

NOVEMBER 1970

3s

Pet **Fish**

monthly

The **PRACTICAL FISHKEEPING MAGAZINE**

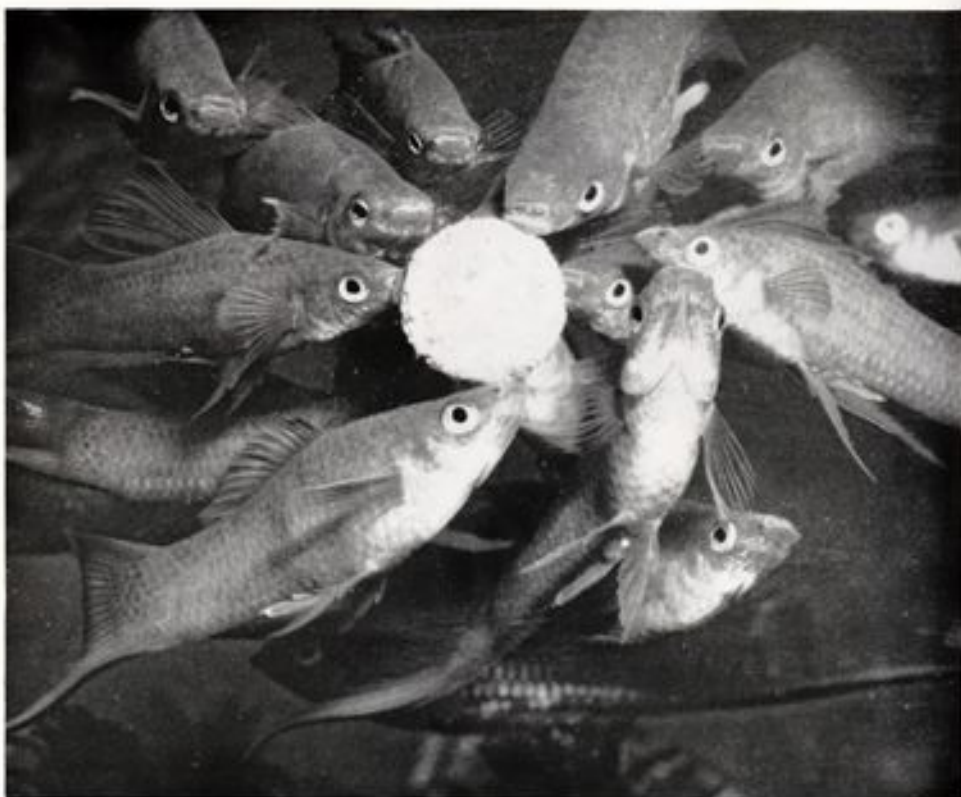


Contents include:

Congo Dwarf Cichlids

Aquarium Fish Photography

An Expert's Methods of Plant Growing



Freeze-dried Tetratips mean no wastage - and happy fish !

Tetratips contain no less than 15 nourishing ingredients - freeze-dried in compact tablet form. So all you have to do is stick a Tetratips tablet to the side of the tank - and watch your fish attack it with relish ! Nothing wasted - and less cleaning !

Send for a FREE sample

For a free sample and more information on fish-feeding the Tetratips way, send this coupon to



HERB-ROYAL LIMITED

(Tetra Division)
Colley Lane Estate, Bridgwater, Somerset.

Please send me a free sample and more information on new Tetratips.

NAME _____

ADDRESS _____

P.F.M. 6



Please mention PFM when writing to advertisers



Monthly 3s

Vol. 5 No. 7

November 1970

Subscription rates: £2 2s for 12 issues; £1 2s for 6 issues (U.S.A. and Canada \$5.50)

Editor: Anthony Evans

In This Issue

	Page
Comments and Quotes	277
Letters	278
Transatlantic Topics	284
Mr R. Forder At Home	285
Personal Comment	288
Readers' Queries Answered	289
So You Want to Make Some Money?	290
Guppy World	293
Guppy Types	293
Photographing Aquarium Fishes	294
What's New?	296
Congo Dwarf Cichlids	297
The Tank and its Preparation	300
Club News	301
In Brief	303
Dates for Your Diary	306

© 1970

PetFish Publications

Editorial and Advertising Offices

554 Garratt Lane
London, S.W.17
Telephone 01-947 2805

Comments and Quotes

- Awards to Professional Aquarists
- Trouble from the shrimps
- Aquarist author retires

Diploma-winning Aquarists

RESULTS were announced last month of the first-ever examinations for the award of a Diploma in Pet Shop Management. The scheme was devised by the British Veterinary Association and the Pet Trade Association, and 27 pet traders from all parts of Britain were successful and received their Diplomas in London. Names in the list that will be particularly well known to aquarists are those of Mr George Boyce (South Western Aquarists), Mr A. W. Checketts (Woething), Mr Ron Johnson (Johnson's Aquarium), Mr Roy Skipper (House of Fishes) and Mr Bill Wingate (Wingates of Winchester). *PFM* offers sincere congratulations to all the award winners, and the pioneering spirit of all traders who supported the venture is something that must be admirably acknowledged by everyone. As one trader put it—there are few types of shops in the High Street, other than chemists, whose owners can qualify or obtain by examination a Diploma from a professional body. This can only lead ultimately to a (generally agreed) much-needed elevation of pet-shop standards.

Lethal Brine Shrimps

'It was Professor Larry Slobodkin, of the Department of Biology at Stony Brook (New York University), who told me why Scottish fish-farming experiments came to grief.

By closing off the end of a loch, seeding it with fish fry and dumping nutrients into the water, the Scots found they were able to grow large numbers of easily-caught fish.

'The food on which the fish thrived were the larvae of a brine shrimp from San Francisco Bay. These stand up to being transported in a dormant condition and are equivalent to live food. But as the bay was filled in and polluted the supply dried up, and an alternative had to be found. The Great Salt Lake also provides such larvae, but when these were placed in the loch, all the fish died.

'It turned out that the Utah farmers use heavy loads of pesticide, which drain into the lake and get into the brine shrimps. The quantity is not enough to kill them, but when the Scottish trout have eaten a few hundred of them and concentrated the pesticide from all of them in their own tissues, the load has become a lethal one. Thus the desire of the Utah farmers to grow more cereal affects Scottish attempts to produce more protein. That's the kind of world we have now.'—(Gordon Rattray Taylor (author of *DOOMSDAY BOOKS*) from *THE OBSERVER*.)

Retiring Aquarist

NEWS of the retirement of Derek McInerney, author of well-known books on tropical fishkeeping, from his business, McLynn's Aquarium, will we know make many aquarists want to join with *PFM* in wishing him long life and happiness. He is going to live abroad in a warmer climate, but we cannot imagine that he will cease to be a fishkeeper.



LETTERS

Spiny Eel

IT was with great interest that I read the article 'Keeping the Spiny Eel' (PFM, August, 1970). I have a 7-inch specimen of the species *Macrogobius aculeatus* and am in agreement with the author of your article in every detail except one—the fact that he seems to advocate the use of sand as a planting medium in tanks containing *M. aculeatus*. My own eel is in one of my community tanks, which is 3 ft. 6 in. long and 15 in. back to front and 14 in. deep, and the fish is quite happy with the gravel which is used in this tank, as it is forever underground.

I have found my eel to be peaceful with other fishes with the exception of gouramis. He has so far been indirectly responsible for the death of four dwarf, two leeri, two thick-lip and one opaline gourami. He does not kill in one go but chases the particular fish he has taken a dislike to and 'bangs' it with his long snout until the victim is demoralised and refuses to eat. It may be the ventral 'feelers' that annoy the eel, but whatever it is gouramis don't last long with him around.

What Jaroslav Elias did not mention was the difficulty in catching a spiny eel. I used to show mine and so kept it in an 18 in. by 10 in. by 10 in. tank for a while (it won three thirds in the a.o.v. class out of three outings), but one day I decided to put it in its present home where it has been eluding capture ever since. I once spent an hour and ten minutes trying to catch it, determined not to give in, but I had eventually to admit defeat.

Great Horton, Bradford 7

J. F. CHORLEY

Accurate Temperatures

WE would refer you to the brief article appearing on page 261 of the October edition of your magazine entitled 'How can I be sure of the accuracy of my aquarium thermometers?'

Whilst the information given in reply to this query is very helpful, we would suggest that a simple answer would be—use ES-ES Dumpty thermometers. The Dumpty is made on a different principle to mercury or alcohol thermometers, and not prone to the faults you mention. In addition the Dumpty is extremely accurate, each thermometer being calibrated against a N.P.L.-tested master thermometer, with a tolerance of plus or minus 1°F only being allowed. Further advantages of the Dumpty include the ease with which the temperature can be read from a distance, its capability of being positioned in any desired position in the aquarium and its compactness. This latter point we consider of vital importance since, having no sharp edges and being fixed to the glass, it is impossible for fish to damage themselves when being chased or netted. Coupled with all these points is one other which will obviously play an important part in the aquarist's choice of ther-

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

ometers—and that is price. In this direction comparison with the price of other thermometers will show that the Dumpty certainly represents excellent value for money.

Penryn, Cornwall

F. A. THOMAS
Works Manager
Singleton Bros. (Electronics) Ltd

Young Marinist Replies

I WAS interested in Arpee's Personal Comment in PFM (October). I hope, however, that in this letter I can convince him that keeping marines is much easier (and it is) than he appears to believe.

I am 15 and started keeping tropical marines a couple of years ago. Initially I started off with a 2-ft. glass and silicone-sealed aquarium (home-made). I now have a similar 4-ft. tank with several types of damsels, a butterfly fish, surgeon, trigger, etc. All are well.

The main differences with keeping marines and keeping freshwater fishes, apart from the obvious, is that marines must not be left to their own devices. However, I have found that a sea aquarium need never be cleaned out as such, as long as it has a good marine undergravel filter (mine are home-made).

The second point is that a marine aquarist must be patient. Start on a modest scale with hardy fishes. Isn't it worth the waiting? I have saved up my money over a long period of time to buy what I have now and I am well pleased. It has taken me time, mainly because I have had to save up for equipment, coral and fish. I am, however, not earning a wage, I believe, for the average working aquarist, if he is prepared to make his filters, tank, etc. (and not necessarily that even), marines are no more difficult or expensive to maintain than freshwater fishes. Here, I repeat, though, marines must not be neglected as many freshwater fishes are. Why not give marines a try? Good luck.

HUW COLLINGBOURNE
British Marine Aquarists' Association

Who Speaks for the U.K.?

WHEN it comes to organising authorities Great Britain must come out first in the fishkeeping hobby. From the Federation of Scottish Aquarist Societies in the north, through the F.N.A.S. and M.A.A.S. in the north-west and midlands areas, to the F.B.A.S. in the south, no area of the country is without its over-riding authority. Yet when it comes to a national level we have nobody that can honestly speak for the United Kingdom.

We hear that these groups actively co-operate with

Continued on page 283

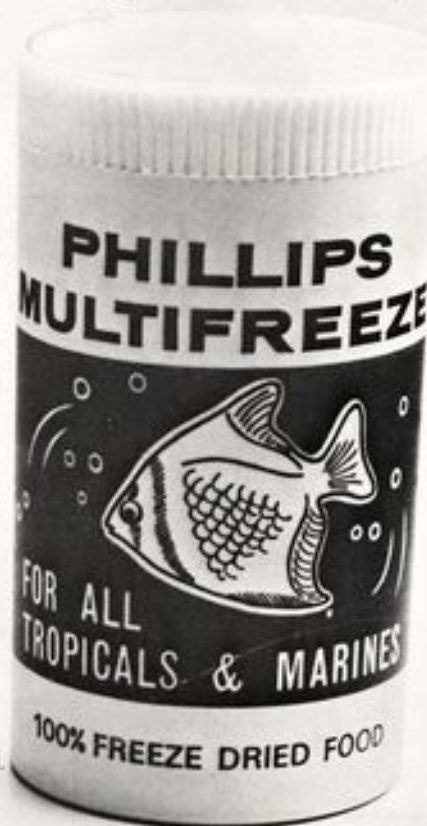
Phillips Multifreeze - the new 100% freeze dried fish food.

Do you know that freeze drying can bring you the best of natural and live foods with all the nutritious goodness stabilized and preserved. There's no destruction of valuable nutrients, no loss of flavour, no denaturation of vital proteins.

After intensive research and development Phillips have perfected the ideal freeze-dried food. Phillips Multifreeze contains a special selection of high-protein foods - homogenised for digestibility and carefully freeze-dried to hold all the natural flavour and goodness of roe, shrimp, beef, liver, egg, spinach and lettuce.

Phillips Multifreeze is as close as it can be to natural, fresh live food. With its rich 60% protein

content, Multifreeze is an exciting alternative to dried flaked foods for all tropicals and marines.



Phillips MULTIFREEZE

Phillips Yeast Products Limited,
Park Royal, London N.W.10.

In drums 5/6d.

"I saw your advertisement in PFM"

WHICHEVER



WAY

YOU



LOOK AT IT



THE "DUMPY" THERMOMETER
IS IN A CLASS ON ITS OWN

WITH EXCLUSIVE '12 O'CLOCK' READING FEATURE

JUST INSTALL WITH THE 12 O'CLOCK POSITION OCCUPIED BY THE TEMPERATURE NUMERAL CORRESPONDING TO YOUR THERMOSTAT SETTING. THE RED POINTER WILL REMAIN VERTICAL WHILE THE CORRECT TEMPERATURE IS MAINTAINED EASILY SEEN FROM ACROSS THE ROOM.

- The "DUMPY" relies on no adhesive for watertightness—It is vacuum sealed.
- It is no bigger than a florin and is without doubt the least conspicuous of any thermometer.
- It presents no hazard to fishes. No sharp projections to damage the scales. No toxic properties. No gap 'tween itself and the aquarium glass to trap fishes.
- The "DUMPY" fits so close to the aquarium glass that no scum or algae can obscure its dial.
- Each "DUMPY" is individually set to a fine degree of accuracy against a N.P.L. tested "master" thermometer.
- Its casing is corrosion resistant and the PVC suction ring will not perish. If damaged when scraping the aquarium glass a spare ring (price 6d) can be fitted in a few moments.

AVAILABLE IN FAHRENHEIT OR IN CENTIGRADE SCALE



PRODUCT

Price 7/2d

FROM YOUR DEALER ONLY

It is regretted that we cannot undertake to supply direct.

SINGLETON BROS (Electronics) LTD

TRURO HILL,
PENRYN,
CORNWALL

Please mention PFM when writing to advertisers

The Revolutionary POWERSTREAM SLIMLINE



- ★ *MOTORISED (CENTRIFUGAL PUMP) UNIT GIVES WATER CIRCULATION OF OVER 40 GALLONS PER HOUR*
- ★ *SLIM DESIGN MAKES FITTING IN NEAT CORNER EASY*
- ★ *MOTOR IS ABOVE THE UNIT - WHERE IT OUGHT TO BE (CANT FALL OFF THE BOTTOM)*
- ★ *WHISPER QUIET*
- ★ *COMPACT - NO EXTRANEIOUS WIRES OR PIPES AS WITH AIR OPERATED SYSTEM*
- ★ *READY AVAILABILITY OF SPARES AT REASONABLE PRICES*

and the all purpose POWERSTREAM CONVERSION UNIT

- ★ *A VERSATILE MEANS OF MOTORISING AQUARIUM PUMPING EQUIPMENT NORMALLY OPERATED BY AN AIR-PUMP*



- ★ *PUMPS 40 GALLONS AN HOUR*
- ★ *MOTORISES UNDERGRAVEL FILTERS*
- ★ *EASY TO FIT*
- ★ *QUIET IN USE*

send for complete price list
and free catalogue **NOW**

INTER-PET DORKING SURREY
Telephone: Dorking 3202/3

"I saw your advertisement in PFM"

There's a KING BRITISH remedy for most fish diseases you're likely to meet



Each King British remedy was tested for 12 months on over 500,000 fish in our own aquariums before being offered to you. So you can be sure you are getting a fine, proven product.



FOR EFFICIENCY, RELIABILITY AND EXCELLENT VALUE, buy the "King British" range of **AQUARIUM ACCESSORIES**.

King British SUPER SLIM OUTSIDE FILTER

- * Filtration rate approx. 12 gallons per hour
- * Will work on any aquarium pump

14/6 each

Set of 4 COVER GLASS CLIPS

Neat; easy to clip on; made from sturdy, hardwearing nylon. 3/6 set of 4

HEATER CLIPS 2/- each

King British FOUNTAIN BOTTOM FILTER 7/6 each

- * A high-quality filter at a fair price.
- * British-made, sturdy and efficient.
- * With secure locking cap.
- * Water/dirt intake all round base, giving greater collection area.
- * Double skin body to trap dirt.
- * Replaceable diffuser stone.



LOOK FOR THIS SYMBOL in your local shop. It stands for fine quality and genuine value for money.

KING BRITISH
AQUARIUM ACCESSORIES CO

Cannon Mills, Union Road, Bradford 7, Yorkshire.
Tel: Bradford 73372 and 74201.

Quick-acting cures for:

- * BODY SLIME..... 4/9 each
- * VELVET 4/9 each
- * WHITE SPOT 4/9 each
- * FUNGUS 7/9 each

And "King British" helps you to keep your fish healthy...

...with all these products essential to good aquarium care

* **GROW IT** A growth stimulant containing Vitamin supplements. "Grow it" promotes large, healthy fish and stimulates growth at express rate. It also promotes vigorous plant growth. Try it today in your aquarium...you'll be delighted with the results. Price 7/9d.

"**REST IT**"...a highly effective sedative; vital when introducing new fish into your aquarium.

SNAILS "DESTROY IT" rapidly rids the aquarium of snails, but will not harm fish or plants.

WHITE SPOT "AVOID IT" a very efficient aquarium disinfectant to be used as a preventative of white spot and other diseases.

"**OFF-IT**" a general pick-me-up and wide spectrum cure in cases where no definite ailment can be identified.

"**METHYLENE BLUE**" a treatment for flukes, fungus and white spot.

Price of all above 4/9d

A subsidiary Company of Keith Barraclough, Aquarist

Please mention PFM when writing to advertisers

LETTERS

continued from page 278

each other, but apart from the odd exchange of newsletters and personal correspondence what evidence is there for practical co-operation on a nation-wide scale? When do delegates from each of these groups meet to discuss matters affecting the hobby?

That this is needed is evidenced from the judging and show point of view alone. It is too easy to say in theory that such and such a body accepts another's rules but a different matter for the hard-working judge to put it into practice, especially if he is working outside his own particular aquatic area.

Matters also that could be settled by one authoritative body are the questions of boundaries. Just where does the Northern Federation end and the Midlands commence, or is it just a token and any and all aquarium societies are accepted, as is the case?

We need to get together and discuss the problem. Have any other readers any suggestions?

Liverpool

NORTHERN AQUARIST

An Explanation

YOUR Comments included in the editorial in the July issue referred to an article on water pollution in which, whilst the author's name was omitted, his London society's name was used. The East London Aquarists and Pondkeepers Association request that your readers be advised that the society had no knowledge of the article referred to and that the author was not a member of the Association.

We hope publication of this retraction will save any embarrassment to our members who lecture on water pollution and allied subjects, and stop any conjecture as to the author which could damage our respected members' standing within the hobby.

Thank you for your understanding and assistance on this matter.

R. DODKINS

Chairman, East London A. & P.A.

Not to be Recommended

I AM sure most aquarists are, as I am, grateful to the American aquatic trade for innovations that have found their way across the Atlantic to make the pursuit of our hobby easier or more enjoyable. Occasionally they do export some form of atrocity, but I realise that the merit of any product is largely a matter of personal opinion.

I have recently read of a new product, which, as far as I am aware, is not yet available in Britain. It is made of transparent plastic and resembles a small shopping bag; it is designed to be hung from a pram, cot or playpen. When filled with water and furnished with plants and fishes it forms, says the manufacturer, a 'learning

3*

and development aid to baby in his first year'. What it forms for the luckless fishes we are not told.

Such a product will, I hope, be condemned by readers of PETFISH MONTHLY. I urge them not only to refuse to buy it but to complain to and, if necessary, boycott any dealer offering it for sale.

Manama, Bahrain

R. S. HOLMES

Keeping Tubifex

IT is true, as Arpee says (Personal Comment, October), that people all have their own favourite ways of keeping Tubifex fresh, but I really have found that keeping it submerged in water all day long, unless under a dripping tap, is not the best way of dealing with the problem. I am 'allowed' to use the kitchen sink from after the evening meal until I leave for work in the morning, so the Tubifex is kept under a dripping tap for this period. When I leave for work I empty out almost all the water from the container, leaving just enough to keep the last ¼ in. of worms wet, and put the container into the coolest spot I can find until the evening. I have found that in hot weather the worms keep much better like this.

Skrewbury

L. SANDERSON

Oscar Winner



Scandinavian aquarists have an 'Oscar' for award annually and the recipient this year (for 1969) was Gerhard Brünner of Hamburg, the internationally renowned aquarium plant specialist. His photographs and books (the latest in Swedish is AKVARIEVÅRTER) have been widely praised. Presentation of the 'Oscar' was last month in Malmö, Sweden.



Transatlantic TOPICS

By JIM KELLY

MANY of our T.T. readers have written to me asking if I can publish a list of fish prices for both America and Canada. This is an almost impossible task because, as in Europe, the price of fish varies from country to country, city to city, shop to shop. On top of that, wages vary: the New World worker receives much higher remuneration for his services with a higher cost of living index.

As a compromise I could quote a few prices taken from a recent wholesaler's list, a catalogue of fishes that would make any livebearer-lover's mouth water because it listed no less than 11 types of swordtails, from 'brick tuxedo' to 'velvet hi-fin', and some 14 different varieties of platys. Average price is about 11 cents; dearest was the albino sword at 55 cents. Guppies are listed from 5 cents to 1 dollar.

On the new angel fish bred by Carl Naja (see T.T. PFM April, 1970 issue), the following prices were quoted (wholesale, remember): solid gold breeder, 100 dollars; harlequin angels, 100 dollars and young 'butterballs', 25 dollars. Do you still want to Go West?

Florida has now come up with a rival yellow angel produced by Robert Wingate. It will be interesting to see how the newcomers affect prices. After all, there is nothing like a little competition to do just that, is there?

* * *

Though the organised hobby in both the New and Old Worlds has much in common, there seems to be a difference of opinion when it comes to the election of officials to run our various groups, especially the specialist societies.

Writing in the HUNTBARSCHER BUL-

LETIN, Al Klee puts the American position in a nutshell when he quotes from the original bye-laws of the American Association: 'That elected officials must not be concentrated in one particular geographical area of the country.'

Here in Britain, though admitting that country-wide representation would appear to be the democratic way, we didn't find widely dispersed officials to work well in practice. When spread out all over the place, committee members found it hard to get together for regular meetings. Today's groups favour management based in one local area, formed by members willing and able to meet together regularly.

Perhaps the differences between our two countries lies in yet another bye-law of the American Killifish Association: *That all official business must be carried on via the mails.* Even with our so-called fast fivepenny postage, I shudder to imagine the consequences of such activity—or lack of it!

* * *

Conservationists these days must be feeling a little like the early Christians did when the Roman Emperor Constantine made them legit! Though I hate to add to their many problems I think they should look in to the wholesale squandering of life that is taking place in South America by certain fish-collectors.

Are the powers that protect wild life aware that one member of the ancient herring-like freshwater fishes, the arowana (*Osteoglossum bicirrhosum*), is collected by chopping the heads off the adult fish?

Paradoxical it may seem, but true. The arowana is a mouthbreeder from northern South America and at the first sight of danger the young fish flee for the safety of their parent's mouth. Those collecting this species for the world's markets know this, hence The Lord High Executioner bit to capture the youngsters trapped in the mouths of their parent.

Unlike the Gilbert and Sullivan character, the collector's actions aren't amusing and if allowed to go on unchecked could result in yet another creature being added to that long list of endangered species.

* * *

The article on the spiny eel in the August issue of PFM mentioned that the breeding of *Mastacembelus* species has been observed. Spawns of these fish in captivity have been reported from the States: the eggs (up to one hundred at a time), were laid in amongst the plants floating at the surface of the aquaria: the eggs hatched out in approximately 3 days. Here are the details for those buffs who want to try their hand at breeding these eels: temperature, 80°F (27°C); pH 6.8 to 7.2; hardness 150-180 p.p.m.

* * *

The successful fancy guppy breeder amongst our readership will need no urging to follow the advice that a regular, partial change of aquarium water is beneficial to the fish. But now we have confirmation from no less a person than Mr Schneller, professional aquarist from Paramount Aquarium, New York and Florida, previously employed by the Aquarium Hamburg.

Chatting about his past experiences in breeding tropicals, he said in an interview that he used to raise angel fish to commercially saleable size in just one month. One of the major contributing factors to this rapid growth was that one-third of the water in each aquarium was changed weekly.

Come on now, you doubters, make a change for the betterment of your fish. It costs nothing to try out.

* * *

Gerry Carrier, executive editor of ANCHOR, San Francisco, has this tip to pass on to those readers breeding *Brachydanio* species. Because their fry prefer to feed at the surface of the water, food, preferably liquid, should be introduced either by letting it run slowly down the inside glass or alternatively down the blade of a knife held at an angle to the water. Introduced this way, the food will float at the surface where the young fry can get at it.

PETFISH MONTHLY visits

Mr R. Forder at Home

Visit and photographs
by CLIFF HARRISON

CRYPTOCORYNES and sword plants in luxurious profusion, bushes of ludwigia and blue-flowering giant hygrophila, clumps of alternanthera and bacopa and many other aquatic plants admired by aquarists all growing abundantly. A sight to be imagined—but what has to be added is that few of these plants were being grown under water in the way that is familiar to us. This was one of the eye-openers for me when I enjoyed a tour of Mr R. Forder's fish and plant houses, on my visit to his Hillingdon, Middlesex, home during the summer.

Ron Forder's experience in fishkeeping goes back over 20 years, and it was in his early days that he helped to establish the Uxbridge & D. A.S. At that time he was breeding angels and tetras in quantity, and as time went on he devoted more and more of his efforts to studying and growing aquatic plants. Eventually, about 3 years ago, he decided that fish would have to take second place and so set about adapting and expanding his outbuildings. These now consist of two plant houses, each about 10 ft. by 6 ft. and prominently featuring a large pond, and his main 12 ft. by 10 ft. fish house, which incorporates numerous ponds and tanks at various levels. The heating for all these buildings comes from the house gas-fired central heating system and is controlled by a separate thermostat, which operates a bank of radiators in the main fish house and coils of stainless-steel tubing in each of the ponds.

In addition to the normal angle-iron aquaria, numerous fibreglass water storage tanks (the type used nowadays in lofts) are also being used to provide the growing space demanded by some of his larger plants. The roofs of the buildings are mainly glass, and this has to be shaded during the summer months to keep temperatures to a bearable level; experience has shown that the translucent fibreglass panels often used by professional growers in their greenhouses are generally unsuitable for the propagation of submerged aquatic plants. Outside Mr Forder's houses are a collection of ponds, joined together by a shallow stream running half the length of the garden: a concealed pump circulates the water from the pond at the lowest level back into that at the highest.

On first meeting Mr Forder a visitor might be forgiven for misjudging this quiet, unassuming man: his knowledge and expertise, which must rank him with some of the best known names in this specialised side of the hobby, are quickly revealed, however, as he describes in detail the requirements of a particular plant, its leaf structure or its colour variations. This is in part due to his astonishing memory for facts that others might dis-



Mr Ron Forder holds one of his specimen plants growing in a container he has removed from its tank

miss as trivia, but more important is the depth in which he pursues his studies. His most valued possession must be a reference book on climatology, and this appears to be the key to his success: he can ascertain temperatures, rainfall, seasons and a host of other factors for any region in the world, factors of which the majority of aquarists are apparently woefully unaware. It seems that most of us buy plants without any real knowledge of their requirements, and the result is that, by trial and error, some species come to be known as 'difficult' while others are 'easy'. However, some drastic rethinking is demanded on just how these so-called 'difficult' plants manage to thrive in the wild, and Ron Forder can offer much to correct many of the false notions about raising them.

Firstly the cryptocorynes. The only time these plants are normally submerged in their natural state is when the rains come; when that happens they disappear under perhaps 5 or 10 feet of muddy water, and for about 2 months or so they 'rest' until the floods slowly subside

and they are returned to their usual damp and humid environment for the remainder of the year. It is, we are told, unnatural to expect them to thrive in conditions they usually encounter only during their rest period—and perhaps this is why they are generally regarded as a



Above: a view of some of the fibreglass water storage lort tanks used by Mr Forder for cultivating some of the larger tropical water plants

slow growing species. Ron Forder follows Nature to his best ability by immersing his crypts in water during late May; in August he slowly drains the water, over a period of 10-14 days, to below the level of the plants, which are then ready to be replaced in his warm, humid plant house.

Most of his plants are kept in flowerpots or similar containers to facilitate their being moved around, and they are grown in clean, sieved earth with a thin layer of gravel on top to prevent any clouding of the water. Crypts, like other so-called bog plants, prefer to be kept well-moistened though not actually running with water. In addition to their tendency to show a reddish tinge when submerged, crypts also develop quite different leaf shapes in the two growing situations: this can lead to immense difficulty in identification. For that reason Mr Forder has made informal approaches to the F.B.A.S. on the subject of appointing a number of specialist plant judges (classes for plants at shows currently are handled by regular class 'A' judges).

Three further tips Mr Forder has for us: where possible, keep cryptocorynes in soft water, otherwise the leaves will acquire a white lime covering on their surface when they are slowly taken out of the water. Point two, a sudden change from hard water to soft will most certainly cause all their leaves to rot away. Lastly, crypts do not need acid water; this fallacy probably originated from the fact that, in Nature, as the flood waters subside the decaying vegetation remaining does tend to acidify the soil. Incidentally, there are a few varieties of cryptocoryne to which these points do not apply, but these are ones not frequently available to aquarists.

Another plant genus with which Mr Forder excels is the sponogetons. These plants 'rest' either out of the water altogether or in an unheated aquarium for several months. After the plants flower, in mid-summer, a slowing in growth will be noted. Mr Forder places the plants normal way up in a box of damp sand, with the tops about $\frac{1}{2}$ in. below the surface, and leaves them for 2 or 3 months, when new shoots start to appear. The plants are then repotted in fresh earth, a sprinkling of gravel is



Right: lilies in flower in an attractive formal pond built in Mr Forder's plant house. House plants grow in the background

In his garden Mr Forder has landscaped these attractive informal pools and a stream via which water is pumped from the lower to the higher pool



added and they are ready to be returned to their tank. With this treatment the leaves will grow with amazing speed and within a fairly short space of time you will have a perfect centrepiece for any aquarium. However, this 'resting' should only be allowed for mature plants with fully-developed corms—the seedlings so often offered for sale will not survive this treatment. Most spongoetons produce flowers and subsequently seeds (*A. stachyosporus* being an exception), and to ensure this optimum conditions are an even temperature throughout the water, diffused lighting, moderately soft water and high humidity for flower and seed development; incidentally, most of the seeds will float for an hour or two after leaving the parent plant, thereby giving sufficient time for their collection before they are lost in the gravel.

Many other plants, including those mentioned in the opening paragraph of this article, should really be grown in marshy conditions, says Mr Forder, and this almost

certainly accounts for the slow growth of scorus rushes, hair grass, four-leaf clover, heteranthera and others in a normal aquarium. Many echinodorus varieties also prefer being kept in damp and humid conditions for much of the year, and Mr Forder has some excellent specimens on view; he recommends that care should be taken with this plant to establish whether it is from the northern or southern hemisphere, since this will influence its growth period.

Other species grown by Mr Forder include tropical lilies, water hyacinths, some of the most beautiful ambulia and cabomba to be seen, bushy and feather-like as it should be, and numerous fine floating plants such as azolla and riccia. Perhaps even more noteworthy is the absence of algae—a very minimum of which was observed in his tanks and ponds, surely a reflection of how well he adjusts the environment to the needs of each individual plant.

Mr Forder keeps very few fishes, limiting himself in the main to more common livebearers, the smaller barbs and zebras—these being no danger to the more delicately leafed plants. Yet, as of old, he still manages to win top prizes with them, and incorporates them into the furnished aquaria he exhibits with such success at shows around the country. His Society, Uxbridge & D. A.S., of which he is joint vice-president and show secretary, entered a particularly impressive 'Moon Rocket' tableau at 'The Aquarium Show 1969, and Mr Forder's own efforts undoubtedly contributed greatly to the Society's 'first' award in the furnished aquaria section last year.

Despite the enormous potential of his set-up and collection if it were to be turned into a commercial venture, Mr Forder's plans for expansion are made purely on the basis of his own interest in the hobby; he finds it a particularly relaxing pursuit after the pressures of running his own business. The many novel features he has incorporated into the design of his fish and plant houses

Ron Forder's Own Plant Food Formula

Take a handful of clean clay obtained from a source that is uncontaminated, especially by pesticides, and add to it a half-teaspoon of Bio Liquid Plant Food. Mix well, and it is ready to be placed lavishly around the roots of lilies etc. in their planting crates. For greater convenience the wet mixture can be shaped into small pellets and dried out slowly; these pellets are then pressed into the gravel near the plants needing nourishment, and will provide this with a minimum of disturbance to the aquarium. Mr Forder does not find that bonemeal or other additives are necessary as effects of them are often unpredictable. He does advise the use in aquaria of gravel no finer than $\frac{1}{2}$ in. grade, to prevent the choking of plant roots.

Continued on page 288

In his garden Mr Forder has landscaped these attractive informal pools and a stream via which water is pumped from the lower to the higher pool



added and they are ready to be returned to their tank. With this treatment the leaves will grow with amazing speed and within a fairly short space of time you will have a perfect centrepiece for any aquarium. However, this 'resting' should only be allowed for mature plants with fully-developed corms—the seedlings so often offered for sale will not survive this treatment. Most spongoetons produce flowers and subsequently seeds (*A. stachyosporus* being an exception), and to ensure this optimum conditions are an even temperature throughout the water, diffused lighting, moderately soft water and high humidity for flower and seed development; incidentally, most of the seeds will float for an hour or two after leaving the parent plant, thereby giving sufficient time for their collection before they are lost in the gravel.

Many other plants, including those mentioned in the opening paragraph of this article, should really be grown in marshy conditions, says Mr Forder, and this almost

certainly accounts for the slow growth of scorus rushes, hair grass, four-leaf clover, heteranthera and others in a normal aquarium. Many echinodorus varieties also prefer being kept in damp and humid conditions for much of the year, and Mr Forder has some excellent specimens on view; he recommends that care should be taken with this plant to establish whether it is from the northern or southern hemisphere, since this will influence its growth period.

Other species grown by Mr Forder include tropical lilies, water hyacinths, some of the most beautiful ambulia and cabomba to be seen, bushy and feather-like as it should be, and numerous fine floating plants such as azolla and riccia. Perhaps even more noteworthy is the absence of algae—a very minimum of which was observed in his tanks and ponds, surely a reflection of how well he adjusts the environment to the needs of each individual plant.

Mr Forder keeps very few fishes, limiting himself in the main to more common livebearers, the smaller barbs and zebras—these being no danger to the more delicately leaved plants. Yet, as of old, he still manages to win top prizes with them, and incorporates them into the furnished aquaria he exhibits with such success at shows around the country. His Society, Uxbridge & D. A.S., of which he is joint vice-president and show secretary, entered a particularly impressive 'Moon Rocket' tableau at The Aquarium Show 1969, and Mr Forder's own efforts undoubtedly contributed greatly to the Society's 'first' award in the furnished aquaria section last year.

Despite the enormous potential of his set-up and collection if it were to be turned into a commercial venture, Mr Forder's plans for expansion are made purely on the basis of his own interest in the hobby; he finds it a particularly relaxing pursuit after the pressures of running his own business. The many novel features he has incorporated into the design of his fish and plant houses

Ron Forder's Own Plant Food Formula

Take a handful of clean clay obtained from a source that is uncontaminated, especially by pesticides, and add to it a half-teaspoon of Bio Liquid Plant Food. Mix well, and it is ready to be placed lavishly around the roots of lilies etc. in their planting crates. For greater convenience the wet mixture can be shaped into small pellets and dried out slowly; these pellets are then pressed into the gravel near the plants needing nourishment, and will provide this with a minimum of disturbance to the aquarium. Mr Forder does not find that bonemeal or other additives are necessary as effects of them are often unpredictable. He does advise the use in aquaria of gravel no finer than $\frac{1}{2}$ in. grade, to prevent the choking of plant roots.

Continued on page 288



Personal COMMENT

by
ARPEE

SEVERAL years ago when I was first intrigued by the mysteries of breeding angels I got a little heady over the success of a batch or so, and it was tempting to think of an unbroken and profitable 'production line' stretching away into the future. This cosy illusion was interrupted at times by the intrusion of such unpleasant thoughts as to what would happen if my breeding pairs went off the idea. As it turned out, I was quite pleased to settle for something like an unbroken year, during which I raised a lot of fish and found out some interesting things about them. Then came a long period of nothingness,



... an unbroken 'production line' stretching away into the future ...

Mr R. Forder at Home

continued from page 287

are indicative of his thoroughness and attention to detail. Despite the considerable work that the care of his plants demands, he is a keen photographer and has built up a fine collection of colour slides of his charges. As a result he has been increasingly in demand for lectures to societies in many parts of the country, a duty added to

followed by a short period in which a few odd spawnings produced a few very good fry, and then, for all of the past year, 12 months of barrenness.

I had long since ceased to worry about the consequences on my fishkeeping of this sort of circumstance—there are, after all, plenty of other diversions—but I felt it was a challenge to have to accept such a state of affairs. Nothing very much seemed to improve the situation. I made copious water changes and played around with the temperature now and again. The fish got extra rations of earthworms, and tempting clumps of bamboo leaves were put in the tank from time to time to remind them of their responsibilities, but they remained uninterested. Now I am a great believer in psychology when it comes to animals and it occurred to me that it might pay off to introduce some proven compatible fish of other species to the angel tank, just to break the monotony.

For obvious reasons I decided that it would be the festive cichlid for this experiment. It had long since caught my eye and I was much attracted to its unique body shape and to its bold black bar set at such a restful angle, quite an effective foil to the markings of the angel itself. It was an obvious fish for the role because the two species swim together in their native waters, and their association could have meant a happier performance from either or both.

The festive is not the most impressive of fish when viewed in the shop, as it suggests weak coffee and cream. Its sedate means of progression also gives the impression that it is a little stodgy and uninteresting. Its head reminds me inescapably of that of a sheep, and if that is the way it strikes you, it will not attract many points for latent intelligence, a characteristic often attributed to members of the cichlid family. All in all, this is the fish the other chap buys, but not you. It is said to grow to about 4 inches, to be rather timid but peaceful, and to have no unpleasant habits like teasing up the plants. This makes it much more of a proposition, particularly when it is also omnivorous and won't throw a tantrum if earthworms are missed off the menu from time to time. The end came, so far as my resistance was concerned, when I saw an illustration of a pair in breeding trim: although this was probably exaggerated by the inaccuracies of colour photography and reproduction there was no doubt at all that here were hidden depths, so I decided to plumb them.

I managed to secure a couple of nice fish about 2 inches long, and I consigned them to an 18 inch quarantine tank immediately below that occupied by the five large

those already incurred in the Uxbridge Society and as a member of B.A.S.S.

For those (such as myself) who have for too long ignored all but fishes in the hobby, Ron Foeder's activities are a welcome revelation. Let us hope that a little of his knowledge might rub off on us all and make our aquaria into creations of even greater beauty and satisfaction.

Mr Forder has kindly offered to answer plant-growing queries from readers of PFMS in our columns. Please address queries to Mr R. Forder, c/o PFMS, 354 Garratt Lane, London, S.W.17—EDITOR.

Angel fish pairs, after a long period of regular and satisfactory spawnings, will often stop breeding for a time. This is discouraging to the breeder but there is no known surefire method of starting a pair breeding again.



angels. There were several rocks in this in case they wished to shelter, but otherwise they were unaccompanied by anything other than gravel and water. For about a week they got on very well and fed delicately but adequately on anything offered, and they were certainly not in the least bit timid. Then the larger of the two began to bully the other, which spent much of the day cowering under a rock overhang. The disputes rarely ended in physical combat, and there were no torn fins, but both fish took on enhanced colours, mostly slaty greys and blacks with the familiar bar completely disappearing on these occasions.

I was in no great hurry to put them with the angels, which are about twice their length, so I allowed them to grow on a bit in their separate quarters. If you will by now have guessed that the angels then spawned for

the first time in a year, you will have guessed correctly, as that is just what they did. Furthermore, the parents guarded the eggs for several days before I removed the female. The male remained and saw the first fry begin to swim, but then the temptation became too much for him and he made away with them.

To me this is a first-class example of how very careful you have to be when writing or advising about fish. If I had put the festives into the angel tank before that spawning there would have been a lot of temptation to believe that they had something to do with it. As it is, I could state that angels can be encouraged into spawning by placing some festive cichlids into a tank beneath them, but I won't! But this is the sort of coincidence that gets people thinking and talking—perhaps, indeed, fish have their own bush telegraph.

Readers' Queries Answered



Imperfect Finnage

My first attempt at spawning rosy barbs resulted in about 250 fry. However, several of them have only rudimentary caudal fins or half a caudal. It seems a pity to throw so many out after a first success—is there any cure for this ailment and can you suggest the cause? They were spawned in a bare tank on nylon mops and

raised on Liquifry, brine shrimp and powdered food. Some are now in planted tanks and some in a bare 4 ft. 6 in. tank with sponge filters. I also notice that I have one or two young sailfin mollies with the same trouble in a different tank.

Malformation of finnage can be an inherited condition and a whole brood may be malformed, but this is

more likely to take the form of a complete absence of a particular fin; as the mollies in another aquarium are also displaying these symptoms it would seem that disease or mismanagement is the more likely cause. Günther Sterba in *AQUARIUM CARE* specifically mentions barbs in connection with the prevalence of this condition and suggests that it can occur throughout several generations of fish if the water in the rearing tank is not changed sufficiently often. Unhealthy tank conditions give rise to the growth of bacteria, including those that cause tail- and fin-rot. Fin-rot can be successfully treated with the drug phenoxetol, which can be obtained in proprietary forms from your aquatic shop.

More answers on page 292

So You Want to Make Some Money?

By D. W. GODFREY



Parent discus with young (not in focus, to right of picture)

It all started in a local aquarists' shop. As I waited my turn to be served, I heard the shopkeeper say: "The person who manages to breed discus will be able to retire!" I stared hard at him. Could this be right? Could you make enough money breeding this one fish that you need not work again?

Seemed hard to believe, yet to someone like myself who seeks only to live a life of luxurious idleness it was an entrancing thought. After all, my wife and I had had an interest in the hobby on and off for some time; we thought we understood the rudiments and, anyway, surely it couldn't be that difficult to breed discus! Talking about it later with my wife, the decision was taken that we would try to find out as much as possible about discus and then re-assess the situation. So we read the books and chatted to those we thought knowledgeable on the subject, and whilst they didn't give us much chance of succeeding, it was widely agreed that there would be a ready market for home-bred fish. It seems

It has been often alleged that there can be gold in fish breeding but attempts at realisation can put the process on a par with rainbow chasing. Here is a breeder who chose discus...

that they manage to breed discus fairly easily in Singapore and America, yet aquarists are all too seldom able to emulate them here in Britain.

Eventually we decided we'd have a bash, and although it might cost a bob or two to get started, we reasoned that the speculation would be justified if we succeeded, and if we didn't—well, we didn't think about that too much! Having already a shed in the garden we bought a 5 ft. angle-iron tank, coated it with polyurethane and placed it under the window where we hoped it would receive some sunlight. We made a lid from perspex rather than glass; not only is this lighter but also it wouldn't shatter and we could cut it more easily when making access for filter tubes etc. Unfortunately the perspex we had was only $\frac{1}{2}$ in. thick, and subsequently distorted with the heat.

We filled the tank with a mixture of distilled water and rainwater, giving us a hardness of less than 1 D.H. We bought a power filter reputed to have a turnover of about 120 gallons/hour, and by using Irish peat moss we brought the pH to approximately 5.8. No gravel was used on the bottom and no aquatic plants were present. We placed in the tank two large flowerpots, into each of which we inserted a plastic Amazon sword plant held in place with some lime-free gravel. After stabilising the temperature around 82°F, we were now ready for the fish.

This was the crucial part. Obviously we had to have a pair if we were going to succeed, but where to go for a truly compatible pair? Knowing the difficulty involved, most dealers won't guarantee two fish as being male and female, let alone say they're a breeding twosome. We gave a lot of thought to this problem and eventually purchased a pair of brown discus from a gentleman who needs no introduction where these fish are concerned (he was, after all, the first to breed discus in this country); he was prepared to guarantee the fish as a breeding pair. Once in our tank they quickly settled down and their colours were strikingly beautiful as they swam regally in the amber-tinged water inspecting their new home. For my part, I was impatient for them to start breeding. Only then could I begin to recoup some of my outlay, and be on my way to the fortune the dealer had spoken of.

We tried them on a variety of food, most of which they rejected, and we ended up with them accepting only two: ox heart and daphnia. Now ox-heart I can manage all the

year round but, as this was mid-winter, the daphnia was a real problem. The dealers wanted 1s. for about six daphnids in a bag, but as I was supposed to be making my fortune, not theirs, this was out of the question, and so my discus had daphnia but rarely.

Three weeks after we bought them the discus spawned. I saw the eggs and couldn't believe my eyes. But there they were on the flowerpot, and both parents were keeping a very close watch over them, I rushed like a maniac indoors to tell my wife, and together we gazed over them. So we can't do it, eh, we said, repeating what we had heard so often from others to whom we had confided our intentions. Can't do it—we'll show 'em! We went to bed that night feeling 10 ft. tall and overjoyed at our success.

Next morning all the eggs had gone. Disappeared completely, and the parents swimming quite unconcernedly up and down the tank. Now how do you tell a pair of discus that they've eaten your profits? I thought of withholding their food, but realised they might then eat any subsequent spawnings through real hunger. My wife brought me back to sanity. 'Of course they'll spawn again, and very soon according to all accounts', she said, 'so let's use the time trying to find just why they ate the eggs, and then take precautions to prevent it happening again.' So we began by making a chart listing all relevant data regarding the fish: their behaviour pattern, if discernible, and our action to date.

After a lot of investigation there still wasn't much for us to go on, so eventually we decided to remove the strip light above their tank, thus making it much dimmer within, and we also changed half of their water for distilled. Eleven days later the fish spawned again, this time on the other flowerpot, and for me the hypertension started all over again. Next morning, joyously, the eggs were still there, and things were looking good, but my joy turned to sorrow as, within 24 hours, the eggs once again had irretrievably vanished. Swallowing our sorrow, we brought the chart up to date and tried again to find a common denominator, realising all the while that it was

still rather early in the proceedings for a pattern to show itself.

In all, the discus spawned ten times in a space of 8 weeks, and although we gradually became less excited as each successive spawning was eaten, still we religiously kept our chart up to date, and by a process of elimination, we slowly brought conditions in the tank nearer to those we thought necessary for a successful spawning. Gradually we knew we were winning, as the eggs lasted longer and longer before disappearing, and we felt sure it was only a matter of time before we achieved a hatching.

By now, of course, the tank was looking very different from when we started, with all lighting removed and only the slightest amount of sunlight filtering through the gloom of their tank. We had removed one of the flowerpots and had replaced it with an amphora which we had split down the middle, and one of these halves placed in the water made an excellent cave, into which the fish immediately disappeared. From then on it became their permanent home. As they looked so happy and contented now, we had high hopes for the future, although after so many spawnings we were afraid that the female must be producing less eggs than when she started the series, and therefore we wondered whether we should rest them before trying again. But since we thought that we were so near to success we decided to give them one last opportunity to bring it off, before giving them a well-earned rest.

On 4th June this year they spawned once again, and we proceeded to follow a plan we had formulated based on our findings from the chart we kept. The details must of necessity remain vague, since we cannot be sure that they would apply to discus in general; they were based on the behaviour pattern of one isolated pair, but basically the principles we followed are the following.

The water must be very soft (although whether it needs to be less than 1 D.H. as is generally advocated is questionable; certainly the water in our tank was 2 D.H. at the time of spawning and, later, because of the large unglazed flowerpots and amphora, the hardness increased to almost 3 D.H.). But the water must be salt-free. The pH



A group of the young discus that were bred as described in this article. They form part of a total batch of 71 youngsters.

was kept at around 5.8 by using continuous peat filtration, which also presumably keeps down the bacteria, although again we did make use of ozone, which may have helped. The temperature fluctuated between 82° and 85°F. We used no form of artificial lighting and no aeration, but the filter return pipe was connected to a long perforated tube which ran above the middle of the aquarium, and the filtered water was returned to the tank in a way similar to rain, which had the effect of aerating the water.

Well, by following this fairly standard procedure we managed to achieve the hatching we so badly needed. We were absolutely delighted, of course, and watched thrilled as the parents swam sedately around, the fry staying in a swarm on their flanks, all the while nibbling and tugging at the ever-present food supply. What a moment this was for us: this sight made all our efforts worthwhile. All our disappointments were forgotten as we watched the parents proudly parade their young before our delighted eyes—a great moment!

The fry quickly grew on, and as we didn't want to foul the tank with salt because we hoped for further spawnings later, and since we were not convinced that brine shrimp was the best food we could provide, we decided against feeding the fry with it, and instead, when they were

about 3 weeks free-swimming, we started them on scraped ox heart. They ate this with relish, and interspersed with sifted daphnia and cyclops this diet complemented the natural food they were still taking from the parents' skin.

After 5 weeks of free-swimming we moved them to a separate tank of their own, and on counting them as they were transferred we found that we had 71 baby brown discus. Within 3 days of the fry's removal the parents spawned yet again, and this time a far larger quantity of eggs was deposited on the flowerpot. By using the same technique as before, we watched the eggs hatch, saw the alevins wriggling and, at the time of writing, this brood is now free-swimming and we are hoping to rear them successfully.

In all honesty I must confess we have not yet made our fortune, nor even covered our expenses, yet my wife and I have derived an immense amount of pleasure from this venture, and not least from the fact that we succeeded against local opinion in rearing discus to a saleable size, and as the discus happens to be the very first fish we have ever spawned—well, we couldn't complain, could we?

Standing in our local aquariums' the other day, someone was heard to remark: 'Now if you wanna make some real money, how about red-tailed sharks...?'

Readers' Queries Answered

continued from page 289

Stranger in the Butt

Can you please help me identify a strange creature that has appeared in small numbers among mosquito larvae and bloodworms in my water butt. It is about 1/2 in. long in the body, sausage-shaped, has grey upper parts and pale under parts with a thin tail the same length as the body. It moves through the water concertina fashion like a caterpillar. Is it a safe live food if it gets mixed in with the mosquito larvae and bloodworms when feeding my fish?

Your grub-like creature is the 'rat-tailed maggot'. It is the larva of a hover fly (*Eristalis*) and you will find that the long breathing tube (tail) is capable of very great enlargement indeed—to several times the length of its body. In our experience few fishes appear to relish this animal as food; it does no harm if present with live food but it would be advisable not to add great numbers to an aquarium since deaths of the unconsumed creatures might produce a pollution problem.

Scientific Names

I am interested in the meanings of the Latin names of fish and have not been able to find another book, besides EXOTIC AQUARIUM FISHES, by W. T. Jones, that explains them. The meanings of some of the names are fascinating and I should like to take the study further. Can you suggest any other publications that will help?

It is in fact inaccurate to speak of 'Latin names' since zoological and botanical nomenclature also employs Greek forms in the construction of 'scientific names'. Your interest in this subject would probably be quite well served by one of the dictionaries of Latin and Greek roots commonly used in scientific names for all kinds of animals and plants (many of the word roots turn up over and over again in all these names). Your local library should be able to help here. For British fishes a useful book is KEY TO THE NAMES OF BRITISH FISHES, MAMMALS, AMPHIBIANS AND REPTILES by R. D. Macleod (Pitman).

Treatment Risks

I have recently lost a pair of dwarf cichlids with gill flukes—or rather the male died with gill flukes but I suspect I killed the female trying to cure her! I haven't had one fish that has survived my treatment! I seem to overdo it, and I am feeling very despondent about it.

One sometimes suspects that as many fishes are killed by over-anxious aquarists as are killed by disease. Never be too anxious to diagnose disease too rapidly. Rely first of all on good aquarium management—keeping tanks clean and free of detritus, quarantining new fish and cleansing new plants and being careful with live foods. If you are certain of the disease involved, take advice from your local shop, buy the correct drug and follow the instructions given with it. Do not mix drugs—if one doesn't appear to work do not pour another one into the tank immediately. You do not give full details of the treatment you have applied, but if the fish do die in spite of your care, do not despair. Knowledge of fish pathology is still in its early stages. Many diseases now have specific cures but there is still a great deal to be learnt and, of course, it may be that the fish you are trying to cure have already gone beyond the stage at which the drugs available can be helpful.



GUPPY

World

RED guppies and plants of the potato family don't have anything in common but in some fish houses they come together in an interesting way.

Capsicum is a tropical shrubby genus of the potato family, yielding cayenne pepper (the Hungarian version is named paprika). If mixed with the guppy's food this pepper can temporarily enhance the red coloration of the fish and could be responsible for some extra points for colour. Points that could be the difference on the show bench between a red or a green card—even any card at all!

Looking through dozens of judging

sheets to check my theory, examining results spread over many years and just as many judges, I was surprised to find that the average difference between a first and a third award was but 5 points. Little enough when

By PETER UNWIN

spread over the spectrum of 100 possible points.

Meanwhile, back in the fish room, addicts of paprika have found that feeding with it had no bad effects on their guppies; according to some you cannot give too much of it (this I

would tend to treat with suspicion). Though the heightened coloration is temporary, it can be quite startling. It can only happen if there is already some red pigmentation present. Even this 'hot' stuff cannot enhance what isn't there already.



Whilst on the subject of dietary additives, how do you regard the matter of artificial flavourings in fish foods? The guppy does not go off its food very often, rather the contrary, but the odd case of anorexia does occur and it is as well, like the Boy Scout, to 'be prepared' for when it does.

Fishermen, those followers of Izaak Walton, who prefer to catch their fish the hard way, have known for some time that fish are often tempted by the odour rather than the visual attractiveness of their lures. Making use of this fact has resulted in better catches.

Some of the common additives used that could also be tried by the aquarist are oil of anise, oil of pep-

Continued on page 298

Guppy Types



THIS guppy, with a tail half-way between the long narrow caudal fin of the scarftail and that of the broad delta, has been the subject of controversy ever since it put in an appearance. It has been in and out (of the Standard Handbooks) more often than my grandfather's suit. Main opposition came from a number of breeders who said this guppy was not true-breeding but merely a sport or throw-out from other strains.

It was first named by the late Dr W. T. Innes in 1950. In his magazine THE AQUARIUM, he wrote that he had just received some guppies from the Aquarium Stock Company, New York, bred originally by a local cabinet maker, Paul Hahnel. Though Paul had referred to them as his 'aqua strain', Dr Innes thought the word flagtail more appropriate because of their beautiful

No. 5: The Dovetail

The outline at the head of the article depicts the dovetail standard (by courtesy of the F.G.A.)

red, white and blue coloration.

A year later, at the Aquaria Show held at Olympia in London, George Phillips introduced them to these shores. At the show they soon attracted the attention of the visitors and when asked during an interview with a newspaper reporter what he called them, Mr Phillips admitted that they were so new that they were nameless. The enterprising reporter, smelling a good story, noticed that some of the male guppies displayed a 'Stars and Stripes' pattern in their tails. In his paper, next day, he

referred to them as flagtails. The name stuck—even if the pattern didn't!

In 1969, a similar guppy brought over from Europe was substituted for the flagtail under the German name of *Fischer*. Because the translation of this was 'fan', a fish we already had a standard for, the specialists changed it to dovetail.

In the early days broods from this variety were small but the males coloured up very early on in their lives. The long flowing tail fin didn't develop until they were some 3 to 4 months old. It is too early to make similar predictions about the brand new dovetail.

The Deutsche Guppy-Gesellschaft, the German guppy association, and the F.G.B.S. displayed a very similar fish in their standards under the title of 'fantail'.

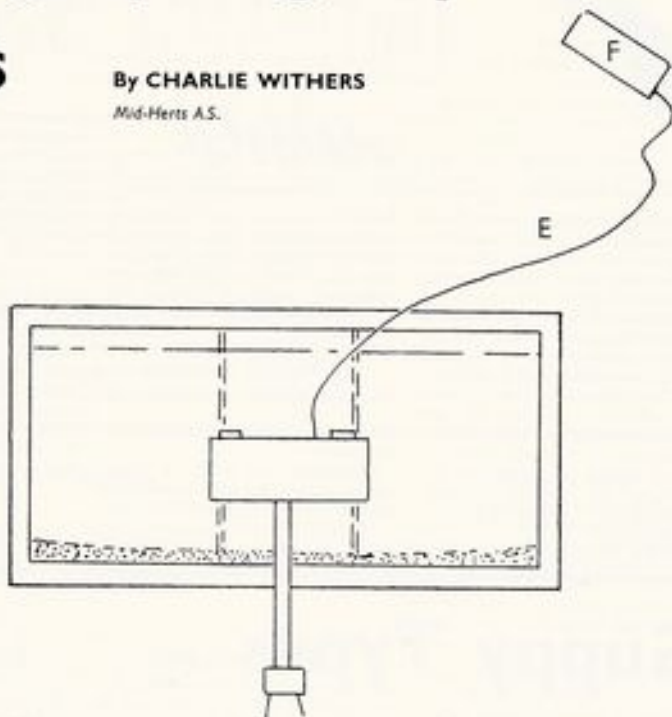
J.K.

Photographing Aquarium Fishes

By CHARLIE WITHERS

Mid-Herts A.S.

Frontal view of the photography aquarium with the camera and flash (F) on its extension lead (E) in position. The flash head is about 3 ft. away, 45° up and 45° to either side of the tank.



WHEN I became actively involved as a committee member of my Society one of the first things that struck me was the very short supply of visual aids for the aquarium hobby. There was a fair amount of slides and film available on fishing, water pollution and undersea excursions, but although this was of academic interest to the aquarist it did not really fill the need. I decided I would try and produce something myself. Let me say right from the start, I am not a professional photographer, but merely an aquarist who likes to take pictures, and as such, will probably be 'shot to pieces' by the experts.

There are four main requirements for making good pictures of aquarium fish, the first two being time and infinite patience. One you can make, and the other you are born with or without. The other two requirements must be bought. One is a

single-lens reflex camera (SLR) and the other is a light source. I consider an SLR camera to be essential, as unless you can see straight through the lens it is almost impossible to compose your picture and focus the subject. I have used two: the first was a Russian Zenit and the other a Pentax S.V. Both were excellent 35 mm. cameras. As a light source, I always use electronic flash, because it is cheaper in the long run, and saves a lot of fiddling around changing bulbs.

Many photographers engaged in the kind of work we are discussing seem to favour Kodachrome II film, but I find the end product is too red. That is, any pink or reddish tones on the subject are accentuated, and as many of our fishes have red in them somewhere I find this gives an unnatural result. For this reason I prefer to use Ektachrome X or High-Speed Ektachrome, which in my

opinion have much better colour. Ektachrome also has the advantage of being a much faster film. This enables the lens to be 'stopped' down much further, thereby increasing the 'depth of field' and this is important, as we shall see later on.

There are two methods that I have used to photograph fish. One is to use a small tank, and closely confine the subject to the front glass. The other is to take the shot in the tank where the fish usually live. Both have their advantages and disadvantages. With either method one must remember that, unlike most domesticated animals, it is impossible to pose your fish. They are easily frightened and tend either to dash madly about or else they hide behind any plants or rocks that are in the tank; both can be very frustrating. This is where the patience comes in.

For fish up to about 3 in. in length I think the small-tank method is

best. I use a tank 10 in. by 8 in. by 6 in. and have made slots in the top frame so that pieces of glass can be placed in position behind and to each side of the fish, thereby keeping it more or less where you want it. Do not confine the fish too closely, however, as they then tend to fold their fins and skulk in a corner, which is useless. If you wish to use any plants or rocks to complete the picture, these can be placed behind the back glass where the fish cannot hide behind them. When the shot is made these will be slightly out of focus, but that is not important.

For this method I use the normal camera lens with a number 1 extension tube. These tubes are sold, usually in sets of three; they are of varying lengths and may be used singly or in any combination, depending on how close you want to get. With the number 1 tube in position and with a 50 mm. lens the area you can cover is about 4½ in. by 2½ in. with a film to subject distance of about 10½ in. However, all these data come with the tubes, and the subject area-size can be increased by moving the camera back. Having set the camera up in the right position we must now think about the light-position and exposure time.

I find that the best position for the flash is 3 ft. from the subject and about 45° up and 45° to one side; for this position you will obviously need an extension lead and these are easily

obtained in any length up to about 12 ft. With this sort of set-up the lens aperture should be set to f 8.

Now we come to the important subject of 'depth of field'. A lens gives its sharpest image at a single flat plane in space. In front and behind that plane the sharpness falls off. The point in front to the point behind the distance of sharp focus that has acceptable sharpness is called the 'depth of field'. Unfortunately for us the depth of field decreases the closer the camera gets to the subject. With a 50 mm. lens without extension tubes at the distance we require the depth of field is only 1.2 in., and with the number 1 extension this is reduced even further to about ½ in. Reducing the lens aperture does increase the depth of field, and that is why the faster film is an advantage. To the fish photographer this means that the subject must always be parallel to the front of the lens—otherwise one end, or both, will be out of focus. If you are photographing more than one fish you will find that you will have only one in real focus, and the others slightly out, unless you are very lucky.

While on the subject of focus I would like to point out that if your camera has an automatic lens, that is, one that stops down to the required setting when you press the trigger, this facility is lost when using some extension tubes. To get round this I put a pencil in the position that

the fish will occupy, and focus on that with the lens wide open; then I stop down to the required aperture, and wait for the fish to swim into the right place (more patience required!).

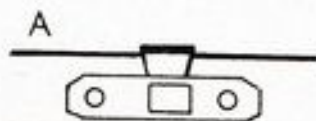
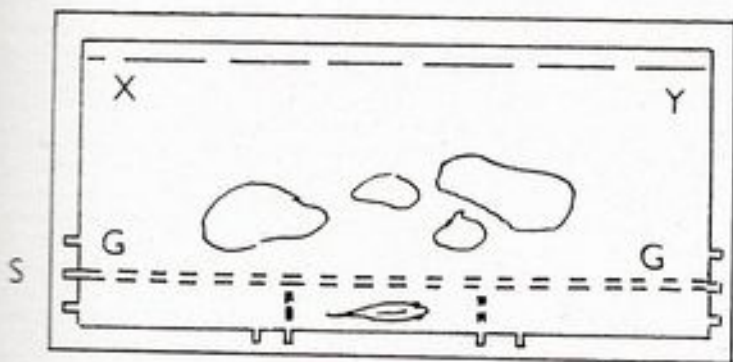
My second method, of photographing the tank in which the fish usually live, I use for bigger fish. This has the advantage that they are not disturbed, but has the big disadvantage that they can swim out of the picture area, and usually do. Another disadvantage of this method is that big fish, particularly cichlids, usually keep the bottom stirred up, and if photographed in this condition, the end result would look as if they were swimming in a snowstorm. To prevent this I clean the glass the day before, and have heavy filtration going for about 24 hours before taking the photograph.

I use either a 135 mm. telephoto lens or the 50 mm. without extension tubes. This means that you can go as far back as you like to compose the picture, but there is a limit to how close you can get. With the 50 mm. lens this distance is about 18 in., depending on the make of the lens, and you will photograph an area of about 11 in. by 7½ in. With the 135 mm. lens the corresponding figures are, distance 5 ft. to 6 ft. depending on make and an area of about 17 in. by 12 in. Once again remember that the closer you are, the less the depth of field. On most lenses the actual depth of field can be read off against the scale on the focusing ring.

Having dealt with the basic principles let us now think about some of the finer points.

I said earlier that to get a good picture the fish must always be parallel to the lens surface. This is usually true, but for some subjects a good effect can be achieved by having part of the fish out of focus. A good example of this is photographing the teeth of a piranha; if the head is in sharp focus and the rest out, attention is drawn to the area you want. The same can be done with a particular fin or scale formation.

Continued overpage



Plan view of the photography aquarium with camera and black card (A) in position. Slots (S) in the frame take sheets of glass (GG); XY indicates the position of the coloured plastic background

When using the big-tank method I find it advantageous to mark an area on the tank glass slightly larger than the zone to be photographed, either with a Chinagraph pencil or tape. Then all you have to do is to wait for the subject to position itself in the marked zone, and press the shutter release. You don't even need to look through the view finder.

If possible try to make the picture area in the centre of the tank. This way there is less chance of the shot being spoiled by the tank frame being obvious, or the surface of the water.

Try to avoid photographing your subject at the end of the tank as you can sometimes get a mirror image in the end glass that looks peculiar. Many people take shots of fish at shows. This sort of shot is not usually very successful for several reasons. If the fish are in jars the glass is not flat and you get distortion. If they are in tanks it is best to use a piece of cardboard as a background otherwise you will also take the tank behind. It is also very difficult to prevent unwanted reflections of windows and lights, or even peoples' faces.

Whilst on the subject of reflections, in any kind of aquarium photography it is a good idea to black over any bright parts on the camera to prevent them reflecting in the tank glass. Hands can also become very apparent if near the camera when the picture is taken. A good way to get

round these unwanted reflections is to cut a hole in a piece of black card that will just fit over the lens. When the card is in position on the lens all the shiny bits and hands are effectively covered.

I have not said very much about backgrounds up till now and I feel that this is very much a matter of personal taste. If you use the big-tank method you are usually stuck with what is there, but try to avoid heaters and filters; we know that they are necessary but they do spoil a good picture. For my small-tank method I have obtained about half a dozen pieces of plastic in various colours that just fit the back of the tank, and I 'ring the changes' with these. However, I find pale blue or green are generally best. Some fish photograph well against a white background but if you use white you will need to experiment to find out how it affects the light-distribution on the subject and also the exposure.

Black for a background I think should be avoided, as it just makes life more difficult. It makes the tank glass into a mirror and aggravates the reflection problem. Because it absorbs some of the light you have to experiment with exposure. With flash this usually means that you have to open the lens a 'stop' or two and this in turn reduces the depth of field. If you do like your fish against a black background this can usually be achieved by superimposition after

H. F. V. Wright M.M.

IT is with regret that we learn of the death of Mr Fred Wright on Sunday, 30th August 1970 aged 55 years. Mr Wright was well known to pet and aquatic traders as secretary to the Aquatic Traders Association from 1951 through to the re-formation of the A.T.A. as the Pet Trade Association. He was the instigator of the formation of P.T.A. Ltd., as the Association now is, but pressure of work forced him to resign in 1959. Wounds incurred in World War II on D Day left Mr Wright with a disabled arm. He was decorated for 'displays of courage and initiative against the enemy (which included the rescue of one of our men under fire in the open)', being awarded the Military Medal. The sympathy of his friends and colleagues will go to his wife on her sad loss.

the original shot has been processed.

The gravel on the tank bottom is also important. Most of the stuff one sees in aquaria is O.K., but avoid those that are very brightly coloured as they reflect light on to the underside of the fish, causing an unnatural look.

The use of a tripod is again a matter of personal taste, but I usually use one as the distance from lens to subject is easily controlled. However, if the fish is particularly active you sometimes have to 'chase' it with the camera but the results are usually disappointing.

There is one more piece of equipment that is not essential but which I find very useful; that is a slide copier. This fits on the front of the camera in place of the lens and is provided with a plate to fit a completed slide. By adjustment you can obtain enlargements of up to 2½ times of the part of the original that you want. This has very obvious advantages and the loss of definition is quite acceptable if the original slide is good. The light-source is once again your electronic flash. Slide copiers can be obtained from about £15 to £50; some have their own lens and others use the normal camera lens. Strangely enough, those with their own lens are usually the cheapest.

What's New?

IN the past PETFISH MONTHLY has carried letters from somewhat irate possessors of smaller aquaria who have felt themselves to be the 'forgotten fringe' in the discussions about 3, 4 and 5 ft. aquaria. Now they are being specially catered for by Inter-Pet of Church Street, Dorking, Surrey. Especially for the small aquarium a new range of 'mini' heaters and thermostats has been

developed by the firm. And because the heaters are of low wattage they are ideal for providing a fully balanced temperature control to use with aquaria sited in centrally heated homes.

To produce this equipment Inter-Pet have been able to utilise recent developments in element wiring, and a new wire support devised by their own electronics division, with the result that the combined heater-thermostat, the **Minimatic**, measures only 8½ in. in length and ½ in. in diameter (up to 75 watts), and the **Mini Heat** and **Mini Thermostat** measure only 4 in. in length and ¼ in. diameter. The Mini Heat is manufactured in a range of wattages from 75 watts down to only 5 watts and the thermostat is capable of handling up to 200 watts. All feature a double-seal rubber end-cap for maximum electrical safety.

Congo Dwarf Cichlids



Nannochromis nudiceps (Boulenger)

THIS species is, perhaps, neither one of the most popular of the smaller cichlids nor is it one of the easiest to breed. However, its colouring is most interesting. The gold background hue changes at the sides to a light blue, the belly is emerald green and the gills glitter with bronze. Under the eyes is a little patch of iridescent bright blue and there is a rust-red stripe over the eyes. Diagonal stripes can occasionally be seen. The dorsal is orange-brown with a white border and black spots and the tail fin is longitudinally striped with golden orange and brown. The upper border of the tail fin is white and the lower border is violet. The anal fin is also violet and gleams greenly. The belly fins are dark green with white front edges.

These Congo dwarf cichlids have been available in Europe since 1952 and reach a size of about 2½–3½ in. They are related to the genus *Pelmatochromis*. Their body is elongated, flat and slightly depressed at the sides, but very flexible. In fact, if you held one in the hand it could be believed that a small, thick eel was being held. The head is blunt and has a steep forehead. The fish are peaceable enough towards other kinds of fish but have many a dispute amongst themselves, not only between male and male but also with the females, and these fights often end in deadly wounds.

Care and breeding for this species is not easy. They need a temperature of at least 72°F (22°C)

By **RUDOLPH ZUKAL**

Photographs by the author

Translated by F. MARSH

normally and 78°F (25°C) for spawning. A medium-sized tank is sufficient and the water should be slightly acid. Spawning behaviour is similar to that shown by *Apistogramma* and *Pelmatochromis* species, and with these Congo cichlids it is the female that takes over the brood care.

Sex differences in the adult fish are easy enough to recognise for the male is slim, with a sunken belly. Compared with him, the female is larger, and although similarly coloured her belly is a more intense emerald green colour and beautifully rounded. What is very interesting is the permanently projecting ovipositor in the female.

The fish are very nervous and live in hiding, so it is necessary to provide them with several potential hiding places in the tank. This is particularly important if there are a number of them in a tank together as otherwise there will be great fights over territory.

One cave of stones or a single flowerpot would always be the object of a fishy war. So each male must be provided with his own hiding place. Peace-loving as they are towards other species they will defend their immediate surroundings very earnestly against all other residents without exception.

Congo cichlids will search out the darkest spot in the tank and stir up the compost unceasingly; small heaps of sand and gravel are made all over the tank. The female lays her eggs in a small gap between stones, if no other possibilities exist, or in a flowerpot that has had the bottom knocked out and is placed upside-down in the tank.

I found it very difficult to observe the spawning itself—I have tried for weeks at a time to watch the actual spawning process and photograph it, but up till now in vain. My photographs show the preparations that the fish made, and I managed to obtain these pictures only by exercising the greatest caution and care.

You will see that I laid sharp-cornered stones on both sides of the sheet of slate so that the fish had to use the front surface of the slate. The gravel was carried away by the fish in their mouths most

zealously. Often I nearly laughed aloud, since they looked so comical with a large lump of gravel in their mouth. The stones were spat out as if from a catapult and it wasn't long before the gravel was heaped up in front of the entrance to their hiding place. During this unceasing work, which went on for hours and in which both partners took part, the fish were displaying in courtship. With fins spread wide they would swim round each other, and after lengthy play the male would swim off to the 'den' and again entice the female. In between, they would be working together.

One day I noticed that the fish had changed their behaviour. I lifted up the slate slab and saw quite small yellowish eggs. I was surprised how few these were because in spite of the fact that the female was about 2½ in. long and fairly full in the belly I counted only 11 eggs. When I examined the spawning place more carefully, I realised that the crevice in which the eggs had been laid was not more than ¼ in. wide—and consequently narrower than the fish.

The fry grow very slowly and in my opinion and experience it is wise to bring them up without their parents.



This side view of the female shows the ovipositor or breeding tube that is always in evidence in this species. The head of the male is seen with grains of gravel being expelled from his mouth.

Guppy World

continued from page 293

permint, oil of cinnamon, almond and vanilla extracts and alizarin.

Don't forget that most additives can cause food to go 'off', so only mix (or rather blend) sufficient into your dried food for just a few feeds and keep the residue in glass, screw-top jars. Oil of anise I can particularly recommend.

Do you like answering questions? I don't mean those impertinent probes that one finds in a 'Tax return, but the type of column where readers' questions are answered for all to see and learn from.

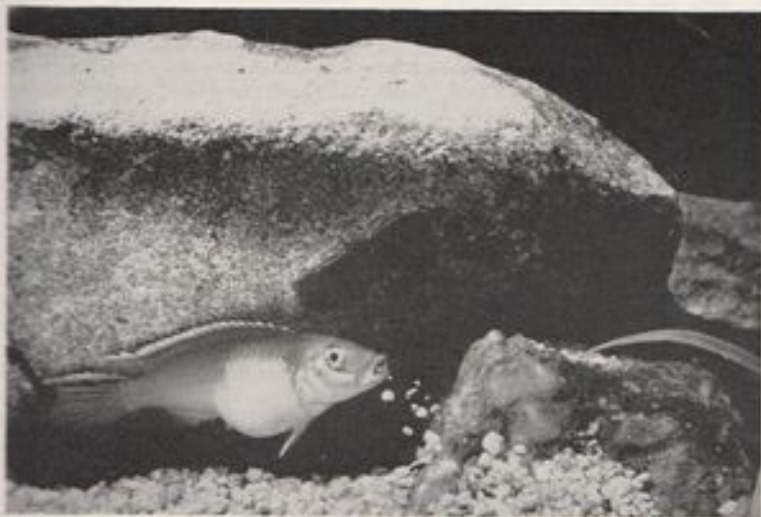
I have been attracted to these ever since my father gave me a copy of the book 1001 QUESTIONS ANSWERED ABOUT YOUR AQUARIUM for a pre-war Christmas present. Though the book has long since fallen to pieces I well remember one child-

hood illness, when with nothing better to do, I counted the questions and found, despite the title, the book contained 1074! Value indeed.

Too many columns these days, and I am not restricting my remarks to just the aquatic Press, tend to answer their readers' queries with as few words as possible. I realise that space is tight but need some journalists make it so obvious? Like the

Continued on page 300

**Breeding
Behaviour
of the CONGO
DWARF CICHLID**



The early stages of the breeding of *Nannochromis nudiceps* involve hole digging and gravel shifting. At the top the male is shown in the cave he has made. Left: the female also moves gravel during the cave-making.



The male is seen making a stimulatory approach to the female in what appears to be a bite but is really quite a gentle manoeuvre.

Guppy World

continued from page 298

'stars and you' column, they tell you very little.

To try and right that wrong and even the score, 'Guppy World' will pick out a letter from the postbag each month and try to answer it in full. Eyes down for our first question...

• • •

'Dear Peter'—If the albino guppy is a mutant, why is it that so few have been found amongst wild stock? Surely the chances of such mutations occurring are greater amongst the larger wild populations of guppies?

Anyone who has had gold or albino fry been in his aquaria knows that fry thus coloured stand out when compared with their darker coloured brothers and sisters.

In any wild population, prominence means they are easy pickings for any cannibalistic adult guppy or fish predator that happens along—hence their scarcity. And while we are on the subject of albino guppies let us lay to rest once and for all that old wives' tale that the addition of albino to a strain will produce increased vigour. It won't!

• • •

As a token act towards providing variety, guppyatics change their brand of proprietary dried food often with the result that the newly introduced food is ignored.

Guppies just like we humans have likes and dislikes in their dietary intake and it takes time to change 'set ways'. Next time you decided to feed with something different, skip a feed of the old diet—being slightly hungry the guppies are then more likely to try something new. Like some of the new manufactured foods—it's worth trying.

• • •

'The good is destroyed by the better' says the French proverb and I would like to think this was true of guppy affairs.

One Man's Marine Aquarium—2

The Tank and its Preparation

By RON TURNBULL

I HOPE that some of my enthusiasm for marine fishkeeping has rubbed on to readers of my first article in *PFM* last month and we can now get down to the practical side of setting up a marine tank.

My first step when I started this fascinating hobby as a complete novice was to scour my local library and pet shops and read the many books, largely American, on the subject of marine fishkeeping. By means of a step by step account of the setting up of my own tank I hope I may now be able to help readers to avoid the pitfalls likely to be encountered in 'going marine'.

Choice of Tank

A large tank proves to be far easier to look after than a small one. I chose a 25 gallon Juwel aquarium, ideal for the job since it does not contain toxic aquarium cement and is completely resistant to the highly corrosive action of salt water. When choosing a tank do not be afraid to seek the advice of a reputable dealer. There are now so many tanks on the market, made from so many diverse materials, that the newcomer can easily be mystified over which tank is suitable. What a tragedy it would be to set up a marine tank, fill it with fine fish and then to find that within a week they have succumbed to poisoning from cements or metal.

In recent years stainless-steel and all-glass aquaria have appeared and these are ideal for saltwater fishkeeping. I must, however, stress once again that to be on the safe side you must put your trust in your local marine dealer.

However clean your new tank appears to be it must, of course, be washed and sterilised. Remember at all times that clinical cleanliness is the key to successful marine fishkeeping.

Never use soap or other detergents when cleaning out tanks, either new or old; soap even in minute

quantities is fatal to marines. Instead use clean tap water and a clean damp cloth dipped in strong rock salt solution, with which you carefully clean the interior making sure that you get into all the corners. A final few rinses with luke-warm water should ensure a danger-free tank. Many experts advocate the use of chemicals such as potassium permanganate or methylated spirits but I hardly ever use chemicals of any sort where fish are concerned, except the well-tried remedies for common diseases.

Once you are satisfied your tank is completely sterilised you are ready to set up your mini-ocean. Much has been written about the choice of filters, heaters, thermostats etc. for the successful marine aquarist. I have used exactly the same heater and thermostat as in my freshwater tank, and in my choice of filtration I went against the book, which advocated an under-sand filter. I chose an inexpensive outside filter operated by a good quality air pump (which incidentally operates the undergravel filter in my freshwater tank). Filled with carbon and a good quality filter material this has kept my marine tank crystal clear and odourless and absolutely trouble-free. The only other requirements are a good quality air stone operated from the air pump, a non-corrodible hood and lights, a thermometer and a hydrometer to check the salinity of the water in which your marines will live. The range of temperature over which tropical marines will thrive is exactly the same as that for most freshwater tropicals.

Natural or Artificial?

After reading the vast literature on the subject of natural versus artificial saltwater when I first started I decided once again to put my trust in the boffins and purchased an appro-

prate quantity of artificial salts. For 30s. I obtained enough salts for my tank, and the mixture is said to contain all the various trace elements found in natural seawater. Laymen admiring my collection of marines find it hard to believe that although I live only a mile from the sea I decided to use artificial seawater. Had they ever taken notice of the great quantities of effluent being continuously poured into our seas they would immediately have understood my reasoning.

Before actually filling your new aquarium some thought must be given to the question of decoration. For the base of my own tank I used ordinary sand from my local beach; the sand was very carefully boiled a number of times in clean fresh water and thoroughly rinsed. Few experts advocate the use of beach sand but my own experience proved that it was less dirty than that available at a local builder's merchants. The depth of sand in your tank should not exceed 2 in. All that is then required are a few choice large shells and a few pieces of coral, which can be bought from your marine stockist or from the fancy goods department of most large stores. Once again a thorough boiling is the only cleaning process needed. Put your faith in your nose. If your decorative material smells sweet it is likely that it will contain no harmful elements.

Marine Tank Decor

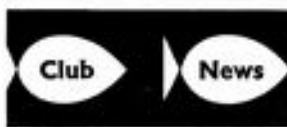
The key to attractive decor for marine tanks lies in the area immediately behind your tank. Although not blessed with any great artistic flair, nevertheless I have been able to create quite a realistic effect by using vivid green fluorescent paper, on to which I stuck some plastic foliage and dried seaweeds. When this was placed on the back of my tank it gave an excellent effect from the front: it looks as though the plants are actually growing in the tank.

For the hobbyist who likes to experiment there are endless ways of setting up false decoration in a marine tank. A glass panel can be sealed close inside the back of your tank to make a narrow section into which freshwater can be placed; in this you can grow freshwater plants, and once again when viewed from the front they appear to be an integral part of your aquarium decoration.

After decorating your tank to your satisfaction fill it up with normal tap-water and switch on the heater, filters, etc.; allow these to run for about 12 hours daily for 5 days. If your nose tells you that all is well on the fifth day start to add your salts, a little at a time. Keep your filter and air stone going as you add the salts and check the salinity with your hydrometer until a reading of 1.025 is

achieved. Do not worry at all at this stage about pH value, as tampering with this does more harm than good. A further couple of days on 'all systems go' should then see your tank ready to receive its first inhabitants.

In my next article I will discuss how and what to buy, methods of introduction, harmonious communities and dangers to look for in the first few weeks.



AT the twentieth annual open show held by **BLACKPOOL & FYLDE A.S.**, Mr C. Whitney of Accrington won the star prize, a power filter, presented to the exhibitor gaining the highest number of points overall. The best fish in the show was an American sunfish, entered by Mrs M. Miller of Belle Vue, that received 83 points and the Blackpool Tower Co. trophy. Another Belle Vue member, Mrs J. Shackleton, was awarded the Jessie Fletcher Memorial trophy for the best fish in the show entered by a lady. Mr B. Simmons of Blackpool was awarded the Peck trophy for best fish shown by a member and the Newton trophy for the member gaining most awards. Of the 36 societies exhibiting, Belle Vue were awarded the Lewis's (Ranella) trophy for the club gaining most points overall. Judges Mr C. Walker and Mr M. Jones made the following awards to winners from the 368 entries:

Furnished aquaria. Members' tropical (Committee Cross trophy): Mr R. Litter (Blackpool, 68); open individual coldwater (Blackpool & Fylde A.S. Silver Challenge trophy): Mr B. Simmons (Blackpool, 65); open individual tropical (Corporation of Blackpool Silver Challenge trophy): Mr B. Litter (68).

Coldwater fish. Common goldfish & comets: 1, Mr A. Ingram (Blackpool, 66); 2, Mr C. Asquith (Castleford, 48); 3, Mrs M. Miller (Belle Vue, 54). Shadoulkins: 1, Mr B. Simmons (Blackpool, 76); 1 and 2, Mr S. Walsh (Accrington, 75, 73). Moors: 1 and 2, Mr C. Whitney (Accrington, 74, 64); 1, Mrs E. Asquith (Castleford, 71). Veitch: 1 and 2, Mr C. Whitney (76, 68); 2, Mr S. Walsh (Accrington, 71). A.O.V. fancy goldfish: 1 and 2, Mr C. Whitney (86, 79); 2, Mr S. Walsh (78). Koi: 1, Mr C. Whitney (76); 2 and 3, Mr C. Wallbank (Accrington, 73, 70). A.O.V. coldwater: 1, Mrs M. Miller (Jackson trophy, 85); 2, Mr C. Whitney (76); 3, Mr B. Simmons (Blackpool, 73).

Livebearers. Swordtails: 1, Mr and Mrs Cobb (Belle Vue, 76); 2, Mrs B. Newall (Glossop, 74); 3, Mrs Gates (Castleford, 73). Flava: 1, Mr H. Hingworth (Nelson, 77); 2, Mr D. Tennant (Loyne, 76); 3, Mr R. Tomkinson (Glossop, 74). Mollies: 1, Mr and Mrs Grimshaw (Blackpool & Fylde A.S.

trophy, Sarsynbrown, 86); 2, Mr S. Harrop (Oxton, 78); 3, Mrs W. Heap (Belle Vue, 75). Guppies: 1, Mr R. Tomkinson (Glossop, 76); 2, Mr T. Hallett (Accrington, 74); 3, Mr D. Truby (Nelson, 70). A.O.V.: 1 and 2, Mr J. A. Whitley (Aireborough, 76, 74); 3, Characins (no bleeding heart): 1, Mr Tonge (Oldham, 75); 2, Mr R. McKenna (Nelson, 74); 3, Master R. Johnson (Aireborough, 74). A.O.V.: Mr K. Parkes (Robinson trophy, Maresfield, 80); 2, Mr S. R. Case (Macclesfield, 78); 3, Mr Atwood & Mr Williams (Rubery, 76). Labryntis: 1, Mrs J. Shackleton (Blackpool & Fylde A.S. trophy, Belle Vue, 81); 2, Mr A. Lomas (Maresfield, 78); 3, Mrs J. Tonge (Oldham, 76). Fishies: Mr P. Shackleton (Hadley trophy, 78); 2, Mr K. McPherson (Blackpool, 74); 3, Mr and Mrs Cobb (Belle Vue, 74). Minnows: 1 and 2, Mr Tonge (75, 72); 3, Mrs Heppinstall (Castleford, 69). Labon and sharks: 1, Mr L. Besswick (Middlesbrough, 80); 2, Mr F. Mulla (Maresfield, 78); 3, Mr B. Litter (Blackpool, 74). Barbs up to 2 1/2 in.: 1, Mr H. Cranwick (Featherstone, 79); 2, Mr and Mrs Wild (Salford, 77); 3, Master L. Heppinstall (Castleford, 74). A.O.V. barb: 1, Mr K. Parkes (78); 2, Mr S. West (Blackpool, 75); 3, Mr J. A. Whitley (74). Killifish: 1 and 2, Mr F. Reynolds (Childs trophy, B.K.A., 78, 76); 3, Mr J. Roberts (Nelson, 74).

Cichlids. Dwarf: 1, Mr R. Davis (Eitherton trophy, 77); 2, Master L. Heppinstall (74); 3, Mr and Mrs Lofthouse (Huddersfield, 72). Angeli: 1, Mr C. Asquith (Castleford, 76); 2, Mr R. McKenna (74); 3, Master R. Johnson (Aireborough, 70). A.O.V.: 1, Mr and Mrs Wild (M.A.D.A.S., 76); 2, Mr R. L. Hambling (Loyne, 73); 3, Mr T. Spivey (Leigh, 69). Catfish: 1, Mr R. Davis (Jeter-Pet Shield, 81); 2, Master L. Heppinstall (76); 3, Mrs Gates (Castleford, 74). Loaches: 1, Mr F. Mulla (Childs Cross Shield, 70); 2, Mr P. Shackleton (76); 3, Goodwin Bros. (North Staffs., 74). A.O.V. tropical: 1 and 2, Mr and Mrs Morris (Lynden trophy, Loyne, 79, 76); 3, Mr K. Adams (N. Staffs., 74).

Pairs. Livebearers: 1, Mr J. A. Whitley (76); 2, Mrs Gear (Keighley, 74); 3, Mr R. Tomkinson (Glossop, 72). Egg-layers: 1, Mrs W. Heap (Pearson trophy, Belle Vue, 82); 2, Mr F. Mulla (74); 3, Mr D. Royard (Leigh, 72).

Breeders. Livebearers: 1, Mr and Mrs F. Cobb (75); 2, Mr T. Tomkinson (Glossop, 74); 3, Mr S. Bloxham (Nanterton, 68). Egg-layers: 1, Mrs Gear (Fylde Cinema Rose Bowl, 84); 2, Mr Jackson (Blackpool, 78); 3, Mr F. Reynolds (B.K.A., 77).

Marine furnished aquaria: 1 and 2, Mr Howarth & Mr Wright (Marjorie Faber

THE speaker at this year's HENDON CONGRESS (14th November) is Herr E. Roloff of West Germany. The Congress is to be held at Whitefield Secondary Modern School, Claremont Road, Hendon, London, N.W.2. Tickets (6s and 3s children) from Mr R. Maynard, 90 Cotnold Gardens, London, N.W.2.

IT is reported in *FISCHART*, the journal of the Aquarium Society of Victoria, Australia, that Mr Ron Bowman is now getting very good hatches of brine shrimp by adding a small piece of limestone to each of his hatching jars.

trophy, Blackpool, 78, 72); 2, Mr P. Moorhouse (Bradford, 66). Single marine: 1, Mr K. Phillips (FPOok, 56). Juniors: Livebearers: 1, Miss A. Gregory (Silver Challenge trophy, Nelson, 75); 2, Master J. Heston (174); 3, Miss J. Sheldon (Ostery, 72). Egglayers: 1 and 2, Miss A. Gregory (Challenge shield, 74, 70); 3, Master F. Cobb (Belle Vue, 66).

A VELIFERA MOLLIE entered by Mr Igoe was awarded best in the show at the **BEDWORTH A. & P.S.** open show. Other major awards were made as follows: best large fish, Mr and Mrs Haines of Nunceaton, sun-fish; best small fish, Mr and Mrs Roberts, Lucas, dwarf botia; Rosedale Shield, Mr Igoe, Sherwood; Bedworth Civic Cup, Mr Igoe; best cichlid, Mr and Mrs Walker, Nunceaton; best coldwater, Mr and Mrs Haines; most entries from individual, Mr R. Tedds, Bedworth; most awards, individual, Mr Igoe; breeders team hardest to breed, Mr Anderson, Leicester Fishkeepers; society with most entries, Leicester Fishkeepers; society with most awards, Sherwood. Other winners from among the 721 entries were:

A.V. 400pp: 1, Mr D. Carson (Nunceaton); 2 and 3, Mr Buchanan (Sherwood). A.V. mollie: 1 and 2, Mr J. Igoe (Sherwood); 3, Mr Blackburn (Sherwood). A.O.V. livebearer: 1, Mr and Mrs Jephcott (Nunceaton); 2, Mr Pollard; 3, Mr Anderson. Characins under 3 in.: 1, Mr Thomas (Lucas A.P.S.); 2, Mr

and Mrs Griffin; 3, Mr R. Seall. Characins over 3 in.: 1, Mr Robinson (Northampton); 2, Mr Hoagh; 3, Mr Tedds. Barbs under 3 in.: 1, Mr Mewby (Widnesbury); 2, Mr Hoagh; 3, Mr Ford. Barbs over 3 in.: 1, Mr Figueroa (Derby Show Group); 2, Mr Harvey; 3, Mr Pollard.

Cichlids under 4 in.: 1, Mr and Mrs Walker (Nunceaton); 2, Mr Mewby; 3, Mr Robinson. Cichlids over 4 in.: 1, Mr Tedds (Bedworth); 2, Mr Shashy; 3, Mr Edgars & Mr Padgett. Angeli: 1, Mr Sewall (Sherwood); 2 and 3, Mr K. Allen. A.V. anabantid: 1, Mr T. Shashy (Coventry); 2, Mr Cooper; 3, Mr D. Wood. Cynodonts: 1, Mr Bates (Haden); 2, Mr Shakespeare; 3, Mr Jordan. A.O.V. catfish: 1, Mr and Mrs Roberts (Lucas); 2, Mr Crankshank; 3, Mr Cooper. Killifish: 1, Mr Jones. A.V. goldfish: 1, Mr Shannon (Atherstone); 2, Mr Hunt; 3, Mr Chamberlaine. A.O.V. oldwaver: 1, Mr and Mrs Haines (Nunceaton); 2, Master D. Beard; 3, Mr Ford.

Egglayer pairs: 1, Mr Shakespeare; 2, Mr Lomas; 3, Mr Underwood. Livebearer pairs: 1, Mr Buchanan; 2, Mr K. Jones; 3, Mr J. Igoe. Breeders, egglayers: 1, Mr J. Igoe; 2, Mr Hunt; 3, Mr Anderson. Livebearers: 1, Mr J. Igoe; 2, Mr K. Jones; 3, Mr Cox. A.O.V. tropical: 1, Mr Ross (Independent); 2, Miss S. Lamb; 3, Mr Jones. A.V. goldfish: 1, Mr Shannon (Atherstone); 2, Mr Hunt; 3, Mr Chamberlaine. A.O.V. oldwaver: 1, Mr and Mrs Haines (Nunceaton); 2, Master D. Beard; 3, Mr Ford.

SUMMER activities of **HASTINGS & ST LEONARDS A.S.** have included a number of interesting lectures and a visit to a professional hatchery where the club were made very welcome and given answers to questions that even divulged some 'tricks of the trade'. There were neonons on view that spawned with amazing regularity and tanks full of their young ready for delivery to the wholesalers. Also being bred were beacons and cherry barbs. At one meeting Mr Graham Pryke led the 40 members present in a discussion on gravel, rocks and filtration—as expected 'filtration' provoked the liveliest discussion. On another oc-

THE SIMPLE LIFE—Members of the **AQUARIUM SOCIETY OF VICTORIA (Australia)** are exhorted to enter more fish in the Society's table show with the words 'Anyone can enter a table show—all you need is a fish and a bucket to bring it in'—a delightful vision for those of us already busy checking our polystyrene coverings in preparation for the coming winter.

casian, Mr F. Vicker and three friends from East London A. & P.A. visited the club and Mr Vicker gave a talk on characins.

THE first open show held by **WEYMOUTH & D. A.S.** was very successful. Nearly 400 fishes were benched and the public supported the show very well. Secretary of the club, Mr D. Rogers, thanks all who participated in the new venture. Mr P. Carter of Weymouth had a field day, taking best tropical fish and best fish in the show awards with his *C. julli*.

Barbs A.V.: 1, 2 and 3, Mr A. Cox (Weymouth). Characins, A.O.V.: 1 and 2, Mr A. Blake (Basingstoke); 3, Mr T. Jones. Characins, H.J. and C.: 1 and 2, Mr J. Haynes (Torbay); 3, Mr M. Poole (Torbay). Cichlids, A.O.V.: 1 and 2, Mr J. Turner (Weymouth); 3, Mr T. Hutton (Weymouth). Angeli: 1, Mr A. Cox (Weymouth); 2, Mr E. Jones (Torbay); 3, Mr T. Hutton. Dwarf cichlids: 1, Mr T. Hutton; 2, Mr A. Blake; 3, Mr J. Haynes. Labyrinth, A.O.V.: 1 and 2, Mr A. Blake; 3, Mr A. Nicholls (Yeovil). Sumatran fishers: 1, Mr J. Jeffrey (Bournemouth); 2, Mr R. Lane (Salisbury); 3, Mr G. Oron (Weymouth).

Catfish, A.O.V.: 1, Mr J. Turner (Weymouth); 2, Mr C. Eason (Weymouth); 3, Mr T. Jones (Weymouth). Corydoras and Brochis: 1, Mr P. Carter; 2, Mr M. Squibb (Weymouth); 3, Mr T. Blanchard (Salisbury). Barbora, A.V.: 1 and 2, Mr M. Poole; 3, Mr T. Jones (Weymouth). Danios and minnows: 1, Mr M. Squibb (Weymouth); 2, Mr R. Weston (Torbay); 3, Mr P. Carter. Loaches and botia: 1, Mr M. Carter; 2, Mr T. Hutton; 3, Mr A. Blake.

Guppy, male: 1, Mr A. Cox (Weymouth); 2, Mr T. Squibb; 3, Mr T. Mudge (Torbay). Guppy, female: 1, Mr T. Squibb; 2, Mr C. Spragg (Weymouth); 3, Mrs Langdon (Yeovil). Platy, A.V.: 1, Mr A. Rendell (Yeovil); 2, Mr R. Cox (Bournemouth); 3, Mr P. Bradley (Weymouth). Mollies, A.V.: 1, Mr R. Lane (Salisbury); 2 and 3, Mr T. Woodley (Torbay). Swordtails, A.V.: 1, Mr A. Smith (Bournemouth); 2, Mr G. Oron; 3, Mr J. Turner. Breeders: 1, Mr M. Cooker (Exeter); 2, Mr M. Stronge (Basingstoke); 3, Mr A. Rendell. A.O.V.: 1, Mr L. M. Carter (Bracknell); 2, Mr M. Stronge; 3, Mr A. Blake. Single-tailed goldfish: 1, Mr D. Langdon (Yeovil); 2, Mr N. Collins (Salisbury); 3, Mr J. Jeffrey. Twin-tailed goldfish: 1, 2 and 3, Mr V. Collins (Yeovil). Colchester A.O.V.: 1, Mr V. Vowsey (Salisbury); 2 and 3, Mr V. Collins. Egglayers breeders: 1, Mr M. Stronge; 2, Mr M. Poole; 3, Mr C. Eason (Weymouth).

As well as Mr Carter, who won the Hanton Challenge Cup and the Our Dog Shop trophy, other major trophy winners were: Mr V. Collins (Yeovil), Bennett Cup for best cold-water; Mr M. Stronge (Basingstoke),

Meetings and Changes of Officers

ALFRETON & D. A.S. Officers: chairman and treasurer, Mr S. Doolley; secretary, Mr S. Hill (15 South Street, Riddings, Derby, DE4 4EJ); show secretary, Mr R. Hickling (15 Meadow Close, Eastwood, Notts. Phone Langley Mill 5104).

BRITISH MARINE AQUARISTS' ASSOCIATION. New Society. Secretary, Mr D. Horton (114 Lowland Avenue, Streetly, Sutton Coldfield, Warks). Subscription 20s 70477.

HALLAMSHIRE MARINE A.S. New Society. Secretary, Mr P. J. Smith (150 Sheaf Gardens Terrace, Sheffield S2 4BE). Enquiries welcome. Meetings: last Thursday of each month.

HAMPSTEAD & D. A.S. Secretary: Mrs V. Birch (104 Hamstead Street, London, N.W.1. Phone 01-485 7462). F.R.O., Mr R. Green.

HOUGHTON & D. A.S. Secretary, Mr H. Leighton (122 Abbey Drive, Houghton-le-Spring, Darham). Meetings: Second and fourth Tuesday of the month.

LINCOLN & D. A.S. Meetings: Third Monday of each month at 7.30 p.m., Liberal Club, 56 Swithins Square, Lincoln.

ROEHAMPTON A.S. Show secretary, Mr D. Lambourne (7 Wheeler Court, Ploagh Road, London, S.W.15. Phone 01-242 4930). Meetings: Alternate Wednesdays, Old Peoples Hall, Mircestead Gardens, Roehampton, London, S.W.15.

ROTHERHAM & D. A.S. Secretary: Avelin Harrison (14 Oubert Road, Broom, Nr Rotherham, Yorks).

TORBAY A.S. Secretary, Mrs Lay (2 Newtake Rise, Newton Abbot, Devon).

WEDNESBURY & D. A.S. Officers: president, Mr E. Skidmore; chairman, Mr D. Highfield; vice-chairman, Mr E. Hyde; secretary, Mr G. Wandle (60 Morris Avenue, Bentley, Walsall, Staffs.); assistant, Mr J. Reeves; treasurer, Mr A. Wood; show secretary, Mr T. Shpton; assistant, Mr A. Mawley. Meetings: First Monday of each month at The Midland Vaults, High Bullen, Wednesbury. New members and visitors welcome.

YORK & D. A.S. Change of venue: Meetings now at Post Office Employees' Social Club, Marygate, York.

THE newly formed BRITISH MARINE AQUARISTS' ASSOCIATION reports that the Association now has a newsletter which, it is hoped, will contain interesting and informative articles by members. Subscription to the association is 50s. yearly and applications for membership should be addressed to the secretary, Mr D. Horton, 125 Locklands Avenue, Streetly, Sutton Coldfield, Warks. At the same time, news reaches us of the formation of a society in Sheffield devoted to the study of marine fishes. This is the **HALLAMSHIRE MARINE A.S.** and its secretary, Mr P. J. Smith (30 Sheaf Gardens Terrace, Sheffield S2 4BE), writes that they believe this is the first society of its kind in England, meeting regularly for lectures and discussions.

Bond Challenge Cup for best breeders: Mr A. Blake (Basingstoke), G.S.L.S. trophy for highest entered class; Mr R. Lane (Salisbury), F.B.A.S. trophy for mollies.

RESULTS of the GLOSSOP A.S. open show are as follows:

Class 1: 1, Mr R. Tomkinson (Glossop, 75); 2, Mr Simpson & Mr Horsfield (Barnsley, 75); 3, Mr and Mrs Wild (Salford, 74). Class 2: 1, Mrs C. Kaye (Top Ten, 74); 2, Mr Blackburn (Sherwood, 74); 3, Mr and Mrs Wild (70). Class 3: 1, Mr Blackburn (75); 2, Mr and Mrs Heap (Belle Vue, 74); 3, Mr and Mrs Grimshaw (Suttonsbrook, 73). Class 4: 1, Mr R. Tomkinson (77); 2, Mr and Mrs Cobb (Belle Vue, 75); 3, Mr and Mrs Healey (Barrowley, 69). Class 5: 1, Mr and Mrs Heap (74); 2, Mr and Mrs Grimshaw (70); 3, Mr and Mrs Bressley (Belle Vue, 68). Class 6: 1, Mr D. Goddard (Stockbridge, 70); 2, Mrs J. Shackleton (Belle Vue, 74); 3, Mr J. Faulkner (Mersey-side, 73). Class 7: Master Cobb (Belle Vue, 81); 2, Mr Morrell (Derby, 84); 3, Mr P. Shackleton (73). Class 8: 1, Mr F. Ledger (Top Ten, 81); 2, Mr and Mrs Wild (78); 3, Master Kaye (Top Ten, 75). Class 9: 1, Mr R. Tomkinson (Glossop, 76); 2, Mr Abell (Suttonsbrook, 60); 3, Mr and Mrs Grimshaw (70). Class 10: 1, A & C. Lofthouse (Huddersfield, 75); 2, Mr Simpson & Mr Horsfield (74); 3, Mr S. Harrison (Huddersfield, 72). Class 11: 1 and 2, Mr D. Jones (Rotherham, 75, 76); 3, Mr Crockett (Glossop, 73). Class 12: 1, Mr J. Faulkner (71); 2, Mr and Mrs Grimshaw (60); 3, Mr Barchwood (Oldham, 64). Class 13: 1, Mr W. Donning (Rotherham, 78); 2, Mr J. Faulkner (77); 3, Miss B. Kaye (Top Ten, 75). Class 14: 1 and 2, Mr M. Lennox (Glossop, 74, 73); 3, Mr M. Tonge (Oldham, 66). Class 15: 1, Mr and Mrs Johnson (Salford, 75); 2 and 3, A. & C. Lofthouse (75, 73). Class 16: 1, Mr R. Davies (Belle Vue, 77); 2, Mr J. Bamson (Huddersfield, 75); 3, Mr R. Bowling (Suttonsbrook, 73). Class 17: 1, Mr L. Kaye (Top Ten, 75); 2, Mr R. Bowling (73). Class 18: 1, Mr J. Faulkner (75); 2, Mr P. Shackleton (74); 3, Mr Morrell (Derby, 73). Class 19: 1, Master G. Taylor (Glossop, 72); 2, Mr G. Hodgkinson (Belle Vue, 63); 3, Mr and Mrs Hogarth (Salford, 65). Class 20: 1, Mr R. L. A. Johnson (Ashton, 78); 2, Mr M. Tonge (76); 3, Mr N. Stafford (Oldham, 73). Class 21: 1, Mr J. Mooney (Glossop, 75); 2, Mr J. Bamson (Huddersfield, 74); 3, Mr and Mrs Heap (73). Class 22 (no entries). Class 23: 1, Mr M. Miller (Belle Vue, 52); 2, Master A. Kaye (70). Class 24: 1, Mr and

Mrs Miller (80); 2, Mr Bressley (70); 3, Master A. Kaye (65). Class 25: 1 and 2, Mr and Mrs Cobb (60); 3, Master Cobb (64). Class 26: Mr Simpson & Mr Horsfield (74); 2, Mr and Mrs Heap (77); 3, Miss R. Kaye (Top Ten, 74). Class 27: 1, Mr and Mrs Bressley (Belle Vue, 70); 2, Mr R. Tomkinson (74); 3, Mr D. Goddard (73). Class 28: 1, Mr and Mrs Healey (70); 2, Mr and Mrs Hogarth (73); 3, Mr Simpson & Mr Horsfield (72). Class 29: 1, Mr and Mrs Cobb (74); 2, Mr Simpson & Mr Horsfield (71); 3, Mr G. Hayland (72).

The best fish in the show award went to a cherry barb entered by Mr F. Ledger of Top Ten A.S. and awarded 81 points.

THE first fish exhibition held by **MID-SUSSEX A.S.** at the Park Centre, Burgess Hill was very successful. 35 aquaria of different sizes and shapes were put on display together with an indoor pond of cold-water fishes. The aim of the exhibition, which was the 'brain child' of treasurer Mr C. West and given the full support of the Society's committee, was to give the general public an opportunity to see a variety of tropical fish so that they could really appreciate the enthusiasm of fishkeepers and to encourage people to join the Society and thus further their knowledge and interest in the hobby. Nearly 900 people viewed the exhibits, one of the most popular being an eye-catching set-up of marine tropicals and invertebrates which the firm of one of the members, Mr R. Butteriss, provided.

The Society has recently held its

'Fish of the Year' table show and Mr J. Walker won this with a glowlight tetra (85 points); 2, Mr D. T. Waring; 3, Mr B. Slade; 4, Mr D. Soper; 5, P. C. Waring; 6 and 7, Mr C. West. All the fishes placed amongst the first seven received silver stars.

YEOVIL & D. A.S. were disappointed that there was a drop in the number of entries at their third open show this year. It is felt that the problems of peak holiday traffic contributed to this although entries were received from S. Wales to the west and London to the east. Mr A. Cox of Weymouth won the Yeovil Cup for the best fish in the show, a barb. The V. Collins Cup for the highest pointed exhibit by a junior was won by Master N. Collins of Yeovil with a goldfish. Details of the results were:

Barbs: 1, Mr A. Cox (Weymouth); 2, Mr J. Turner (Weymouth); 3, Mr Phipps (Bath). Chalcids: 1, Mr R. T. Ridley (Bristol); 2, Mr G. Carter (Weymouth); 3, Mr Edwards



At the highly successful open show of Brighton & Southern A.S. the best fish in the show was owned by Mr Gerry Greenhalf (right, seen with his awards). Below part of the crowded hall is shown. Full results will be published next month



THE newly formed BRITISH MARINE AQUARISTS' ASSOCIATION reports that the Association now has a newsletter which, it is hoped, will contain interesting and informative articles by members. Subscription to the association is 50p. Yearly and applications for membership should be addressed to the secretary, Mr D. Horton, 125 Lovelands Avenue, Streetly, Sutton Coldfield, Warks. At the same time, news reaches us of the formation of a society in Sheffield devoted to the study of marine fishes. This is the **HALLAMSHIRE MARINE A.S.** and its secretary, Mr P. J. Smith (30 Shoaf Gardens Terrace, Sheffield S2 4BE), writes that they believe this is the first society of its kind in England, meeting regularly for lectures and discussions.

Bond Challenge Cup for best breeders; Mr A. Blake (Basingstoke), G.S.L.S. trophy for highest entered class; Mr R. Lane (Salisbury), F.B.A.S. trophy for mollies.

RESULTS of the GLOSSOP A.S. open show are as follows:

Class 1: 1, Mr R. Tomkinson (Glossop, 78); 2, Mr Simpson & Mr Horsfield (Barnsley, 75); 3, Mr and Mrs Wild (Sheffield, 74); Class 2: 1, Mrs C. Kaye (Top Ten, 75); 2, Mr Blackburn (Sherwood, 74); 3, Mr and Mrs Wild (70); Class 3: 1, Mr Blackburn (76); 2, Mr and Mrs Hoop (Belle Vue, 75); 3, Mr and Mrs Grimshaw (Suttonbrow, 75); Class 4: 1, Mr R. Tomkinson (77); 2, Mr and Mrs Cobb (Belle Vue, 75); 3, Mr and Mrs Healey (Barnsley, 69); Class 5: 1, Mr and Mrs Hoop (74); 2, Mr and Mrs Grimshaw (70); 3, Mr and Mrs Brewster (Belle Vue, 68); Class 6: 1, Mr B. Goodshere (Stockbridge, 75); 2, Mrs J. Shackleton (Belle Vue, 74); 3, Mr J. Faulkner (Mersey-side, 73); Class 7: Master Cobb (Belle Vue, 82); 2, Mr Morell (Derby, 74); 3, Mr P. Shackleton (73); Class 8: 1, Mr F. Ledger (Top Ten, 81); 2, Mr and Mrs Wild (78); 3, Master Kaye (Top Ten, 76); Class 9: 1, Mr R. Tomkinson (Glossop, 76); 2, Mr Abell (Suttonbrow, 69); 3, Mr and Mrs Grimshaw (70); Class 10: 1, A. & C. Lofthouse (Huddersfield, 75); 2, Mr Simpson & Mr Horsfield (74); 3, Mr S. Harrison (Huddersfield, 72); Class 11: 1 and 3, Mr D. Jones (Rotherham, 76, 76); 2, Mr Crockett (Glossop, 75); Class 12: 1, Mr J. Faulkner (75); 2, Mr and Mrs Grimshaw (69); 3, Mr Barclay (Oldham, 64); Class 13: 1, Mr W. Downing (Rotherham, 78); 2, Mr J. Faulkner (77); 3, Miss B. Kaye (Top Ten, 76); Class 14: 1 and 2, Mr M. Lennon (Glossop, 74, 73); 3, Mr M. Tonge (Oldham, 69); Class 15: 1, Mr and Mrs Johnson (Salford, 78); 2 and 3, A. & C. Lofthouse (76, 73); Class 16: 1, Mr R. Davis (Belle Vue, 77); 2, Mr J. Blamires (Huddersfield, 75); 3, Mr R. Bowling (Suttonbrow, 73); Class 17: 1, Mr L. Kaye (Top Ten, 75); 2, Mr R. Bowling (75); Class 18: 1, Mr J. Faulkner (75); 2, Mr P. Shackleton (74); 3, Mr Morell (Derby, 71); Class 19: 1, Master G. Taylor (Glossop, 72); 2, Mr G. Hodgkinson (Belle Vue, 68); 3, Mr and Mrs Hogarth (Sheff., 63); Class 20: 1, Mr R. L. A. Johnson (Ashton, 78); 2, Mr M. Tonge (76); 3, Mr N. Stafford (Oldham, 73); Class 21: 1, Mr J. Mooney (Glossop, 78); 2, Mr J. Blamires (Huddersfield, 74); 3, Mr and Mrs Hoop (73); Class 22 (see contrast); Class 23: 1, Mr M. Miller (Belle Vue, 72); 2, Master A. Kaye (76); Class 24: 1, Mr and

Mrs Miller (86); 2, Mr Bostley (75); 3, Master A. Kaye (65); Class 25: 1 and 2, Mr and Mrs Cobb (66); 3, Master Cobb (65); Class 26: Mr Simpson & Mr Horsfield (78); 2, Mr and Mrs Hoop (77); 3, Miss B. Kaye (Top Ten, 74); Class 27: 1, Mr and Mrs Brewster (Belle Vue, 80); 2, Mr R. Tomkinson (74); 3, Mr D. Goodshere (73); Class 28: 1, Mr and Mrs Healey (70); 2, Mr and Mrs Hogarth (75); 3, Mr Simpson & Mr Horsfield (73); Class 29: 1, Mr and Mrs Cobb (73); 2, Mr Simpson & Mr Horsfield (71); 3, Mr G. Hayland (72).

The best fish in the show award went to a cherry barb entered by Mr F. Ledger of Top Ten A.S. and awarded 81 points.

THE first fish exhibition held by **MID-SUSSEX A.S.** at the Park Centre, Burgess Hill was very successful. 35 aquaria of different sizes and shapes were put on display together with an indoor pond of cold-water fishes. The aim of the exhibition, which was the 'brain child' of treasurer Mr C. West and given the full support of the Society's committee, was to give the general public an opportunity to see a variety of tropical fish so that they could really appreciate the enthusiasm of fish-keepers and to encourage people to join the Society and thus further their knowledge and interest in the hobby. Nearly 900 people viewed the exhibits, one of the most popular being an eye-catching set-up of marine tropicals and invertebrates which the firm of one of the members, Mr R. Butteriss, provided.

The Society has recently held its

At the highly successful open show of Brighton & Southern A.S. the best fish in the show was owned by Mr Gerry Greenhalf (right, seen with his awards). Below part of the crowded hall is shown. Full results will be published next month

'Fish of the Year' table show and Mr J. Walker won this with a glowlight tetra (85 points); 2, Mr D. T. Waring; 3, Mr B. Slade; 4, Mr D. Soper; 5, P. C. Waring; 6 and 7, Mr C. West. All the fishes placed amongst the first seven received silver stars.

YEovil & D. A.S. were disappointed that there was a drop in the number of entries at their third open show this year. It is felt that the problems of peak holiday traffic contributed to this although entries were received from S. Wales to the west and London to the east. Mr A. Cox of Weymouth won the Yeovil Cup for the best fish in the show, a barb. The V. Collins Cup for the highest pointed exhibit by a junior was won by Master N. Collins of Yeovil with a goldfish. Details of the results were:

Barbs: 1, Mr A. Cox (Weymouth); 2, Mr J. Turner (Weymouth); 3, Mr Phipps (Bath). Characins: 1, Mr R. T. Ridley (B'koke); 2, Mr G. Carter (Weymouth); 3, Mr Edwards



(Lanzwirth), Cichlids: 1, Mr J. Turner (Weymouth); 2, Mr J. Stamp (London); 3, Mr R. Bishop, Angles; 1 and 2, Mr A. Cox; 3, Miss B. Hulbert (Yeovil). Dwarf cichlids: 1, Mrs S. Rendell (Yeovil); 2, Mr D. Phippen (Bath); 3, Mr Phipps (Bath). Labryrinths: 1, Mr Phipps; 2, Mr M. Fischer (Yeovil); 3, Mr Llewellyn (Bath). Fighters: 1, Mr N. Stead (Ffoske); 2, Mr R. K. Day (Bristol).

Engelgryer toothcarps: 1, Mr N. Stead (Ffoske); 2 and 3, Mr L. Shirley (Sherborne). Cynodon: 1, Mr G. Carter; 2, Mr M. Squib (Weymouth); 3, Mr J. Stamp (Fareham, London). Rasbora: 1 and 2, Mr D. Phippen; 3, Mr M. Medway (Weymouth). Danios and minnows: 1, Mr D. Pate (Ffoske); 2, Mr G. Carter; 3, Mr L. Menzies (Southampton). Loaches: 1, Mr M. Squib; 2, Mr D. Noble (Bristol). A.O.S. egg-layers: 1 and 2, Mr A. Cox; 3, Mr Phipps (Bristol); 1, Mr A. E. Rendell; 2, Mr B. Spiers (Bristol); 3, Mr G. Carter.

Guppies, male: 1, Mr M. Medway; 2, Mr J. Stamp; 3, Mr M. Hulbert (Yeovil). Guppies, female: 1, Mrs S. Langdon (Yeovil); 2, Mr P. Soley (Yeovil); 3, Mr M. Squib. Swordtails: 1, Mr J. Turner; 2, Mr M. Medway; 3, Mr F. Laing (Yeovil). Platys: 1, Mr A. E. Rendell; 2, Mr R. K. Day (Bristol); 3, Mr M. Richards (Yeovil). Mollies: 1, Mrs J. Parnford (Bristol); 2, Mr B. Spiers (Bristol); 3, Mr S. Volney (Yeovil). Goldfish: 1, Mr N. Collins (Yeovil); 2, Mrs V. King (Kington-on-Avon); 3, Mr J. Menzies, London. Shubunkins: 1, 2 and 3, Mr R. Hensher, G.S.C.B. shubunkins: 1, Mr R. King (Kington-on-Avon); 2 and 3, Mr D. S. Langdon (Yeovil). Twinstar goldfish: 1, 2 and 3, Mr V. Collins (Yeovil). A.O.S. coldwater: 1, 2 and 3, Mr V. Collins.

Tropical breeders, egglayers: 1, Mr R. T. Hilder (Ffoske); 2, Mr V. Higgins (Marlton). Tropical breeders, livebearers: 1, Mr A. E. Rendell; 2, Mr G. Carter; 3, Mr B. Spiers. Coldwater breeders: 1, Mr R. King; 2, Mr V. Collins; 3, Mr D. S. Langdon (Yeovil). Plants: 1, Mr F. Laing (Yeovil); 2, Mr M. Hulbert; 3, Mr D. Phippen.

Club trophies, won by members within the show, were presented by Mrs S. Langdon, the president's wife, at the Society's annual dinner. Winners of the club's classes were:

Goldfish, Mr N. Collins; London shubunkins, Mr R. Hensher; Bristol shubunkins, Mr D. S. Langdon; cypriates, Mr V. Collins; pond of error, Mr V. Collins; coldwater breeders, Mr V. Collins.
Barbs, Mr W. J. Adams; characins, Mr M. Hulbert; cichlids, Miss B. Hulbert; labryrinths, Mr M. Fischer; catfish, Mrs J. Hensher; a.o.v. egglayers, Mr C. Bushell. Male guppies, Mr M. Hulbert; female guppies, Mrs S. Langdon; swordtails and platys, Mr A. E. Rendell; mollies, Mrs E. Wright; breeders, egglayers, Mr D. Phippen; livebearers, Mr A. E. Rendell; horse aquaria, Mr N. Stamer; Ladies Cup, Mrs V. Bushell; most points in the show, Mr A. E. Rendell; best tropical fish, Mr M. Fischer; best livebearer, Mr A. E. Rendell; best coldwater fish, Mr V. Collins; best cup, Mr V. Collins; Children's Shield, Mr M. Hulbert.

THERE was good support from the general public when SCARBOROUGH & D. A.S. put on their first open show. Judges Mr R. M. Fairclife and Mr B. Winter had 162 entries to consider and awarded the best in show trophy to Mr P. Carey of York. The best breeders award went to M. M. and A. Crowther of Swillington and the best junior to G. Thickbroom of Castleford. Details were:

Livebearers (best in section, Mr B. Stabler (Hull)). Guppies: 1, Mr B. Stabler

(76); 2, Mr F. Ledger (Top Ten, 74); 3, Mr Stephenson (York, 73). Platys: 1, Mr Ward (Doncaster, 74); 2, Mr Ledger (73); 3, Mr Platt (Stockton, 71). Swords: 1, Mr N. R. Reynolds (Huddersfield, 70); 2, Mr P. Reynolds (Swillington, 77); 3, Mr B. R. Gibson (Huddersfield, 75). A.O.S.: 1, Mr B. Stabler (80); 2, Mr J. A. Whitley (Aireborough, 78); 3, Mr A. Douglas (Hull, 75).

Anabantids (best in section, Mr and Mrs Cohen). Fighters: 1, Mr and Mrs Gates (Castleford, 75); 2, Master Kirk (Grimsby, 74); 3, Mr A. Douglas (74). A.O.S.: 1, Mr and Mrs Cohen (Castleford, 81); 2, Mr I. Hepinstall (Castleford, 70); 3, Mr King (Doncaster, 77). Characins. Up to but excluding bleeding heart: 1 and 2, Miss B. Kaye (Top Ten, 75, 74); 3, Mr and Mrs Kaye (Barnsley, 74). Bleeding heart and over: 1 and 2, Mr G. Thickbroom (Castleford, 77, 75); 3, Mr A. S. Allison (York, 76). Cichlids (best in section, Mr P. Carey; also best in show). Up to but including P. archeri: 1, Mr S. Harrison (Huddersfield, 70); 2, Mr I. Hepinstall (Castleford, 70); 3, Mr and Mrs Smith (Top Ten, 75). Over archeri: 1, Mr P. Carey (84); 2, Mr B. Cullen (Selby, 84); 3, Mr M. Ingworth (Scarborough, 77). Barbs (best in section, Mr J. A. Whitley of Aireborough). Up to royl: 1, Mr J. A. Whitley (78); 2, Mr J. L.

THREE new Class B tropical judges have been added to the F.B.A.S. list. These are: Mr B. Sergeant of Blatchley, Mr B. Mather of Chingford and Mr J. Yates of Cambridge. It has also been announced that one more speaker has been added to the list, Mr A. Jeffs, whose lectures are on the breeding and showing of tropical fish. The drawing up of a five 20 points system for the purpose of judging ponds is also being undertaken by assistant secretary, Mr R. D. Eason.

Danios (Overseas, 75); 1, Master Kaye (73). Over royl: 1, Mr J. A. Whitley (78); 2, Mr Jefferay (Grimsby, 60). Catfish (best in section, Mr and Mrs Lowe). Corydoras: 1 and 2, Mr A. S. Allison (York, 78, 75); 3, Mr B. Stabler (77). A.O.V. cats and loaches: 1, Mr and Mrs Lowe (Cleveland, 78); 2, Mr A. S. Allison (77); 3, Mr G. Bellin (Huddersfield, 75). Sharks and fuses: 1 and 2, Mr A. Hudson (best in section, Independent, 77, 74); 3, Mr Butterworth (Huddersfield, 74). Rasbora, danios and minnows: 1, Mr Furness (best in section, Hull, 78); 2 and 3, Mr I. Hepinstall (75, 74). Toothcarps: M. M. & A. Crowther (best in section, Swillington, 78); 2 and 3, A. & C. Lethouse (Huddersfield, 76, 74). A.O.V. tropical: 1, Mr Whitlock (best in section, Tadcaster, 77); 2, Mr and Mrs Lowe (74); 3, Mr R. Deedy (Scarborough, 76).

Coldwater (best in section, Miss E. Bore). Goldfish: 1, Miss E. Bore (Huddersfield, 75); 2, Master Booth (Leeds, 91). A.O.V. coldwater: 1, Mr P. Carey (60); 2, Mr A. S. Allison (68); 3, Mr W. Messerther (Scarborough, 56). Fancy goldfish: 1, Miss E. Bore (75); 2 and 3, Mr C. Asquith (Castleford, 74, 72). Pairs (best in section, Mr Hopkins). Livebearers: 1, Mr J. H. Hartley (Castleford, 73); 2, Mr G. Thickbroom (71); 3, Master Booth (Leeds, 69). Egglayers: 1, Mr Hopkinson (Sheffield Independent, 80); 2, Mr F. Ledger (77); 3, Mr Whitlock (Tadcaster, 77). Breeders (best in section, M. M. and A. Crowther). Livebearers: 1, Mr P. Reynolds (76); 2, Mr T. H. Hartley (Castleford, 74); 3, Mr G. Andrews (Hull, 72). Egglayers: 1, M. M. & A. Crowther (80); 2, Mr Wells (Doncaster, 70); 3, Mr Vint (Hull, 78). Juniors up to 16 (best in section, G. Thickbroom). A.V.

livebearers: 1, I. Hepinstall (Castleford, 70); 2, Master Cook (Doncaster, 73); 3, Miss B. Kaye (Top Ten, 75). A.V. egg-layers: 1, G. Thickbroom (84); 2, I. Hepinstall (70); 3, Master Kaye (77). A.V. coldwater: 1, 2 and 3, Master Kaye (75, 76, 68).

HORSFORTH A.S. held a very successful 'Open Night' in early September. There were 125 entries and Master G. Thickbroom entered a large blind cave tetra that was awarded best in the show. Other results were:

Livebearers: 1, Mr Megson (Aireborough); 2, Mrs Pell (Aireborough); 3, Mr C. Corro (Horsforth). Anabantids: 1, Mr Taylor (Aireborough); 2, Mr Megson; 3, Mr H. Beyer (S. Leeds). Catfish and loach: 1, Miss J. Helm (Horsforth); 2, Mr Taylor (Aireborough); 3, Mrs H. Beyer (S. Leeds). Barbs: 1, Mr Taylor (Aireborough); 2, Master G. Thickbroom; 3, Mr Taylor. Characins: 1, Master G. Thickbroom; 2, Mr Smith (Goighay); 3, Mr Kay (Aireborough). Breeders: 1, Mr Crowther (Swillington); 2, Miss J. Helm; 3, Mr M. Dwyer (Aireborough). Cichlids: 1, Miss J. Helm; 2, Mr C. Thompson (Aireborough); 3, Mr Taylor. Pairs: 1, Mr Taylor; 2, Mr Whitley (Aireborough); 3, Miss J. Helm (Horsforth). A.O.V.: 1, Mr H. M. Smith (Kraghthorpe); 2, Master G. Thickbroom; 2 and 3, Mr Asquith, A.V. juniors: 1, Master G. Thickbroom; 2 and 3, Mr J. Douglas (Horsforth).

RESULTS of the fifth International Show of the BRITISH KILLFISH ASSOCIATION have now reached us, and are as follows:

Aphyosemion pairs: 1, Mr C. Partridge (A. cognatum, Terry Payne Award); 2, Mr G. Cameron (A. chrysis); 3, Mr H. Thomson (A. hesperianum). Bolitina pairs: 1, Mr J. H. Hurrell (B. occidentalis); 2 and 3, Mr R. Clark (B. occidentalis, B. rufella). Aphyosemion single: 1, Mr R. Heap (A. oostadti); 2, Mr A. Thomas (A. arnoldi); 3, Mr D. Sale (A. julianae). Bolitina single: 1 and 2, Mr D. Sale (B. occidentalis, B. pumilio); 3, Mr A. Thomas (B. petraea). Aplocheilichthys: 1, Mr H. Schoenbrodt (A. immanis, Bill Devision Award). Epilayaria pairs: 1, Mr D. Highfield & Mr W. Devision (E. assimilaris); 2, Mr R. Howard (P. fuscicollis); 3, Mr A. Thomson (E. japonica). Jordanella: 1, Mr S. Dean (Paul Stokes Award); 2 and 3, Mr D. Highfield and Mr W. Devision.
Rivulina pairs: 1, Mr D. Sale (R. milnei); 2, Mr J. Harris (R. zebra); 3, Mr A. Thomas (R. milnei). Rivulina single: 1, Mr S. Dean (R. sp.); 2, Mr C. Partridge (R. sp.); 3, Mr G. Cattarachi (R. milnei). Notolebanichthys: 1, Mr A. Thomas (N. ruficeps, Leif Christensen Award); 2, Mr H. Schoenbrodt (N. senegalensis, N. wolfgangii). Pterolebias single: 1, Mr A. Thomas (longipinnis); 2, Mr H. Schoenbrodt (pavonatus); 3, Mr H. Harris (pavonatus). Cyprinobola single: 1, Mr C. Partridge (C. nubi, Roy Wallace Award); 2, Mr H. Schoenbrodt (C. nigricornis); 3, Mr R. Heap (C. nubi). Austrofundulus: 1, H. Wenden (A. dichropterus, Jim Collett Award). Cynopoma and Rasbora: 1, Mr J. Fellows (C. jagdipi); 2, Mr C. Partridge (Rasbora); 3, Mr G. Cattarachi (R. homonidensis). A.O.V.: 1 and 2, Mr A. Thomas (B.K.A.U.L., Gordon Gold Award; and Pan. show); 3, Mr B. Hirst (assimularis). Breeders T/S: 1, Mr H. Gerdesmann (A. sp. melanogaster); 2, Mr B. Hirst (A. sp.); 3, Mr A. Thomas (patens). Breeders S/P: 1, Mr Highfield & Mr Devision (A. oostadti); 2, Mr D. Lehning (C. strigatus); 3, Mr A. Thomas (R. occidentalis).

The Paul Stokes and Harry Williams Memorial Trophy for the best pair in the show was presented to Mr D. Highfield and Mr W.

NEXT year's Sixth INTERNATIONAL GUPPY SHOW staged by the FANCY GUPPY ASSOCIATION at Globe Farm Community Centre, Stockford, Birmingham, on Saturday and Sunday the 29th and 30th May is an open show and non-F.G.A. members can enter and have their guppies judged to F.G.A. Standards in competition with guppies entered from all over the world.

Devision. The best fish in the show award (the Alfred Robbins Cup) was won by Mr C. Partridge.

THE BEST tropical fish in the LEIGH A.S. open show was entered by D. and R. Standen of Lorne and the award for the best coldwater fish was won by Mr Whitsey of Accrington. Results were:

Guppies: 1, Mr H. Generali (Leigh); 2, Mr J. Boardman (Leigh); 3, Mr F. Oliver (Wrexham). Platys: 1, Mr D. Tennant (Lorne); 2, Mr D. Summers (Leigh); 3, Mr J. Faulkner (Runcorn); 4, Mr T. Hallett (Accrington). Mollies: 1, Mr F. Bowker (Leigh); 2, Mrs Addison (Warrington); 3, Mr and Mrs Pritchard (Wrexham). Small characins: 1, Mr C. Todd (Accrington); 2, Mr F. Oliver; 3, Mr R. McKenna (Wrexham). Large characins: 1, Master Moorcroft (Merseyside); 2, Mr and Mrs Lomas (Runcorn); 3, Mr R. Rawlinson (Leigh). Small barbs: 1, B. & C. White (Leigh); 2, D. & R. Standen (Lorne); 3, Mr F. Oliver (Wrexham). Large barbs: 1, Mr C. Stewart (Wrexham); 2, B. & C. White (Leigh); 3, Mr A. Baldwin (Wrexham). Dwarf cichlids: 1, Mr F. Oliver (Wrexham); 2, Mr Hesse (Runcorn); 3, Mr B. McCool (Leigh). Large cichlids: 1, D. & R. Standen (Lorne); 2, Mr J. Whire (Leigh); 3, Mr and Mrs Lomas (Runcorn). Angels: 1, Mr R. McKenna (Wrexham); 2, Master T. Spivey (Leigh). Toothcarps: 1, Mr Crawford (Warrington); 2, 3, B. & C. White. Rainbow: 1, Mr and Mrs Beadlesome (Leigh); 2, Mr J. Alcock (Warrington). Sharks & loaches: 1, Mrs S. McCool (Leigh); 2, D. & R. Standen; 3, Mr Moorcroft (Merseyside). Careless catfish: 1, B. & C. White; 2, Mr A. Baldwin (Wrexham); 3, Mr D. Ridyard (Leigh). Large catfish: 1, Mr B. Lewis (Runcorn); 2, Mr and Mrs Huey (B.K.A.); 3, Mr R. Rawlinson (Leigh). Loaches: 1, Mr D. Boardman (Leigh); 2, Mr J. Faulkner; 3, Mr J. Boardman (Leigh). A.n.v. tropical: 1 and 2, D. & R. Standen (Lorne); 3, Mr C. Stewart (Wrexham). Fancy goldfish: 1, Mr Whitsey (Accrington); 2, Mr A. Isherwood (Accrington); 3, Mr S. Walsh (Accrington). Common goldfish: 1, Mr J. Dandy (Leigh); 2, Mr H. Generali (Leigh); 3, Mr Whitsey. A.n.v. coldwater: 1 and 2, Mr Whitsey. Junior: 1, Master Moorcroft (Merseyside); 2, Master D. Spivey (Leigh). Breeder: 1, Mr T. Martham (Leigh); 2, Mr A. Addison (Warrington); 3, Mr and Mrs Huey (B.K.A.). 1, Mr Moorcroft; 2, Mr J. Alcock; 3, Mr D. Summers (Leigh). Fry: 1, Mr and Mrs Huey (B.K.A.); 2, Mr Moorcroft; 3, Mr K. Daniels (Merseyside). 1, Mr Crawford (Warrington); 2, Mr J. Boardman (Leigh); 3, Mr J. Alcock. Fishers: 1, Mr D. Ridyard (Leigh); 2, Mr D. Truby (Wrexham); 3, Mr C. Stewart (Wrexham). Large gouramis: 1, Master T. Spivey (Leigh); 2, Mr and Mrs Lomas (Runcorn); 3, B. & C. White (Leigh). Small gouramis: 1, Mrs Addison

(Warrington); 2, Mr D. Ridyard (Leigh); 3, Mr and Mrs Beadlesome.

NEWS from EALING & D. A.S. comes to us from Mr Dick Mills. He writes: 'Members' successes have moved away from the table show arena and have moved out to include some more widely contested honours at open shows. Terry and Doris Cruickshank have patronised most shows in the London area plus a few further afield and have emerged with many trophies and cards, particularly in the a.o.a. livebearer classes. Among other first-place cards gained by members have been limias, *G. symonieri* and angel fish—a recent high spot being John Batts' best fish in the show (a limias) at Bracknell A.S. open show.

'A most successful social and dance was held in September, several members arriving in fancy dress including Burlington Bertie, Annie Oakley, Mexico Pete and a complete heart transplant team. Recently, the club epidiroscope was put to good use during a talk by Mr Dick Mills on angel fish and during the lecture by Mr Katrinsky, which the Society were very pleased to have and which was a real *tour-de-force* for a very sprightly over-80, over 120 slides being ably commented upon. Recent table show winners have been: Class K.L.T.: 1, Doris Cruickshank (*L. vittata*); 2, John Batts (*L. vittata*); 3, Bob Sellers (*Brachydanio keri*). Furnished 4 x 4 showjars: 1, Dick Mills; 2, May Barbidge; 3, Terry Cruickshank.'

REVOLUTIONARY? A letter from Mr A. L. Kirchin in the monthly bulletin of the NOTTINGHAM & D. A.S. takes issue with comments in previous bulletins on the subject of leaving fish without food during a holiday period. Mr Kirchin writes: 'For years I have left the fish unfed on holidays—mainly for a week, but on one occasion for ten days. They thrive on it! Possibly more unusual is Mr Kirchin's next comment: 'Now for the last two years, I've gone a stage further and turned all the heat off as well, even in late September, and had no losses. After all, it takes a long time for a body of water, enclosed in a wooden cupboard, to drop to the temperature of the surrounding atmosphere, and it can never drop below that level. The reduction slows up the fish and they don't need the food which they are not getting anyway. Also, one can turn main switches off as a fire precaution. As for light, they have to do without.'

In Brief . . .

... MEMBERS of BELLE VUE A.S. have been on safari! The spoils, however, were of an unusual kind—rocks from Anglesey. Members arrived back with all sorts of prizes ranging from small crabs to large chunks of rock, and it was so enjoyable that further trips are planned. At a subsequent meeting Mr R. E. Legge, superintendent of Belle Vue Zoological Gardens and president of the Society, gave members many ideas on how to use their treasures when he presented a talk and slide show on setting up furnished aquaria.

... AN AUDIENCE of 40 members and visitors to COVENTRY P. & A.S. listened with immense interest when Mr Bob Fox described, with the aid of slides, his progression from a novice fishkeeper. He is now a very knowledgeable aquarist with a well-known business. Best fish amongst the 35 entries in the table show were a pair of cobra guppies entered by Mr Dave Easingwood.

... HORNSEY & D. A.S. thoroughly enjoyed a lecture by Mr C. Katrinsky on plants recently. Some excellent fish were entered in the table show, judged by Mr Eric Smith. A pair of giant danios entered by Mr D. Cooke were awarded 93 points; second came a pair of *C. schurtzei* belonging to Mr D. Petham (88 points) and a fine pair of three-spot gouramis (Mr G. Batcher) took 81½ points.

... MR A. TUFFS gave a talk to fellow members of HEMEL HEMPSTEAD A.S. after the summer recess on fish houses, which evolved into a very animated discussion so interested were members in the subject.

... WHEN SHEFFIELD & D. A.S. invited STOCKSBRIDGE A.S. to take part in an inter-society quiz the home team were the victors by just one point after a most enjoyable and informative meeting. Sheffield are also hosts to Workshop at a fishy bingo and pea and pie supper.

... CARSHALTON & D. A.S. members were highly appreciative of the lecture given to them by Mr Ian Mathieson of Tonbridge. At the table show at the September meeting Mr David Wiltshire won in the a.v. cichlid class with a black angel (2, Jean Horsley); 3, Ronald Wilsaire). Mr Christopher Lamb won in the livebearer breeders class, and in the plant class outright, and John Dixon in the junior class.

... WHEN F.B.A.S. judge Mr P. Harrison was at the meeting of **HAMPSTEAD & D. A.S.** in September he gave an informative talk on the fish in the table show for a.v. tropical fish after he had completed judging. Results were: 1, Mr R. Green (female guppy); 2, Mr E. G. Harvey (cardinal); 3, Mr M. Bradford (male guppy).

... THE EXHIBITION of furnished aquaria staged by **LEAMINGTON & D. A.S.** at the city's Pump Rooms Annex to publicise the Society was a huge success. The aquaria were furnished to a very high standard and it has been estimated that between 4000 and 6000 people visited the show during its 3-days duration, including those visiting from Australia, Eire, N. Ireland, Budapest and the U.S.A. The Spa Entertainments Manager has set aside dates for the Society to stage a similar show in 1971. Although admission could not be charged, the sale of programmes made a nice profit for the Society.

... SHOW SECRETARY Mr Brian Cripps of **GUILDFORD & D. A.C.** gave a most helpful lecture on electricity to the Society and reminded members to touch only the clothes of anyone being dragged from a 'live' situation and not their body. Correct methods for reviving someone who had received an electric shock were demonstrated and the correct way to wire up tanks. Chairman Mr Peter Lee organized a barbecue during the summer which proved very popular. Seats were made from bales of straw, hot dogs and hot potatoes were the order of the day and music from an electric organ and drums was supplied by secretary Mr John Cole and Mr Tony Henderson.

... **LINCOLN & D. A.S.** held their annual table show competition, at which the Richard Baines Rose Bowl is awarded, in September. Class A judge Mr Sibson and Mr Jackson officiated and awarded first and second places to Mr H. Bunnage for a *Cichlasoma severum* and a *Corydoras schwanzi*. Master Clayton was third (oscar).

... NEWS of **INDEPENDENT A.S.** comes from P.R.O. Mrs I. M. Applin: 'After the summer break we are meeting again at our Eden Grove, Holloway, venue. Club president, Mr Frank Tomkins, welcomed members back at the first meeting and gave an extremely interesting talk on egg-laying toothcarps which it is hoped will encourage us all to try to breed these particular fishes. New members will be made most welcome, so why not come along and

MR FRED MULLA in the msnv BEACON, journal of Merseyside A.S., contributes the following observation on the question of whether fish are able to distinguish colour: 'You might like to read of my experience with a severum I have had for many years. This fish, like a lot of others, will play-act when I enter the fish house—up and down the tank as though he hasn't been fed for weeks, O.K., but you should see him when he is shown the orange packet of dog biscuits—his antics have to be seen to be believed! His tail never stops going!'

meet us any Monday evening at 8 p.m.?'

... AT a general meeting of **NOTTINGHAM & D. A.S.** three members of the Society were asked to answer questions on breeding a fish in which they had been consistently successful. Mr Lowe spoke on neon breeding, Mr Kenney on angels and Mr Ross on tiger barb and thick-lip

gouramis. It proved a most interesting and informative meeting.

... **BRADFORD & D. A.S.** overcame the problem of decreased attendances during the main holiday month by having lectures and discussions inaugurated by society members. Mr H. Fletcher, the Society's vice-president, was particularly helpful, taking part in an 'Any Questions' evening and lecturing on 'Fishkeeping for Beginners'. This was a very helpful lecture in view of the Society's ever-growing membership.

... **TORBAY A.S.** members have found time, amidst all the preparation for their own show, to visit shows at Weymouth and Plymouth. At Weymouth, the Torbay members swept the board in the Characina H. & H. class, with first, second and fourth places to Mr J. Haynes and third to Mr M. Poole. Another first, three seconds, a third and three fourths were also achieved. At Plymouth, a round in the inter-club competition between Torbay, Plymouth, Totnes and Exeter, was held and Torbay were again most successful, coming first with 22 points.

Dates for Your Diary

29th October-1st November, **THE AQUARIUM SHOW '70**, Royal Horticultural Society Old Hall, Vincent Square, London, S.W.1.

1st November, **ASSOCIATION OF YORKSHIRE AQUARIST SOCIETIES 'Aquarist Fair'**, The Victoria Hall, Victoria Park, Keighley, York.

8th November, **HEYWOOD & D. A.S.** Open Show, Ambulance Hall, Burnford Road, Heywood. Booking 12 noon-2.0 p.m. Details from Mr A. Evans, Blenheim Close, Unsworth, Nr Bury, Lancs.

1971

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

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

4th April, **HOUGHTON & D. A.S.** Open Show. Schedules available in February 1971 from Mr H. Leighton, 194 Abbey Drive, Houghton-Le-Spring, Durham.

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

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

15th April, **YORK & D. A.S.** Open Show.

2nd May, **DUKERIES A.S.** third Open Show, Windford Portland Technical Grammar School, Sparken Hill, Worksop, Notts.

14th November, **HENDON & D. A.S.** Annual Congress, Whitefield Secondary Modern School, Clarendon Road, Hendon, London N.W.2. Tickets (66 adults) from Mr R. Maynard, 90 Cotswold Gardens, London N.W.2.

29th November, **AIREBOROUGH & D. A.S.** Open Show, Greenacre Hall, Rooden, Schedules from Mr G. E. Walker, 25 West End Terrace, Gaisley, nr Leeds, LS13 5LN (48 classes, 48 plaques plus trophies).

4th December, **HOORSFORTH A.S.** Open Show, Greenacre Hall, Rawden, nr Leeds. Booking 12.30-2.30 p.m. Schedules from Miss J. Hain, 29 Wellington Road, Leeds LS13 1BE (phone Leeds 22225).

12th December, **F.B.A.S.** Annual General Meeting, Conway Hall, Red Lion Square, London, W.C.1, at 2.30 p.m.

Show secretary, Mr M. Woodley, 46 Silverdale, Dinnington, Nr Sheffield.

9th May, **DERBY REGENT A.S.** Open Show, Sherwood Foresters Recreation Centre (Normanton Barracks), Normanton Park Road, Derby (phone R.A.C. 2192). Schedules from Mr R. T. Bull, 29 Queens Drive, Littleover, Derby.

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

29-30th May, **Sixth INTERNATIONAL GUPPY SHOW (FANCY GUPPY ASSOCIATION)**, Glebe Farm Community Centre, Stechford, Birmingham. Open to non-F.G.A. members.

26th June, **SWILLINGTON A.S.** Open Show.

9th-10th October, **BRITISH AQUARIST FESTIVAL** at Belle Vue, Manchester.

28th-31st October, **THE AQUARIUM SHOW '71**, Royal Horticultural Society Old Hall, Vincent Square, London S.W.1

START with A **PET CRAFT** AQUARIUM KIT



COMPLETE IN
PRESENTATION PACK
with full instructions

...the ideal aquarium Christmas
gift for beginners!

Every Kit comprises

PUMP * HEATER * THERMOMETER * 6' TUBING * 3-WAY
CONNECTOR * PAIR CLAMPS * TWO CLIPS * FISH FOOD
FILTER * AIRSTONE * WOOL * THERMOSTAT

'PETCRAFT' Aquarium Kits
are so easy to assemble - will
give hours of pleasure

a gift at 69/11

SEE 'PETCRAFT' AQUARIUM KITS AT
YOUR LOCAL PET OR AQUARIST STORE

Manufactured and Distributed by
Thomas's Limited · Shelf · Halifax 0422 21171



PET ACCESSORIES

"I saw your advertisement in PFM"

Classified ADVERTISEMENTS

AQUATIC SUPPLIERS

FERNWOOD AQUARIUM, 132 Havant Road, Hayling Island. Open for the sale of fish and plants until 5 p.m. Sundays.

TROPICALS. A good selection of tropical fish always available. Plants and accessories can be sent by post. S.a.e. for lists. Payne, 1027 Bolton Road, Bradford 2 (opposite Peel Park). Phone 639809.

OVER 120 VARIETIES tropical, marine and pond fish—for personal shoppers only. Kingfisheries, 308 Croydon Road, Beckenham, Kent. Phone 01-650 3716. Closed Wednesdays.

PLYMOUTH TROPICALS for your fish, plants and equipment. North Hill Nurseries, Tavistock Road, Plymouth. Phone 62663.

OLDBURY'S OF CHESTER. 100 varieties tropical fish, freshwater and marine. 40 varieties plants. Equipment. Live foods. Evenings after 7 p.m. Weekends 2 to 6 p.m. 36 Pearl Lane, Vicars Cross, Chester 41671.

TROPICAL FISH. See our large range of fish for sale (fully quarantined) in over 95 large tanks. We also have plants, aquariums, food and equipment. Give us a call. Open every day, except Mondays, until 7.45 p.m. Stainers Water Gardens, North Street, Martock, Somerset. Phone 3331.

BIND your copies of **PETFISH MONTHLY** as you receive them. Binders 20s (£3) each post free from PFM offices.

FISH

SUPERB VEILTAIL GUPPIES. Awarded 'Water Life' diploma. Best in open show £1 per pair, carriage 10s. C. R. Perry, Professional Aquarist, 615 West Street, Crews.

CLASSIFIED ADVERTISEMENTS

Rates: 8d. per word (minimum charge 8s.); Box no. 2s. extra if required. Remittance with order to be sent to **PetFish Monthly**
554 Garratt Lane, London, S.W.17

EQUIPMENT

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

LARGE AQUARIA FRAMES, STANDS, SHADES. 36½ x 15 x 12 in., 32s; 36½ x 18 x 12 in., 34s; 42 x 15 x 12 in., 40s. 1½ x 1½ x 4 in. angle: 48 x 15 x 12 in., 50s; 48 x 18 x 12 in., 54s; 48 x 15 x 15 in., 54s; 48 x 18 x 15 in., 60s; 60 x 15 x 12 in., 64s; 60 x 15 x 15 in., 70s. Stands to take 2 tanks: 37 x 12 x 36 in., 58s; 42 x 12 x 36 in. high, 64s; 48 x 12 x 36 in., 70s; 48 x 15 x 36 in., 75s; 60 x 12 x 36 in., 80s. Aluminium shades: 36½ x 12 in., 33s; 42 x 12 in., 40s; 48 x 12 in., 48s; 48 x 15 in., 52s; 60 x 12 in., 58s; 60 x 15 in., 62s. Glazing compound, 1/6d lb. Shades and compound sent only with frames or stands. List s.a.e. carr. paid. Hockney Engineers, Derwent Place, Leeds 11 (tel: Leeds 23061).

FOR SALE & WANTED

WANTED. Pair good quality veiltail goldfish or few good young fish. Turner, 3 Sunnymead Close, Selsey, Sussex.

FOR SALE. A beautiful wooden showcase holding two 36 x 12 x 12, three 24 x 12 x 12 and eight 18 x 10 x 10 aquariums with Grolux lighting, sliding doors and picture frame fronts. On movable castors. Cost over £140 to set up three years ago. £80 or nearest offer. Box 777.

WATER PLANTS

PERRY'S FOR PLANTS. 1st and 2nd Awards British Aquarist's Festival. Assorted selections tropical or cold. 7s 6d, 10s 6d, 12s 6d. Vallis, totora, S. natans, 7s 6d doz. *Cryptocoryne beckettii*, willisii, haerleiana, 2s 6d each, six assorted 10s. C. bullosa, 4s. Water wisteria, giant hygrophylla, 2s 6d. Post 1s. C. R. Perry, Professional Aquarist, 615 West Street, Crews.

PLANTS. *A. bernieriana* (narrow leaf lace) 15/-; *A. ulvaceus* (true) 10/-; *A. rigidifolius* 1/9, 3/6; *A. undulatus* 2/-; *N. stellata* 2/-. **BULBS**. *N. stellata* red, blue, pink 1/-; *Burclaya longifolia* 15/-; *A. crispus*, *natans*, *undulatus* 1/- (1 of each 2/3); *A. monorachyus* 2/-; *A. fenestrata* (lace plant) 12/6; **PLANTS**. *Cryptocoryne blausii* 12/6; *C. balansae* 4/6; Amazon sword 1/6, 2/6; pygmy sword 1/9; wisteria 6d, 1/-; Giant hygrophylla 2/-; Indian fern 1/3. (*Cryptocoryne wendtii*, brown, 3/-; *perchii*, 2/6; *wendtii* green, *undulata*, *ciliata* broad and narrow, *beckettii*, *willisii* normal, 2/-; *willisii* pygmy 1/6; one of each 16/-). Cabomba red, green; Ambulia, 8d, 6/- dozen. Vallisneria straight, twisted, Hygrophylla, Elodea densa, Ludwigia, Sagittaria, 6d, 5/- dozen. Riccia 2/-; Nitella 2/6. Plant collections (extra value) 10/-, 20/-, 40/-; postage 1/-; D. W. Smith, 20 Park Street, Kidderminster, Worcs. Phone 62601.

AN INTERESTING POSITION

arises in a London aquatic establishment for a personable lady between the ages of 30 and 40 interested in aquatic plants and aquarium decor. Salary to be agreed upon. Please write to Box 750.

ACUREL[®] Q for WHITE SPOT, fungus and algae
NOW IN CAPSULE FORM, 10 accurate easy to
administer dosages. Retail 6/9d.

Bioquatic Laboratories: 161 Rustlings Road, Sheffield S11 7AD.



FEED KING BRITISH QUALITY FOODS



King British accelerated freeze-dried RED TUBIFEX WORMS

This LIVE fish food has a high protein content and is ideal for feeding two or three times a week as booster food. It will assist the growth of your fish and make them more lively and colourful.

5 grammes 2/9
10 grammes 5/0

It's suitable for any type of fish

King British WHITE WORM CULTURE

You can use this starter culture for breeding worms at home ... or you can feed your fish, economically, from the jar. Easy to feed; clean; no smell.

Only 4/6 per jar

Feed your young fish ...

King British SAN FRANCISCO BAY BRINE SHRIMP EGGS

These best quality eggs from San Francisco Bay have a high hatching rate and, if necessary, complete hatch can be available in under 48 hours.

An ideal food for quickly bringing on baby fish from 10 days old to 8-10 months. Used by leading fish breeders throughout the country.

Recommended retail prices:

size 1, 2/6; size 2, 4/-; size 3, 7/6; size 4, 14/-; size 5, 24/-

King British LIVE MICROWORMS

... an excellent food for small baby fish

High protein content; stimulates faster growth.

3/9 per jar

KING BRITISH

AQUARIUM ACCESSORIES CO

Cannon Mills, Union Road, Bradford 7, Yorkshire
Tel: Bradford 73372 and 74201

A subsidiary Company of Keith Barraclough, Aquarist



In our Showrooms at all times

A wide variety of rare and interesting specimens of tropical fish

Complete selection of Aquatic Equipment

SEND 1/- IN STAMPS FOR OUR NEW 12-PAGE PRICE LIST

OPEN DAILY 9 a.m.—6.30 p.m.
9 a.m.—8 p.m. each Friday
Half-day closing Wednesday, 1 p.m.
Open Saturday to 5.30 p.m.
Closed all day Sunday.

keith barraclough AQUARIST

568 GREAT HORTON ROAD, BRADFORD 7, YORKSHIRE Tel: BRADFORD 73372

An associate Company of King British Aquarium Accessories Co.

FOR HEALTHY TROPICAL FISH AND WELL ESTABLISHED PLANTS



—AND A VERY COMPREHENSIVE STOCK OF AQUARIUMS AND ACCESSORIES

WINGATE 7 MARKET STREET WINCHESTER

Main stockists of JEWEL and GEM
aquariums. Retail and Wholesale

Phone 2406

Classified ADVERTISEMENTS (continued)

REPTILES

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

BOOKS

THE PERFECT GIFT for the aquarist
is a book. Send for our complete list.
The Aquatic Book Service, Office 3, 46
Church Road, London, S.W.13.

AQUARIA by Jim Kelly. An illustrated
teach yourself book, with 34 colour
plates, 3 b and w photos, and numerous
line drawings. Written by one of the
country's leading experts. Wonderful
value at 12s 6d. Send remittance plus
1s 6d post and packing to The Aquatic
Book Service, Office 3, 46 Church
Road, London, S.W.13.

**TORTOISES, TERRAPINS &
TURTLES** by I. and A. Noël-Hume.
112 pages, 13 plates, 19 line drawings.

6s. PetFish Publications, 554 Garratt
Lane, London, S.W.17.

MISCELLANEOUS

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

TROPHIES, CUPS, PRIZES. Send for
list to Vernon & Wilson (PM) Ltd,
56 Spencer Street, Birmingham 18.

ACUREL® F A GREAT NEW CONCEPT IN
aquatic environmental control. Clears cloudy and green
water, improves filter capture efficiency by over 500% Keeps
decorative aquaria crystal clear. **HARMLESS TO FISH AND PLANTS.**
Bioaquatic Laboratories: 161 Rustlings Road, Sheffield S11 7AD. Retail 8/6d.



WALTER R. SMITH LTD.
AQUARISTS

REPTILES ... GARDEN PONDS ... AMPHIBIA

Jewel, Gem, Stainless Steel, Arbe and Angle iron Aquariums
All accessories for: Tropical, Coldwater and Tropical Marine Aquaria

TROPICAL FISH HOBBYISTS

All available 'Back Issues' stocked, commencing Sept. 1959
Sept. '59/Aug. '68—2/9d. Sept. '68/Dec. '69—3/3d.
Later issues—3/9d. Current issue—4/-.
Prices EACH inc. postage

Retail Price List—1/6, inc. postage. Trade enquiries welcomed.
Suppliers to Educational and Municipal Authorities throughout the British Isles.

39 TIB STREET, MANCHESTER, M4 1LX
Telephone: 061-832 2961

Show room: 16 Whittle Street, off Tib Street
PREMISES CLOSED SUNDAY AND MONDAY THROUGHOUT THE YEAR

SPECIAL ANNOUNCEMENT

Hayes Aquatics

**42 THE BROADWAY
SOUTHALL MIDDLESEX**

Phone 01-574 4121

have opened a spacious new
shop specialising in tropical
and coldwater fish, plants and
equipment

RETAIL AND WHOLESALE

- * **MANY VARIETIES OF FISH** available at special prices—e.g. neons 12 for £1
- * **UPPER AND LOWER SHOWROOMS** in the process of completion will house more than 200 tanks of specimen fish—and a coffee-lounge for long-suffering wives!
- * **LATE OPENING—THURSDAY AND FRIDAY**
Retail until 8 p.m. — Wholesale until 10 p.m.

A WARM WELCOME IS EXTENDED TO YOU

"I saw your advertisement in PFM"

The House of Fishes

Telephone
HEMEL HEMPSTEAD
4723

DISCUS CUSTOMERS call personally from places like Liverpool and Portsmouth and Cardiff. At the moment callers have the choice of brown, blue, green, red, seven-coloured and locally bred blue/seven-coloured cross (second brood now ready). If it is impossible for you to call then you can rely on the fact that your requirements will still have our best attention.

THE LATEST IN BOOKS—THE COMPLETE AQUARISTS' GUIDE TO FRESHWATER FISHES is now available at £4.10 post free. This is an honest-to-goodness good book (and not because we have written the discus chapter!) and will be a favourite Christmas present.

MANAGEMENT AND STAFF are departing for the evening at 5 p.m. on Saturday 14th November. It's Hendon Convention time again and Herr E. Roloff from Germany is the guest speaker and but then you are going, too, aren't you? Tickets from us if you wish, 6/- adults, 3/- juniors.

77 HIGH STREET, HEMEL HEMPSTEAD, HERTFORDSHIRE

Open 9 a.m. to 7 p.m. Closed Wednesday and Sunday.



With **TEN TIMES** the **SALES POTENTIAL!**

PAPERBACK EDITION

PUBLISHED 14th SEPT. 1970

RETAIL ONLY 12/6

170 pages Published by
John Gifford at 12/6

**JOHN
GIFFORD LTD**

119-125 Charing Cross Road
London, W.C.2

01-437 0216

An outstanding publication on keeping Marine Tropical Fish at home.

The book includes detailed instructions on setting up and maintaining an aquarium, kinds of fish etc., and provides an unequalled guide for the home aquarist. The book is illustrated by a large number of useful line drawings, and 12 pages of superb four-colour photographs.

LIBRARY EDITION still
available at 35/-

Please mention PFM when writing to advertisers



Hello
There!!

I would like to introduce myself. My name is Prof. Inkworthy Octopus G.Q.F. known to my friends as Inky

I am now the registered trade mark of

HENDON AQUATICS

and I reside at 19 FINCHLEY LANE, HENDON NW4

You can visit us any day of the week from 9am until 7pm and by popular request our store is open every Sunday morning from 10am until 2pm.

You can reach me by telephoning 01-203 4829

We guarantee to offer you only top quality fish and plants, at prices you can afford to pay. We have over 50 large aquariums packed with all varieties of tropical fish, beautifully aquascaped with rocks and plants. You will find a complete range of aquariums, pumps, filters and all other accessories including all live foods.



Expert advice and personal service is given willingly to all our customers.

Inky says: "If you visit us once, you will want to come again and again, so remember the name!!"

"I saw your advertisement in PFM"

GILLWAY AQUATICS

14 THE PRECINCT, TAMWORTH STAFFS. Tel. TAM 5617
 149 GILLWAY, TAMWORTH, STAFFS. Tel. TAM 4020
 59 STAFFORD STREET, WALSALL, STAFFS. Tel. WAL 20165

WHOLESALEERS—AQUARISTS

FOR THE TRADE

Cash and Carry—Now at Tamworth and Walsall
TOP DISCOUNTS. Please phone TAM 5617 and WAL 20165

FOR OUR RETAIL CUSTOMERS

At **TAMWORTH** 110 Tanks of Plants and Fish on Show

At **WALSALL** 60 Tanks of Plants and Fish—and our new

Marine Department will soon be open

For that **Better Quality** and **Tiptop Service** call now at
 Tamworth or Walsall

Open: Mon Tues Thurs 9–5.30, Fri 9–7.30 (Walsall 9–6)
 Sat 9–6, Sun (Tamworth only) 10–12, 2–4. Half-day Wednesday

Neals garden and pet centre

Heathfield Road London SW18

telephone 01-874 2037

open 8.30 am–6 pm

NISHIKI KOI
now available

We specialize in garden pools,
plants and coldwater fish and
have a vast stock for your
inspection

**Over 200 species of tropical
fish usually in stock**
and a large selection of tanks
and equipment including
Gro-lux lighting.

*Extensive parking facilities available in our
5 acre Nursery Showground and aviaries*

Send For

Our Wholesale Weekly List
of top-quality freshwater
and marine fish and plants

★ ★ ★
NEW FOREST TROPICAL FISHERIES

c/o **GRANT'S GARDENING**
GOSPORT LANE

TEL: 2472 **LYNDHURST, HANTS**

RETAIL: SUNDAYS ONLY 10 a.m.–1 p.m.

decor shells Genuine Sea Shells

*A variety of sea shells to decorate your fish tank
or surrounding area*

Prices per packet 4/-, 8/-

The 12/-, 20/- packets include larger exotic shells

Also available Sea Urchins 4/- each

p. and p. 1/3 for pks 4/- and 8/-

2/- for pks over 10/-

For orders over 10/- post free

Ideal Present for Xmas

Send c.m.o. to DECOR SHELLS

Trade Enquiries 12 Gloucester Close, London NW10 8EG

Welcome 171A Vilettas Road, London W3 7TA

Please mention PFM when writing to advertisers

A select few of our young home-bred **BROWN DISCUS** (see article p. 290) are being offered for sale.

TEL.: GODFREY 01-653 7522

A PRACTICAL FISHKEEPING MANUAL



IN FULL COLOUR

10/6

KOI

By COLIN D. ROE
& ANTHONY EVANS

This new PRACTICAL FISHKEEPING MANUAL from PetFish Publications is the first comprehensive book in English on the fancy Nishiki-koi from Japan.

Colour photographs show a wide range of the available koi varieties; information on the origin of these, as well as practical advice on keeping and breeding koi, is made available for the first time in Britain.

56 pages 8 in. by 5½ in.

Published by

PETFISH PUBLICATIONS

554 GARRATT LANE, LONDON S.W.17

AS SHOWN AT

B A F '70

EHEIM

**THE
POWER FILTERS**

A model for every size aquaria

EHEIM 388 "COMPACT"

EHEIM 386 "SINGLE"

EHEIM 476 "MAJOR"

EHEIM 486 "SUPER"

**EHEIM 586 "POWER
MASTER"**

Prices from £11-5-0 to £65-10-0

Available with either fresh or seawater mediums

FULL RANGE OF SPECIAL FILTER
MEDIUMS AND TUBE ACCESSORIES
AVAILABLE

Guaranteed one year

SEE THEM AT YOUR LOCAL DEALERS OR
WRITE FOR INFORMATION TO:

AQUATIC HOBBY LTD

FARNBURN INDUSTRIAL EST.
FARNBURN AVENUE
FARNHAM ROAD
SLOUGH BUCKS

SCAN GROUP

"I saw your advertisement in PFM"

BONNER AQUARIA

19 BONNER STREET
BETHNAL GREEN
LONDON E.2
Tel. 01-980 1488

TROPICAL PLANTS

FISH

COLDWATER ACCESSORIES

Mon.-Fri. (except Thurs.) 9 a.m.-8 p.m.
Thurs. 9 a.m.-1 p.m. Sat. 9 a.m.-6.30 p.m.

You don't want McLynn's!
BUT YOUR FISH DO!



THE BEST TROPICAL FISH FOOD
A BALANCED DIET IN THE PLASTIC BOX,
THAT WILL NOT FOUL OR CLOUD THE
WATER

There was a young lady from Ryde,
Who complained that her fish always died,
Then she changed to McLynn's
Now she breeds harlequins,
And shows off her trophies with pride!

Manufactured and Distributed by:

McLYNN'S PET FOOD CO.
SQUIRRELS LEAP,
WOODFIELD LANE,
ASHTAD,
SURREY

Obtainable at any Good Pet Shop

For 1971: petfish aquarist's diary

Pocket-size, with pencil, and containing

- PAGES OF TECHNICAL DATA AND GUIDANCE ON AQUARIUM AND POND-KEEPING
- GENERAL INFORMATION
- MAPS OF THE WORLD IN COLOUR

7s post free

To be published October 1970
Order early to avoid disappointment

To PETFISH PUBLICATIONS
554 Garratt Lane
London, S.W.17

Please send _____ copies of the
1971 PetFish Diary for which I enclose

Name _____

Address _____

Please mention PFM when writing to advertisers



**LEADERS IN
QUALITY
AQUARIUM
EQUIPMENT
for nearly 20 years**

ASK at YOUR LOCAL AQUARIST SHOP

for **DATAM** when you need

SILICONE AQUARIUM SEALER

- | | |
|---------------|----------------|
| Glass Wool | Filter Fibre |
| Filter Carbon | Aquarium Salt |
| Glass Silk | Aquarium Peat |
| Filter Pads | Heater Clips |
| Plant Weights | Methylene Blue |

Velvet Cure

Aqua-Pic Aquarium Backgrounds

POND FISH FOOD

POOL DIET PELLETS

Goldex Fish Food

Dried Daphnia Ants Eggs

Shredded Shrimp

Brine Shrimp Eggs

Wholesale Enquiries to:

**DATAM PRODUCTS
9 STATION ROAD, BEESTON
NOTTS**

For All Aquatic Supplies

AS SHOWN AT

B A F '70

HALVIN®

AQUARIUM FILTERS

Bottom Filters

- | | |
|-------------------------|------|
| HALVIN 32 Internal | 7/- |
| HALVIN 34 Internal | 9/- |
| HALVIN 4 Internal | 12/6 |
| HALVIN 1 Corner | 18/6 |
| HALVIN 35 Corner, small | 10/- |
| HALVIN 36 Corner, med. | 12/- |
| HALVIN 37 Corner, large | 18/- |

Outside filters

- | | |
|------------------------------|------|
| HALVIN 12 Small outside | 12/6 |
| HALVIN 10 Med. outside | 21/- |
| HALVIN 11 Small "Filterfast" | 30/- |
| HALVIN 18 Med. "Filterfast" | 50/- |
| HALVIN 17 "Champagne" | 30/- |

Breeding Traps

- | | |
|-------------------------|------|
| HALVIN 20 Five-Way Trap | 15/- |
| HALVIN 28 Guppy Trap | 9/- |

**Brass needle valves mounted
on hanger**

- | | |
|----------------------|------|
| HALVIN 73a Two Way | 9/6 |
| HALVIN 73b Three Way | 14/6 |
| HALVIN 73c Four Way | 17/8 |
| HALVIN 73d Five Way | 23/6 |

A FILTER TO SUIT ALL AQUARIUMS AND POCKETS

FROM ALL GOOD AQUARIUM DEALERS
OR WRITE FOR INFORMATION TO:

AQUATIC HOBBY LTD

FARNBURN INDUSTRIAL EST.
FARNBURN AVENUE
FARNHAM ROAD
SLOUGH BUCKS

SCAN GROUP

"I saw your advertisement in PFM"

Books by post for the fish-keeper

- | | | | | | |
|--|--------|--|--|---|------------------|
| Advanced Aquarist
Dr FERDZ GHADJALLY | 37s 6d | Water plants | The Marine Aquarium
WOLFGANG WICKLER | 10s 6d | |
| All about Tropical Fish
DEREK MCINERNEY and
GEOFFREY GERARD | 65s | A Manual of Aquarium
Plants
C. D. ROE | 37s 6d | The Marine Aquarium for
the Home Aquarist
ROBERT F. O'CONNELL | 35s |
| Aquarist's Guide
JIM KELLY | 37s 6d | Aquarium Plants
H. C. D. DE WIT | 35s | Tropical Fishes of the
Great Barrier Reef
TOM C. MARSHALL | 84s |
| Breeding Aquarium Fish
WOLFGANG WICKLER | 10s 6d | Biology of Aquatic Vascular
Plants
C. D. SCULTHORPE | £7 | | |
| Breeding Aquarium Fishes
Dr HERBERT R. AXELROD and
SUSAN R. SHAW | 86s | Encyclopedia of Water
Plants
JERI STODOLA | 84s | General | |
| Encyclopedia of Tropical
Fish
Dr. H. AXELROD and
W. VORDERWINKLER | 75s | Seaweeds and other Algae
C. L. DUDINGTON | 36s | Aquaria
JIM KELLY | 12s 6d |
| Freshwater Fishes of the
World
GUNTHER STERBA | 90s | Coldwater fish and ponds | | Aquariums
ANTHONY EVANS | 4s |
| Illustrated Dictionary of
Tropical Fish
HANS FREY | 80s 6d | The Book of the Garden
Pond
G. F. HERVEY and J. HEMS | 45s | Aquarium Hygiene
HELLMUTH WACHTEL | 10s 6d |
| Keeping Tropical Fish
LESLIE B. KATTERNS | 21s | Garden Ponds
ARTHUR BOARDER | 6s | Aquarium Techniques I and
II
A. O. JANZE | 12s 6d each part |
| Know How to Breed
Egglayers
R. L. CORTE | 7s | Goldfish
ANTHONY EVANS | 6s | Cultivated Tropical Fish
Show Standards
(F.B.A.S.) | 2s 6d |
| Know How to Breed
Livebearers
ALBERT J. KLEE | 7s | Know Your Goldfish
NEIL TEITLER | 7s | Electricity in Your
Aquarium
L. WARBURTON | 2s 6d |
| Know How to Breed
Tropical Fish
RICHARD HAAS | 7s | Koi
COLIN D. ROE and
ANTHONY EVANS | 10s 6d | Fishes of the World
ALLAN COOPER | 6s |
| Know Your Guppies
ALBERT J. KLEE | 7s | Marsh Gardens
ERNEST RICHARDSON | 1s 6d | Food for the Aquarium and
Vivarium
WILLY JOCHER | 10s 6d |
| Portrait of the Guppy
LARRY KONIG | 12s 6d | Pond and Stream Life
JOHN CLEGG | 2s | Functional Design in
Fishes
R. M. ALEXANDER | |
| Tropical Aquaria for
Beginners
JEAN CHRISTIE | 7s | Pond Life in the Aquarium
H. JANUS | 10s 6d | Ichthyology
K. F. LAGLER, J. E. BARDACH and
R. K. MILLER | £7 4s |
| Tropical Fish
DEREK MCINERNEY | 6s | The Goldfish
G. F. HERVEY and J. HEMS | 42s | Know Your Aquarium
RICHARD HAAS | 7s |
| Tropical Fish and Fish
Tanks
REGINALD DUTTA | 6s | The Water Garden
H. C. WITHAM FOGG | 5s | Live Foods for Aquarium
Fishes
A. LAWRENCE WELLS | 3s |
| Tropical Fish in the
Aquarium
J. M. LODDEWIKS | 21s | Water in the Garden
D. BARTRUM | 25s | Looking After Your
Tropical Aquarium
JOHN GRAHAM | 2s 6d |
| | | Marines | | Planning and Decorating
the Aquarium
WILFRED WEIGEL | 10s 6d |
| | | Exploring the Reef
ROBERT STRAUGHAN | £6 6s | The Complete Aquarium
D. VOGT and H. WERHÜTTE | 25s |
| | | Know How to Keep
Saltwater Fishes
WILLIAM P. BRAKER | 7s | The Life of Fishes
N. B. MARSHALL | 63s |
| | | Marine Aquaria
L. A. J. JACKMAN | 35s | | |
| | | Salt-Water Aquarium Fish
Dr HERBERT R. AXELROD and
W. VORDERWINKLER | 75s | | |

Pet Fish publications

554 GARRATT LANE LONDON S.W.17

Phone 01-947 2805

When ordering please indicate your name and address clearly and enclose remittance. Postage and packing: Orders up to £1, 1s; £2, 1s 6d; over £2, 4s 6d.

Please mention PFM when writing to advertisers

INSTANT SUCCESS

was achieved by this advertisement published
(elsewhere) last month:

London's oldest-established fish specialists,

Fish Tanks Ltd., *calling all:*

Sales Managers

Have you a new or an established line you want to sell in the heart of London's West End? We allow you to choose and price the merchandise (including fish and plants) which we display on sale or return for 28 days. Anything good should have sold by then.

It's your judgement you back and the customer decides, not us.

Please ask for details.

Customers

When one man chooses you get only his "flavour", and a limited selection. Our policy gives you 'many shops rolled into one' as utterly independent experts select your goods.

As London's oldest established *specialists* we offer "everything for pond or aquarium": tanks (including made to specification), fish, accessories; fish doctor service; hire contracts; tanks and ponds set up or cleaned anywhere, home or abroad.

Everybody's happy! You, the customer; the supplier and us!

FISH TANKS LTD.

49 Blandford Street (Just off Baker Street), London, W.1. 01-935 9432

The clear-cut success of the above (which continues, of course) has prompted a further development:

**DO YOU WANT TO OPEN YOUR OWN "SHOP"
IN OUR NEW DOWNSTAIRS DISPLAY CENTRE?**

Self-contained, lock up rooms which you rent

You get an already established market; a West End shop at a fraction of normal cost and yet be entirely independent, your own name, goods and staff; and you keep the whole of your takings.

This multi-firm permanent display centre will be a very great draw. You will get the customers—they will get the choice; everybody's happy!

"I saw your advertisement in PFM"

SHIRLEY AQUATICS LTD

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

NEW TROPIC MARIN THE ARTIFICIAL SEA SALT WITH GUARANTEE

For success with
Marine Tropicals
NEW TROPIC MARIN
Artificial Sea Salt with Guarantee

5 gallon size 9/- 10 gallon size 17/6
20 gallon size 32/6

Postage 4/6 on any quantity

NOW AVAILABLE TO
Traders from Main
Wholesalers and to
Hobbyists from most
Good Dealers

This salt makes artificial sea water almost indistinguishable from natural sea water.

In case of difficulty write to us for the name of your nearest supplier.

USEFUL XMAS GIFTS

**A MANUAL OF
AQUARIUM PLANTS**
Profusely illustrated
27/6 post free

A WIDE RANGE OF BOOKS
on tropical freshwater and
marine fishes

OZONIZER
SANDER No 2
£15 15s
invaluable in keeping marines

JUWEL AQUARIUMS
also a fine selection of cabinets,
stands and saltwater aquariums
for callers

**SPECIAL XMAS
COLLECTION**
of tropical AQUARIUM PLANTS
40 in variety for 50/-
at least 12 species

**ADULT PAIRS of
MALAWI CICHLIDS
and
ROYAL BLUE DISCUS**
in good colour for callers

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, slight at "The Crown," Monkspath.

HOURS OF BUSINESS—Weekdays 10 a.m.—5 p.m. Sundays 10 a.m.—12.30 p.m. for sale of plants only.

CLOSED ALL DAY EVERY MONDAY

TERMS OF BUSINESS—Cash with order please. Fish sent by rail. Tropical minimum order £7 10s., insulated container and carriage 30/- Cold water minimum order £5 plus 20/- can and carriage. Plants by post (minimum order 10/-) please add 2/6 post and packing.

PRINTED BY ADLARD & SON LTD., BARTHOLOMEW PRESS, DORKING