-5.30 Th 9.30-6.30
S 9.30-6 Closed W
Trop F Coldwater F Rep Equip
Queensborough (01-743 2730)
111 Goldhawk Road, Shepherd's
Bush, W12
M T W S 9-5.30 F 9-7 Closed Th
Sun by appoint.
Trop F (freshwater & marine)
Plants Foods Ponds Pond F
Equip Books
South Western Aquarists
(01-672 7334)
2 Glenburnie Road, Tooting,
SW17 7P2
M T Th F S 9-6 W closed
Trop F Coldwater F Plants
Equip Rep & Amphib F Tackle

St John's Aquaria (01-874 5082)
 St John's Hill, Battersea, SW11
 M T Th 10-6.30 F 10-7 W 10-1
 S 9-6 Sun 11-1
 Trop F Pond F Plants Equip
 Books Ponds Marines
Tachbrook Tropicals
 (01-834 5179)
 244 Vauxhall Bridge Road, SW1
 M T W Th F S 9-6
 Trop F Plants Equip Foods
 Books

NORTHUMBERLAND

City Pets (22252)
 (Mr Len McCourt)
 Low Friar Street,
 Newcastle upon Tyne 1
 M T W S 9.30-5.30 Th F 9.30-7
 Trop F Pond F Marines Plants
 Equip Books

STAFFORDSHIRE

Eve's Pet Shop Ltd
 St Michael's Street,
 West Bromwich
 M T Th F 9-1 2-5.30 W 9-1
 S 9-5.30 Closed Sun
 Trop F Coldwater F Plants
 Equip Books

Gillway Aquatics
 (Tamworth 65617)
 14 The Precinct, Tamworth
 M T Th 9-5.30 F 9-7.30
 W half-day S 9-6 Sun 10-12 2-4
 Trop F Plants Equip Foods
 Ponds Pond F (Whol & Ret)
Wolverhampton Aquatics
 (Wolverhampton 53294)
 147 Horsley Field,
 Wolverhampton
 M T W F S 9.30-6
 Closed all day Th
 Trop F Plants Ponds Equip

SURREY

Sutton Aquarium (01-643 1978)
 120 Carshalton Road, Sutton
 M T Th 10-6 F S 10-7 Close W
 Sun 10-1
 Trop F Coldwater F Plants
 Equip Ponds Books

SUSSEX

Conrad A. Dowling P.T.A.Dip.
 (Lewes 3970 & 2189)
 (Aqu. & Pet Suppl.), 41 Cliffe
 High Street, Lewes, BN7 2AN
 M T Th S 9-1 2-6 F 9-1 2-8
 Closed W
 Trop F Pond F Rep & Amphib
 Plants Equip Books


YORKSHIRE

Aqua-Marine Tropicals
 (Sheffield 77308)
 61 Broad Street, Sheffield
 M T W Th F 9-8 S 9-6.30
 Trop Marine Coldwater Fish
 Plants Equip
Keith Barraclough
 (Bradford 76241)
 568 Great Horton Road, Brad.7
 M 9-1 T W Th F 9-6 S 9-5.30
 Closed all day Sun
 Trop F Pond F Plants Equip
 Books (Whol & Ret)
Joseph D. Fletcher
 (Sheffield 872209)
 40 High Street, Swallownest,
 Sheffield, S31 0TU
 Trop F Plants Equip Books
John Hutchinson (Pets) Ltd
 39/41 Wicker, Sheffield
 M T W Th F S 9-6
 Trop F Rep (Whol & Ret)
 S.a.e. lists

WALES

Aquarium (0782 55806)
 9 Dillwyn Street, Swansea
 M T W F S 9-6 Th 9-1
 Trop F Pond F Rep & Amphib
 Plants Equip

For details of advertising in Where to Buy write to
PETFISH MONTHLY, 554 Garratt Lane, London, SW17 0NY



**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**

VISITORS To BRIGHTON

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

Should you want **Food,**
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.
---	--

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

SUBSCRIPTION ORDER

To
PetFish Monthly

554 Garratt Lane
 London, SW17 0NY

Please send me PetFish Monthly

each month for 12 months (£3.00)
6 months (£1.50)

starting with the
 issue (subscriptions can run from any
 month's issue for six or for twelve
 issues). Cash/Cheque/P.O. enclosed.

Name

Address

.....

HYNDBURN TROPICALS

FOR
**TOP QUALITY FISH,
 PLANTS and EQUIPMENT**

ALL GLASS AQUARIUMS A SPECIALITY

Open Mon. to Fri. 9.30 - 8.00 p.m.

Sat. 9.30 a.m. - 6.00 p.m.

426 BLACKBURN RD, ACCRINGTON,
 LANCS. Tel: ACCRINGTON 34956.

VISIT WILDWOODS

TROPICANA!
**FOR TROPICAL FISH
 & PLANTS** Come and browse in the warm.



A wonderful range of warm-water Aquarium Plants
 that couldn't be fresher — we grow them our-
 selves. Fresh water Tropical Fish in more than 50
 varieties from Angels to Zebras by way of Sharks
 and Minis. We specialise equally in cold water
 plants and fish, garden pools, fountains, aquar-
 iums, pumps, lighting and all accessories.
 Come and browse in the warm or send for free
 Price List, 40-page colour book of Ponds and
 Aquariums 25p.
 Open every day 9.30am - 5pm. Closed 12.30 to 2pm.

WILDWOODS WATER GARDEN CENTRE PFM
 Theobalds Park Road, Enfield, Middx. 01-363 8548

A Unique Opportunity for Fishkeepers to

Visit JAPAN and THAILAND

is offered by The British Koi-Keepers' Society

Departing London Monday 31st March by KLM Royal Dutch Airlines

Return to London on Tuesday 15th April

Full details from

W. R. Seal, 7 Highlands Road, Offerton, Stockport, Cheshire SK2 5HU

'ALGARDE' FILTERS - CLEARLY THE BEST!

Please mention PFM when writing to advertisers

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 £4.26 plus V.A.T.

301R Pump

- NEW DESIGN
- GREATER POWER
- WITH REGULATOR
- price £6.55 plus V.A.T.

RENAFLOT

- NEW CONCEPT IN FILTERS
- INCREDIBLY EFFICIENT
- INEXPENSIVE
- UNOBTRUSIVE
- Price £1.83 plus V.A.T.

All are available at your usual dealer

DISTRIBUTED BY

IMPELEC

LIMITED

IN CASE OF DIFFICULTY WRITE TO:

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

"I saw your advertisement in PFM"

Do Your Fish a Favour — buy them an 'ALGARDE' FILTER!

**THE
BASINGSTOKE
AQUARIST**

7 Church Street, Basingstoke, Hants.
Telephone 22010

Tropical and coldwater fish, marine, 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, Rushby Green, S.E.6
Tel. 01-890 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.

Books for the Aquarist

All About Tropical Fish

By D. McInerney & G. Gerard. £6.50
Over 500 pages, 130 colour plates and 200
black and white illustrations.

Encyclopedia of Tropical Fish

By H. Axelrod. £5.70 (new edition)
Packed with information, has over 700 pages
and 300 colour plates.

Collins Guide to Aquarium Fishes & Plants

By Schlotz & Dahlstrom. £2.50
Has over 400 fish illustrated in full colour
plus many plants. Good value.

Goldfish Guide

By Dr. Y. Matsui. £2.75
A very well illustrated book which will be of
interest to beginner and expert alike.

Tropical Fish in Colour

By Braz Walker. £1.20
120 species of fish illustrated in colour
photographs.

OTHER INFORMATIVE & USEFUL

Diseases of Aquarium Fishes. By R. Goldstein. £2.42

The Piranha Book. By G. S. Myers. £1.40

An Introduction to Cichlids. By R. Goldstein. £2.75

When ordering the above books please enclose
your remittance and add to it 10% for Post & Packing.

THE AQUATIC BOOK SERVICE

233, Upper Richmond Road West, London, S.W.14 01-876 3855

TRADE ENQUIRIES WELCOME

Book of the Garden Pond

By Hervey & Hems. £2.50
An informative book of over 200 pages and
with black and white illustrations.

All About Discus

By H. Axelrod. £2.10
With 40 colour plates and many black and
white illustrations.

Complete Aquarist Guide to Freshwater

Tropical Fishes By R. Legge. £4.95
A superbly written book with over 400 beautiful
colour plates.

Guide to Freshwater Aquarium Fishes

By Hervey & Hems. £2.75
A very well illustrated 'Hamlyn' book.

Exotic Aquarium Fishes

By W. Innes. £2.40
A first class book on Aquarium and Fish
keeping, and very well illustrated with colour
and black and white plates.

BOOKS FOR THE AQUARIST

Koi. By Roe & Evans. 63p

Oscars (Astronotus) £1.10

FILTER WITH 'ALGARDE'

Please mention PFM when writing to advertisers

Aquatabs make feeding time fun to watch.

Aquatabs are a great idea. Press one on to the inside of your tank and pronto 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 Aquatabs contains a balanced mixture of flaked and freeze dried foods. Good things like rice, 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.
RARE ROYAL, LONDON.

HENDON & DAS

announce with pleasure that

Mr. W. A. Tenney

the eminent author, plant and fish specialist from Holland is to be the lecturer at

*The
Hendon Convention*

15 MARCH 1975

WHITEFIELDS SCHOOL,
CLAREMONT ROAD, LONDON N.W.2.

Details from

Miss Y. Longuet
2 Marsh Drive,
Hendon, London, N.W.9.

fish breeding is easier with Liquifry

and tube for
Eggs
and tube for
Larvae




is a liquid suspension containing particles of immediate nutritional value and particles to stimulate the growth of natural infusoria in the minimum possible time.

is the ideal first food to bring the baby fish through those vital first few days.



A FEW DROPS A DAY

IS THE LIQUIFRY WAY!

 **Interpet**

Dorking Surrey

"I saw your advertisement in PEM"

METAFRAME

AQUASCAPERS

*THE TRUE REPLICA AQUATIC PLANT,
freshwater & marine*

***36 Varieties *in 4 sizes**

Available at your local stockist

U.K. DISTRIBUTORS
Scott's Intercontinental Aquarist Ltd

WATFIELD HILLS, WATCOPE LANE, BRADFORD 5, THE BOROUGH, WEST OF OXFORD, OXF. 37B, 37D

TUBIFEX TUBIFEX

Ring 01-348 3011

for a regular supply, or write
D and V

114 Rathcoole Gardens,
Hornsey N8 9TH

TYNE-TEES AREA ASSOCIATION
OF THE F.B.A.S.

CONVENTION 1975
Bay Hotel, Whitburn
(Sea Front) Tyne & Wear
Sunday 23rd March

Speakers :

Miss S. Turner (Hancock Museum,
Newcastle)

Mr G. Howes (British Museum, Natural
History Dept.)

Mr R. Eason (Coldwater)

Mr A. Charlton (Guppys)

Mr B. Pearson (Water Conditions)

Time : 2 p.m. - 9 p.m.

Tickets : £1.00 to include buffet meal.

Enquiries to Convention Manager :

MR G. LIDDLE
2 CROMER AVENUE, GATESHEAD NE9 8UJ

Binders for your copies of PetFish Monthly

£1.25

(VAT included)
post free
(\$3.25 U.S.A.
and Canada)

As you receive each issue of PFM it can be inserted into the binder, which holds 12 copies (one volume). Stiff covers, leathercloth bound, and gold-blocked title.

To PETFISH PUBLICATIONS
554 Garratt Lane
London, SW17 0NY

Please send _____ Binders for Petfish
Monthly, for which I enclose
P.O./Cheque value _____

Name _____

Address _____

PFM's U.K. Currency Guide

Approximate dollar equivalents to the prices given
in advertisements, for the guidance of
overseas readers

£1 (one pound) \$2.50
(= 100p \$2.50)

1p (one new penny) 2.5 U.S. cents
(= £0.01 \$0.025)

Examples

25p (£0.25) \$0.62
50p (£0.50) \$1.25
£1.00 \$2.50

Please mention PFM when writing to advertisers



H. TISBURY & SONS

SPICE PITT'S FARM, CHURCH ROAD,
NOAK HILL, ROMFORD, ESSEX
RM4 1LD

Phone Ingrebourne 41376

BREEDERS OF HIGH-CLASS FANCY GOLDFISH
POND SEASON '75

This month (weather permitting) we shall be netting our Stock Ponds. Varieties of fish should include the following:—

Goldfish all sizes from 1" to 8"	Shubunkins 2" to 8"
Orfe 2" to 12"	Rudd, Gold & Silver 2" upwards
Cruclan Carp 2" to 6"	Tench, Gold & Green 2" upwards
Mirror Carp 4"	Nishiki Koi 3" to 18"

Moors, Red Fantails, Calico Fantails, all sizes from (small to adults).
Nearly all the above fish should be available as sexed pairs if required.
Lilies (40 varieties) Marginals, Oxygenating plants, all named varieties (plant catalogues 10p).
Pumps, Stuart Turner & Otter range always in stock plus Butyl, Flexilene, Juralene liners and all associated pond equipment.

Fancy Goldfish, limited number of the following:— Red Oranda, Chocolate Oranda, Calico Oranda, Redcap Oranda, Bubble Eye, Pearl Scale, Lionhead.

Winter hours till April 1st — 10 a.m. to 5 p.m. Open every day.

S.A.E. FOR ALL ENQUIRIES PLEASE. FISH SENT BY RAIL PLEASE ADD £1.50 CARRIAGE.
FIVE MINUTES BY CAR FROM GALLOW'S CORNER ROUNDABOUT (A12)

By Public Transport from Romford Station No. 174 bus.
VISITORS WELCOME

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 : Filter 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

"I saw your advertisement in PFM"



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		Freeze-Dried Natural Foods	
Standard	39p 1½ oz. approx.	Tubifex	39p 10 gm.
Economy	72p 4 oz. approx.	Daphnia	39p 14.5 gm.
Breeders	£3.14p 21 oz.	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

Attention Salt Water Aquarists!

GET THE FACTS about salt water
from

SALT WATER AQUARIUM

the world's first exclusive
salt water publication.

Published nine full years!

Each issue contains priceless information.

Many back issues still available,
while they last

Send \$10.00 for a full dozen
delightful issues or \$20.00 for
30 assorted issues postpaid

GET THE BOOK THAT LAUNCHED
A HOBBY!

The Salt Water Aquarium in the Home

by Robert P. L. Straughan

'A practical book; acclaimed by thousands'

Exotic fish, invertebrates, feeding,
disease, plants, live corals, everything known
about salt water

18 huge chapters with nearly 400 pages
and hundreds of photos all taken in the
author's own tanks

\$15.00 post paid

Order from: CORAL REEF EXHIBITS, P.O. BOX 1000
BELLEVIEW, FLA. 32620, U.S.A.

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

March 1975

★ **SPECIAL OFFER** ★
★ Three Books for only £1.65 ★
★ or 65p each post free ★
★ Aquarium Hygiene ★
★ by Hellmuth Wachtel ★
★ Aquarium Plants ★
★ by Gerhard Brünner ★
★ Planning and Decorating ★
★ by Wilfried Weigel ★



Also:

Six 5 in. Metaframe Plastic Plants (mixed varieties) £1.65 post free

**MAIL ORDER SERVICE
ALL OVER THE WORLD**

We dispatch all monthly
fishkeeping magazines

All Subscriptions Welcome

PLANTS, FISHES, AQUARIUMS
AND ALL AQUATIC ACCESSORIES
A SPECIALITY

We are open 6 days a week, 9 a.m. - 6 p.m. and do not close for lunch

Always Ready, Willing and Able to help all Aquarists

YEARLY SUBSCRIPTION COUPON

Name

Address

'The Aquarist' £3.75 Half yearly £1.88

'Petfish' £3.00 " " £1.50

'T.F.H.' £3.78 " " £1.74

(Delete magazines not required)

Please Print in Block Capitals

SHIRLEY AQUATICS LTD

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

HIGH GRADE NISHIKI KOI

(JAPANESE COLOURED CARP)

Large stocks of fish wintered in our nurseries and thoroughly quarantined and conditioned.

5"- 6" FISHES AT £5 & £6 each

6"- 8" FISHES AT £10-£40 each

8"-10" FISHES AT £15-£80 each

List of colours of above available

LOWER GRADE FISHES AT LOWER PRICES

Small mixed Koi at £1.50 and £2.50
(This season's imports)

JAPANESE FANCY GOLDFISH

Comet tails, Comet Shubunkins from 25p

Mid-April onwards—

Red Fantails, Calico Fantails, Black Moors

May onwards—

Lionheads, Orandas, Celestials, Red Caps, etc.

Breeding pairs of Golden Tench from £5 pair

Golden Orfe from 2"-8"

**WE ARE OPEN ALL THROUGH THE EASTER
HOLIDAY**

PLEASE NOTE—All enquiries requiring a reply MUST be accompanied by S.A.E. Our premises are situated on the main Stratford-Birmingham road, 8 miles from Birmingham. Midland "Red" Bus No. 150 from Bus Station, Birmingham, passes the door, alight at "The Crow" Monkspath.

CLOSED ALL DAY SUNDAY AND MONDAY

HOURS OF BUSINESS—NOVEMBER—MARCH 10 a.m.—5 p.m. APRIL—OCTOBER 10 a.m.—6 p.m.
TERMS OF BUSINESS—Cash with order please. Fish sent by rail. Minimum order £20.00, insulated container and carriage £1.50 (Scotland £2.00). Parcel by post (minimum order £2.00) please add 25p post and packing on aquarium plants and 50p on pond plants.

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