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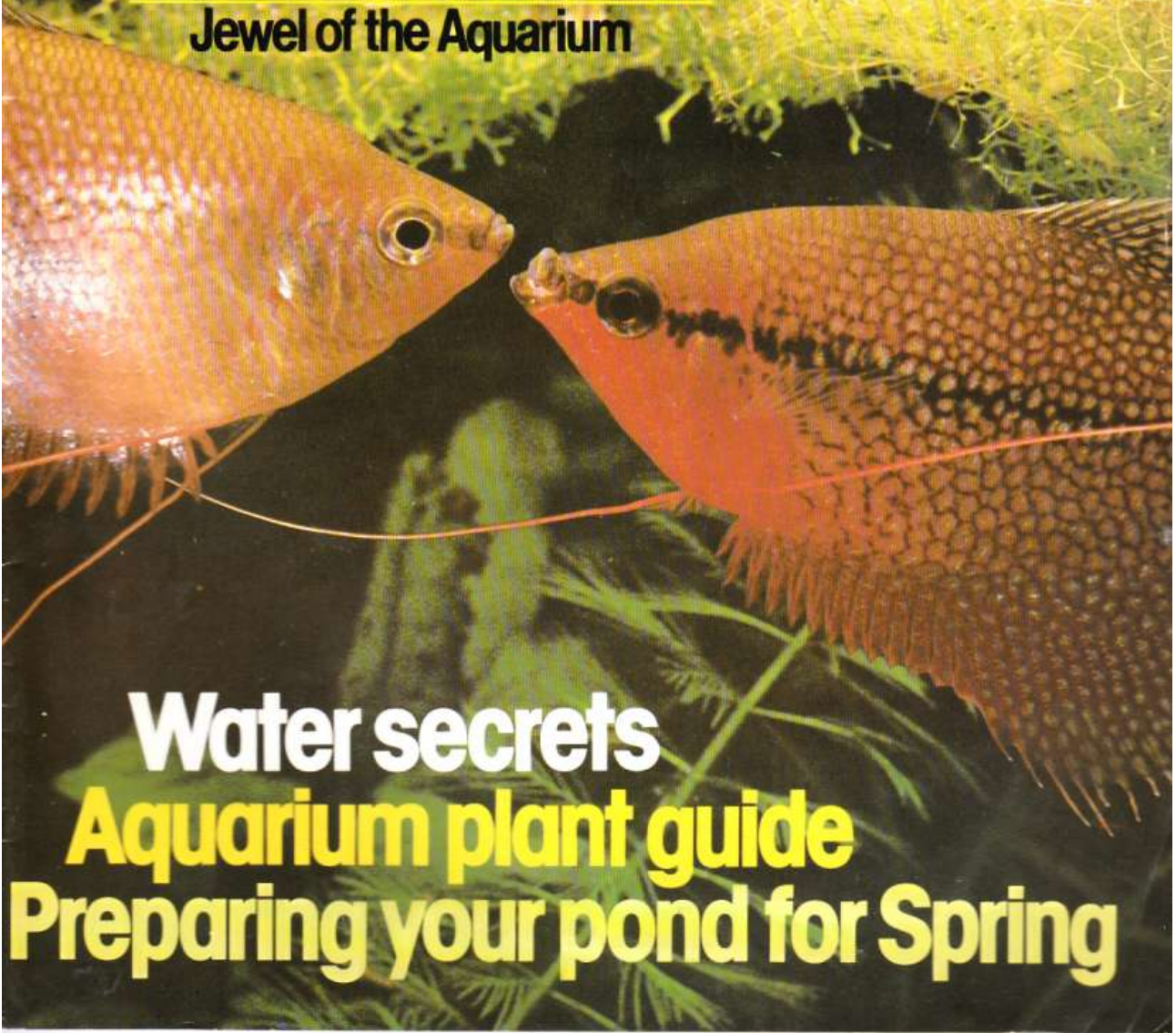
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Practical fishkeeping

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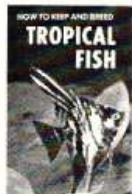


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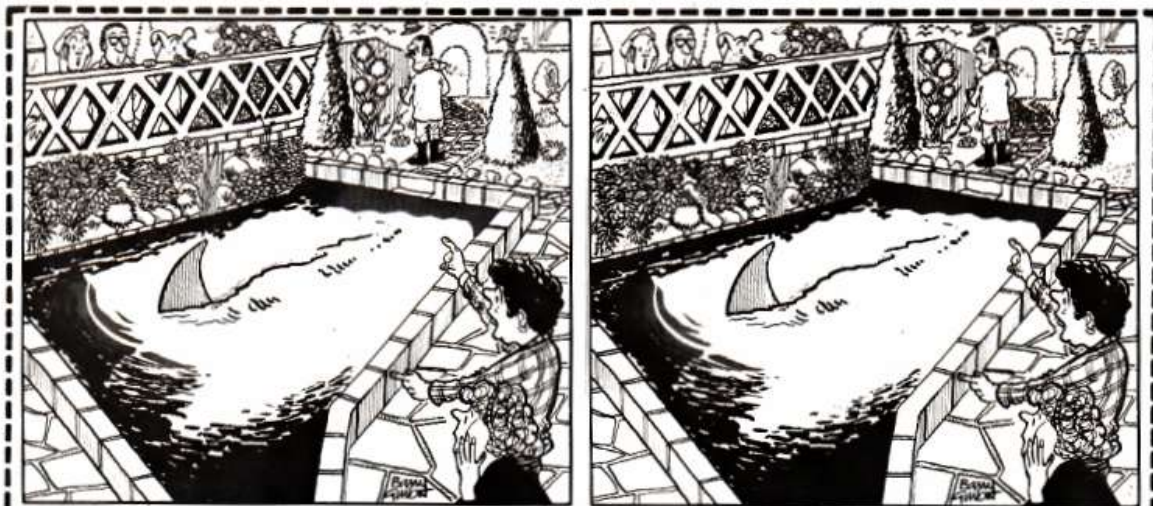
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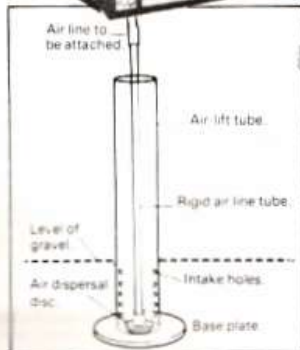
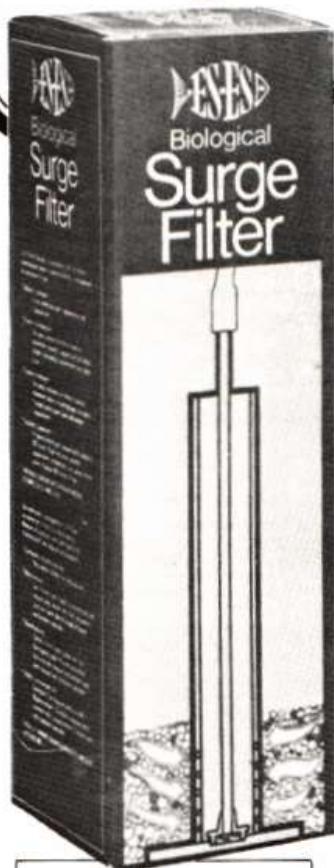


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Kings of the Amazon

THE vast rain forests of the South American continent, bisected by the mighty rivers of the Amazon system, offer countless treasures to the aquarist.

As well as the huge variety of fish which live in the main rivers and tributaries there are even more beautiful aquatic plants.

But perhaps the most valuable assets are the magnificent members of the Tetra family.

Few community tanks would be the same without a cloud of Neon Tetras. And many of the other Tetras make ideal community fish.

They are magnificently coloured little fish in most cases.

Usually they are not too difficult to breed. Most scatter their eggs which adhere to plants.

But they do need very soft and slightly acidic water for breeding although most will exist happily in average community tank water conditions.

This comes from their natural habitat. Many of the South American rivers are almost entirely soft rainwater.

And the rain percolating through the rotting vegetation in the forests gives the water its acidity.

Here are just a few of the attractive Tetra family.



AMONG a family of such pretty fish, one stands out as the most delicate and beautiful — the Bleeding Heart Tetra (*Hyphessobrycon rubrostigma*). This romantic name comes from the heart-shaped red spot in the middle of its deep flank. A mixture of pink and red shades seems to radiate from their "bleeding heart".

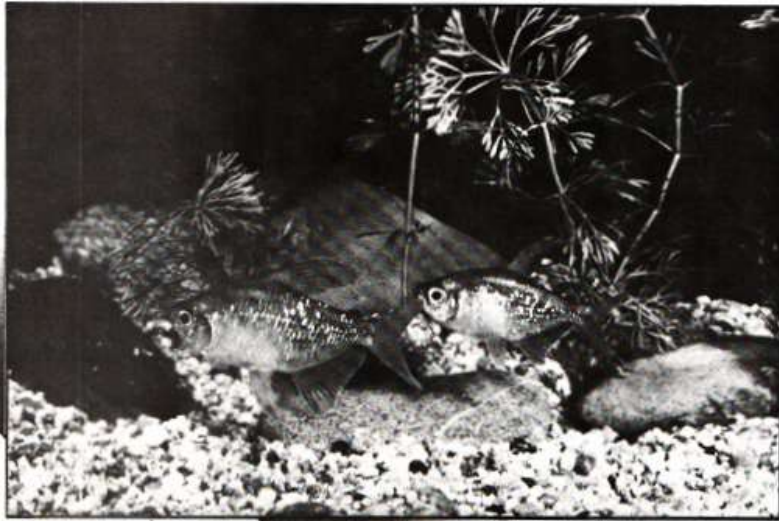
AS one of the larger Tetras the Black Tetra (*Gymnocorymbus ternetzi*) is probably not an ideal community fish. They can grow to about three inches and may become aggressive towards smaller fish. They are natives of Paraguay and are deep bodied with silver and black marking. There are three distinct black stripes, the first passing through the eye. The males are usually slimmer and smaller than the females. Breeding is fairly straightforward. There are long finned strains which make a magnificent aquarium variety.



A look at the Tetra family
— Tiny but beautiful fish
from South America



A subtle yellow tinge to its lower body gives the Lemon Tetra (*Hyphessobrycon pulchripinnis*) its name. Found in the Amazon basin growing up to about two inches it is a lively character. It is fairly easy to spawn and a peaceful non-aggressive fish.

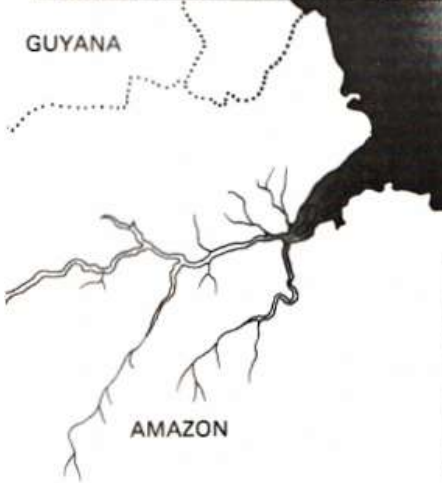


VENEZUELA is the home of the jewel-like Diamond Tetra (*Moenkhausia pittieri*). The fish is so named because its tiny scales shine with a diamond iridescence from tank lighting. The fish grow fairly large — to about two-and-a-half inches. Males are easily recognised by their higher and larger finnage.



ANOTHER easy Tetra to breed is the Black Line Tetra (*Hyphessobrycon scholzei*). It takes its name from the thin black line running right along its body ending in a black triangular patch at the base of the tail. Again it is a native of the Amazon basin. Spawning is prolific. The fish may be a fin nipper with long finned companions in the community tank.

GUYANA



AMAZON

BRAZIL

RIO de Janeiro is famed world wide for its colourful carnival. But in the colour stakes a little local fish the Flame Tetra (*Hyphessobrycon flammeus*) isn't put to shame. The front of the fish is golden running into a deep red. The fins are red and two black streaks mark the flanks. The fins are also edged with black. The fish is sometimes called the Rio Tetra because it originates in the area of the Brazilian city. It grows no bigger than about two inches and is one of the easiest Tetras to spawn.



A VIVID red stripe is the unmistakable trade mark of the Glowlight Tetra (*Hemigrammus gracilis*) from Guyana and the Amazon. This glowing colour is also present in the eye. It has white tipped fins and the rest of the fish is an olive colour. But for the stripe it could be a drab specimen. Typical of the Tetras the parents will quickly eat their own eggs. Eggs and fry are sensitive to light, so shade the hatching tank.



ANY community tank would be graced by the attractive presence of the Black Neon Tetra (*Hyphessobrycon herbertaxelrodi*). This fish has a greenish body with lighter underparts. A white stripe from gill to tail root is flanked by



AMONG the Tetras the Neon (*Hyphessobrycon innesi*) is the most famous and the most unmistakable. Its stripe of electric blue from gill to caudal fin gives its name. And this vivid colouring is complimented by a deep red patch around the tail root and a whitish belly. The fish is a native of the Amazon in Peru, Brazil and Columbia. Males have a perfectly straight blue line while the female's neon strip is crooked. One of the drawbacks of the fish is its susceptibility to a parasite called Neon Disease which wastes away the flesh. But otherwise the Neon richly deserves its place as one of the most popular aquarium species.



Coldwater keeping

Meet Bristol's veteran goldfish expert — Wilf Ham
— by Norman Wright



WHEN you are keen on all aspects of fish-keeping, it is a difficult decision to choose between your favourite tropicals and your tank and pond full of beautiful goldfish.

But Wilf Ham had to make that decision when the Bristol AS became a purely coldwater society.

Wilf — who specialised in Barbs as well as Bristol Shubunkins — could have gone with the newly formed Bristol Tropical Fish Club.

Instead he wound down his tropical tanks and bought some big coldwater tanks for his fish house.

And he doesn't regret his decision one little bit.

"I suppose I kept almost all the main species of tropicals and got most of them to spawn. I can remember the first Neon Tetras arriving — and they were thirty bob each then, mind you," said Wilf.

"But the coldwater species have proved so



A badge famous among coldwater fishkeepers — the Bristol AS emblem.

WITH coldwater fishkeeping becoming more and more popular — both in ponds and aquaria — PRACTICAL FISHKEEPING starts a new series on this branch of the hobby.

During the summer we will be bringing you practical help and information on how to take up coldwater keeping if you are a beginner, or how to improve your existing set-up and methods if you have already started.

And what better way to start the series than by meeting Wilf Ham of the country's most prestigious coldwater society, Bristol AS.

Wilf (77) is a true veteran of fishkeeping. And he has something to offer to both the novice and the more experienced coldwater man.

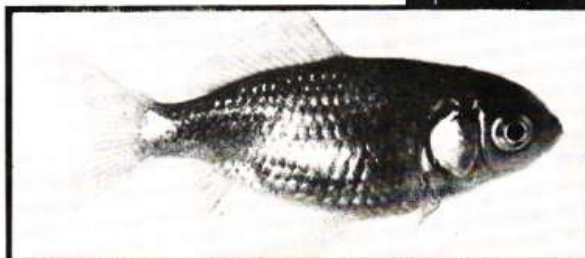
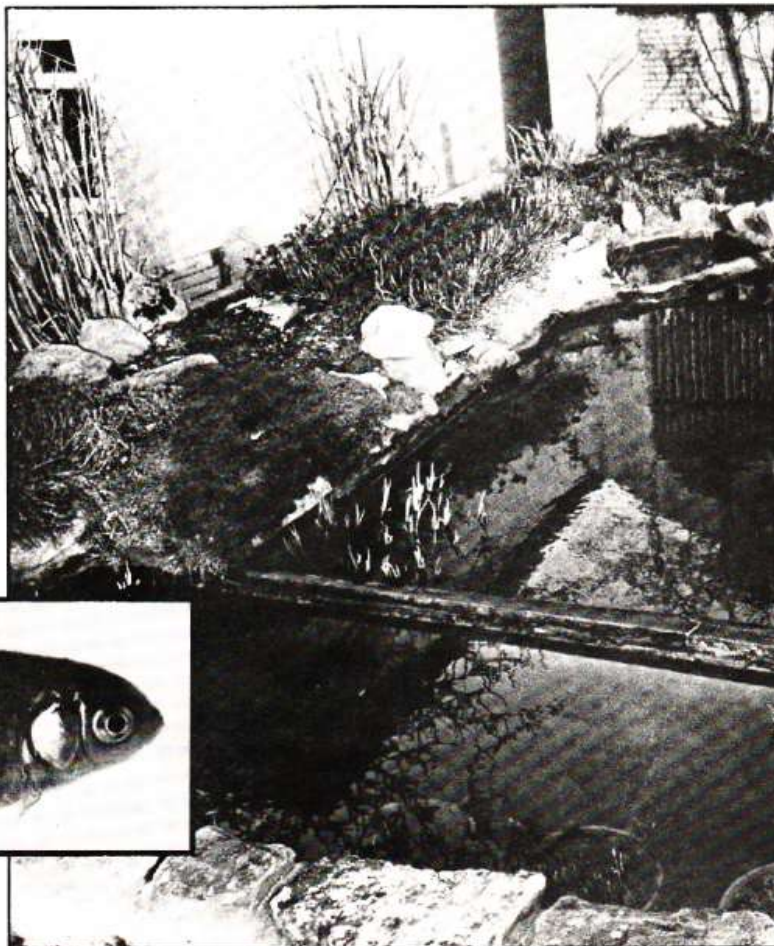
He has kept fish for over 50 years and took up the coldwater side in 1947.

He has been secretary and treasurer of the Bristol society in his time and now during his retirement he is show secretary.

Wilf ran an electrical contracting business in Bristol before his retirement. But he still found time for fishkeeping and winning plenty of honours in Bristol shows.

Along with "Tommy" Thomas — also a leading member of the Bristol society — Wilf now uses his considerable experience as a judge.

And he still has a fine pond and fish house at his home.



A Bitterling bred by Wilf Ham.

Even at the end of a hard winter Wilf Ham's pond looks in fine shape.

fascinating to spawn and develop that I have never regretted specialising.

"I think it is a very important and interesting area of fishkeeping which is expanding and I would recommend anyone to take it up," he added.

At 77 Wilf is far more active than many men well behind in years.

He is a specialist in breeding and developing goldfish and his tanks are bare and used for that purpose.

But those beautiful Shubunkins and metallic goldfish are displayed — in his garden pond system.

And many of his techniques picked up over the years apply to the show fanatic or the aquarist who just wants a simple home display tank.

Wilf's main advice for goldfish is to keep them in as big a tank as possible.

"I have five foot tanks for my fish. They are far easier to keep in this size aquarium. And if you intend to spawn them you need four smaller tanks for hatching," he explained.

Wilf doesn't like to keep all his eggs in one basket. That's the reason for the four hatching tanks.

And he has quite a novel method of spawning the goldfish and raising the fry in the different tanks.

"Eggs are susceptible to all sorts of problems. If you use four different tanks if you get trouble in one it shouldn't spread to the others," he said.

Wilf's method involves borrowing some of his wife's knitting wool!

First, he boils the wool to remove any surplus dye.

Then he makes a wool ball — the sort that adorns a wolly bobble hat.

It's quite simple to make one of these balls.

Cut two four inch diameter circles of cardboard and then cut a centre hole so they look like a Polo Mint.

Place them together and wind the wool thickly round the "Polo".

When the wool is completely wound, covering the card, cut it all the way round the circle by pushing the scissors between the two pieces of card.

Then tie the complete bundle of wool strands tightly in the middle. When you pull the two circles free the wool will form a bobble hat ball.

Wilf suspends this in his spawning tank from a lead strip anchored to the bottom. This is so the fish can swim all round the ball.

They deposit their eggs on the ball. It is a simple matter for Wilf to then remove the ball, cut it into four quarters and put each one, all with its batch of fertilised eggs, into a different tank.

"I pick out the best of the fry which go into the pond as soon as they are big enough. They grow quicker there.

"And the others as rejects go into the sales we hold at the society meetings," explains Wilf.

He looks out for the beginnings of good colourings and the fin and body shape closest to show standards. In choosing the fish to keep.

Wilf also has fixed views on feeding his fish.

He used to collect daphnia from Bristol Zoo. But has rejected this live food as being too dirty.

Now he either uses trout pellets, worms or Go Cat!

Yes, that's right. Go Cat. Wilf finds the cat food — which comes in five flavours — makes great goldfish food.

"It floats in one lump with portions dropping off so the smaller fish get the right size helpings while the bigger fish can have the whole pellet to go at," he explained.

Water changes are another of his pet subjects. He uses no filtration in his tanks but changes most of the water once a week in winter and twice a week in summer.

"I siphon as much out as possible. Just leave enough water to cover the fish's finnage," he says.

And he doesn't believe in letting his fish get too cold during the winter. The heater thermostat in his fish house switches on at 40 F.

Goldfish aren't his only coldwater interest. Wilf reared Pumpkinseed Bass for some years and has successfully bred Bitterling in conjunction with swann mussels for many seasons.



PRACTICAL FISHKEEPING

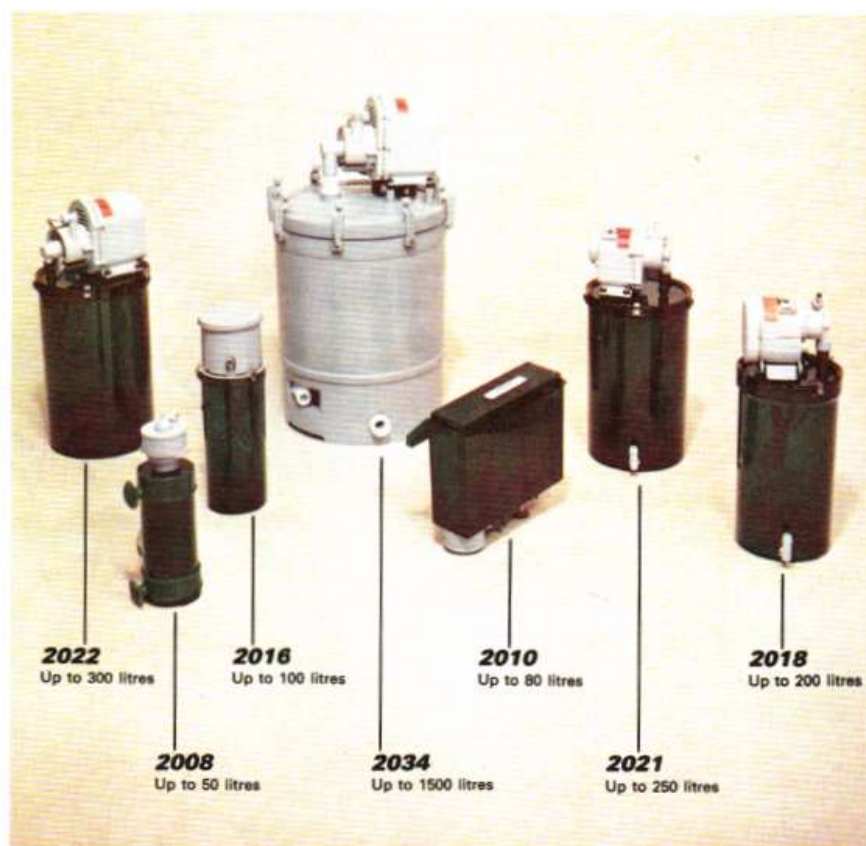


Cats love Go Cat and so do Wilf's goldfish. He rates it as a great fish food.

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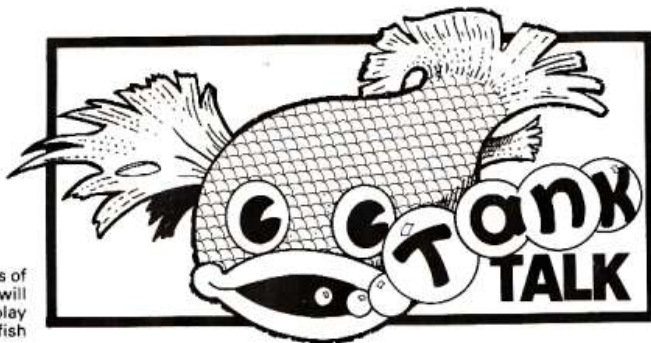


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ANYONE who has seen films of Japan's huge Koi shows will know what a fascinating display these colourful and varied fish make in their show pools.

The Midland Koi Association are trying to bring that beautiful display to a wider British audience at their annual show on July 1.

Normally one of Britain's premier Koi shows the event is designed this summer to attract an even bigger entry and more people to see the fish.

And an imaginative approach by the association looks like succeeding in pulling in more spectators — both fishkeepers and the general public.

The MKA's show committee are making the event at Baginton Village Hall, Coventry, into a complete Japanese day.

Local firms and societies are joining forces to produce what looks like being a great show.

There will be displays of martial arts, Japanese flower arranging and that magical paper folding art. And there are plans to put on a display of Japanese cars.

It all adds up to an entertaining day plus the prospect of seeing some of the country's best Koi.

For those interested in exhibiting, the man to contact for information is Ron Causer, 8 Swinburne Road, Mill Hill Estate,

Editor Norman Wright's look at the fishkeeping world

Hinckley, Leics.

Spectators can attend the show on Sunday July 1 at 12.30pm.

PRACTICAL FISHKEEPING's competitions published every month are proving very popular indeed.

All the winners of the January and February contests have now received their aquarium prizes.

January winner was Christopher Goodwin of Worthing, Sussex, who won a fully stocked tropical set-up.

And the winner of the February prize — a Panavision Aquarium — was David Nicholl of Bury St. Edmunds, Suffolk.

There's another contest in this issue on Page 10 with a tank worth £150 at stake. Entry is completely free, so why not have a go?

I HAVE had lots of letters from readers who have had difficulty in getting a copy of PRACTICAL FISHKEEPING.

There are two ways of making absolutely certain.

First, you can order a copy

from your newsagent. Just fill in the form on page 22 and hand it to him. He will take care of the rest.

The second method is by taking out a subscription. Fill in the form of page 30. For only £7 we will post your copy every month.

But if any reader still has difficulty, write direct to me and I will sort out any problem.

A NEW addition to the PRACTICAL FISHKEEPING staff is Maureen Trowsdale who is now handling all display advertising copy.

Advertisers should send material direct to Maureen at our Bretton Court address.

CONGRATULATIONS to Mervyn Strange of the Basingstoke AS, Hants. He was presented with the Federation of British Aquarist Societies' yellow badge at their March general assembly.

Mervyn was honoured for his services to the hobby. He has done a great deal of work in fishkeeping and thoroughly deserves his accolade.



Norman Wright

SINCE the new look PRACTICAL FISHKEEPING appeared in December hundreds of aquarists have taken advantage of our free Aquatic Query service.

The solid, experienced advice of Dr David Ford of Aquarian and Graham Cox of SeAquariums has helped all those readers who have written with their fishkeeping problems.

Many of those individual problems crop up with every tank. And PRACTICAL FISHKEEPING's Aquatic Queries section which publishes a selection of answers are a mine of information.

Next Month is no exception. There will be another six pages of fact packed queries of interest to tropical, coldwater and marine keepers.

That's just one of the major attractions of the May issue.

Here are some more of the features you can't afford to miss

Next Month



Roger Cleaver and Peter Bull explain the types of fish you can keep.



More expert help and advice on plants from David Shields.

if you keep fish.

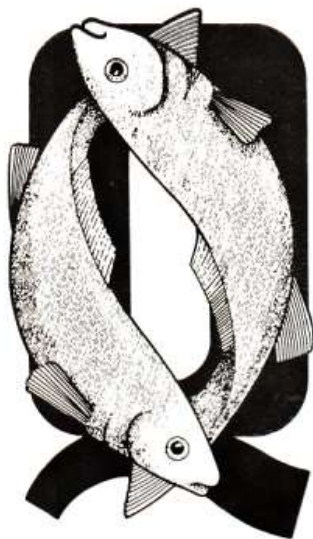
Koi carp are becoming more and more popular to keep. Our pond experts Roger Cleaver and Peter Bull continue their series with a look at Koi.

The differing types and varieties can be a puzzle. But when you read next month's article you will be able to understand just why this beautiful species is so fascinating and rewarding.

DAVID Shields is a real plant expert and he will be explaining more planting techniques aimed at showing you how to make your aquarium more attractive.

TECHNICAL writer Cliff Harrison has been looking at some of the latest developments in fishkeeping. He will keep you up to date in May.

There's much more for all fishkeepers in the May issue. Don't miss your copy on the first of the month — place a regular order now.



AQUATIC QUERIES

Research by Dr. David Ford

Remember to clean undergravels

I AM annoyed by the excessive layer of mulm in my four foot tank. It is not just on the gravel, but is suspended in the water and settling on the plants. I "hoover" it out about every ten days. Filtration is undergravel. If I increased the depth of the gravel would this improve the filtration and reduce the prospect of mulm?

What is your theory on using plants from just one part of the world? Could you provide a list of compatible plants? If Aponogiton bulbs are placed in the fridge after dying back would this act as the off season and therefore make the bulbs grow again quicker? — B. Lavery, Plymouth, Devon.

Undergravel filters do not remove debris, only pull it into the gravel. They need cleaning out just like any other filter unit. Siphon the gravel out by using a wide bore tube — such as a garden hose. Wash it well and replace. Another problem may be that the turnover of water is not fast enough. Make sure the air in the uplift tube is running at the maximum possible.

Plants do not show compatibility — they just have ideal water chemistry values. Some prefer hard, alkaline water. Some like stillwater and others prefer running water. Such varied conditions can exist in any area of the world.

Fry deaths

AT the moment I have two pairs of breeding angels about 12 months old. But when I try to raise the eggs in a hatching tank they get to the free swimming stage at seven or eight days and for some unknown reason just die.

The tank is kept at a constant 80 degrees, a measured amount of Acriflavin is added to stop the eggs fungusing, and the water is aerated. I have tried various mixes of water but the fry still die. Can you help me please? — G. Noke, Ashton-under-Lyne, Lancs.

The breeding angels may be of poor genetic stock perhaps through in-breeding. If all else fails you must change the parent fish.

It must be significant that all the fry die at the free swimming stage. This is when they need food — enough to give them full bellies, but not enough to pollute the tank. Use infusoria cultures and brine shrimp newly hatched for intensive feeding. This means every few hours at this critical stage. Use a magnifying glass to determine full bellies.

Some breeders have had more success with peaty water for the hatching tank, than by using chemicals. Soak the peat for a month or more in some aquarium water.

Then draw off enough to give a few inches depth in the hatching tank. Use an airstone to keep the peaty water flowing over the eggs.

Don Martin's feature on breeding Angels in the March issue of PRACTICAL FISHKEEPING will also give you expert advice.

Ancient tank

COULD you please give me advice on the construction of a tank 6 ft x 3 ft x 2 ft. I used to keep tropical fish many years ago and really the only type I am familiar with is the frame and putty tank. I would also like guidance as to the thickness of glass needed for a tank of this size. — M. Arqent, Rushton, Northants.

The frame and putty tank is gone forever now. Even if a framed tank is necessary because the dimensions are large, the glass is placed in the frame with a silicone sealer buffer.

The limit on 1/4 glass is a 24 x 12 tank. For anything even slightly larger, use 3/8 glass although the costs increase with this. Large tanks need supporting strips of glass to prevent bowing.

Fin trouble

IN my community tank I had a Dwarf Gourami which developed a couple of white blotches near the dorsal fin. A Pearl Gourami developed similar blotches near the eye. Both became motionless and the Dwarf died. I tried white spot treatment to no avail. What was it and how can it be cured? — J. Harriman, Wigston, Leicester.

It is impossible to diagnose the disease from this description. It certainly doesn't sound like white spot, so your treatment was probably not only a waste of time, but could contribute further to the stressing of the fish.

Even if the white blotch was a fungus, treatment with a Fungus cure would probably be ineffective as fungus is usually a secondary symptom and you need to trace and cure the primary disease.

Oscars will savage your plants



Tinfoil Barb — an ideal large community species.

I AM a beginner to fishkeeping and I plan to buy a 53 x 12 x 18 tank. In it I shall keep my two Velvet Oscars, two catfish and two Tinfoil Barbs. I have an Eheim 2008 inside filter as I am not too keen on undergravel filtration.

Will the filter be enough to do the job in a tank of this size? Should I use an airstone as well?

Is there any plant life I can use with these Oscars?

Should I have plenty of rock work?

Could I have a pair of Firemouth Cichlids in this tank? Or would it be asking for trouble?

What wattage of light should I use? At present I have a Gro-lux 30 watt three foot tube. — Adam Kerr, Wheathampstead, Herts.

To deal with your questions in order:—

A power filter cannot replace partial water changes because soluble material still builds up in the water even if the filter removes solid materials. A good

filter merely reduces the frequency of water changes needed to maintain an acceptable water clarity.

Therefore, your Eheim will be adequate if you clean it out often enough and still do partial water changes. How often depends on your feeding rates as well as fish density.

An airstone is always useful to raise the oxygen content and can be decorative.

Yes there are such plants — plastic ones!

It is not so much the amount of rockwork that is important as the number of spaces between. That is, territory.

You will have trouble in introducing Firemouth to the established tank. But if you rearrange the rockwork just before the introduction, all the fish will need to re-establish territories and this may help.

A 53 inch tank can take two 30 watt fluorescent tubes. Try a North light tube to offset the pink colour of your Gro-lux.



Angels — the parent stock could be at fault.

PRACTICAL FISHKEEPING

■ Providing plants without gravel

AFTER reading the article by Don Martin in the January issue of PRACTICAL FISHKEEPING I am considering attempting to breed Rams. But there are two questions I would like to ask that were not mentioned in the article. First, what sort of lighting should be used in the breeding tank? Second, Don Martin said not to put gravel in the tank, but to put some plants in. How is this done?

Could you give me any information on clubs in my part of Yorkshire? — R. F. Wheeldon, Wakefield, W. Yorks.

When breeding any fish, tank decorations should be kept to a

minimum to aid cleaning for the necessary aseptic conditions. However, a few plants give a female somewhere to hide if the male's attentions become excessive. These can be plastic plants or real ones held down by a strip of lead.

Lighting is irrelevant except for you to view the fish.

There are many clubs in your area. For details contact the Federation of Northern Aquarium Societies — A. Darby, 1 Perrin Street, Hyde, Cheshire, or the Yorkshire Association of Aquarium Societies — D. Greenwood, 59 Worsley Road, Immingham, Yorks.

■ Where can I find this Cichlid?

I CAME across a picture of a fish called *Lamprologus brichardi* and although this is supposed to be a well-known cichlid I cannot find it in local shops. Can you give me further information about it? — David Morton, Spalding, Lincs.

Lamprologus brichardi is commonly called the Lyretail *Lamprologus*. It is one of the very large *Lamprologus* genus, which also includes the Lemon Cichlid and Compressed Cichlid species.

They are all from Lake Tanganyika and so prefer hard, alkaline water with some mineral salts added. They accept all meaty and live foods and can be trained on to flake. They may be quarrelsome when adult.

Many dealers stock this fish from time to time. But to obtain one try a specialist cichlid dealer like Thringstone Aquatics, 14 Main Street, Thringstone, Leicestershire. (Tel: Coalville 222533 or 222758).

■ Larger species for a community



Oscars — magnificent but pugnacious fish.

IN addition to our three foot community tank we have recently built another three-footer which we would like to use for larger fish. If possible we want to stock more than one species as this will be a decorative tank in a living room. We would be grateful for any suggestions of species. They need to be easy to keep and relatively placid with fish of similar size. We had considered Diamond Sharks, perhaps you could give some idea as to their suitability? — A. and C. Howick, Witley, Surrey.

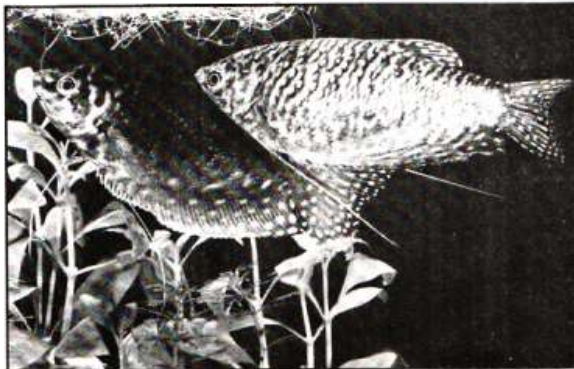
PRACTICAL FISHKEEPING

Some of the largest aquarium fish belong to the Cichlid family, particularly the Rift Valley species. Of course, these may not be compatible, but with a rocky tank to give territories you will have less trouble.

The Oscar is a good choice and others include the Tinfoil Barb — which can grow to 14 inches — and the South American Cichlids such as *Geophagus* spp.

The "Diamond Shark" is not a listed species so I cannot comment on it. Please let me have more information on the species.

■ Curing Gouramis which attack plants



Any species of Gourami can give trouble, even these Blue Gouramis.

I BOUGHT a pair of Opaline Gouramis to add to my community tank. Within 24 hours they attacked one of my plants by chewing off all the branches until just stumps were left.

The original fish in the tank have a pinch of Vegetable Diet flake at mid-day with frozen food or tubifex in the evening.

Will the Gouramis leave this plant alone when they become accustomed to the veg diet? Any

feeding suggestions with this particular problem in mind would be greatly appreciated. — G. Durrant, Wooburn Green, Bucks.

Once a fish finds the taste of a plant is acceptable you can say goodbye to the specimen. The fish assume that you are feeding them. Opaline Gouramis (*Trichogaster opaline*), like all the Gourami species, are peaceful fish, but they like a varied diet. Instead of vegetable diet try a multi-flake diet.

■ Malawi Cichlids

I ENJOYED your "Spotlight on Cichlids" feature. But although you showed pictures of the Malawi Cichlid and Firemouth you made no mention of them in the text. Could you give more information. I have a community tank and thought of introducing some of these Malawis as feature fish. — F. Mitchell, Reading, Berks.

There are hundreds of Malawi Cichlids — it is just a name for species found in Lake Malawi, Africa. Details can be found in a book called "African Cichlids of Lake Malawi and Tanganyika" by Dr H. Axlerod and W. Burgess, TFH Publications ISBN-0-87666-468-0.

The Firemouth is *Cichlasoma meeki*, a mild-mannered cichlid that can be kept in a community tank of large fish. No special water conditions are needed. They grow to around four inches. They accept flake or fresh foods and are easy to breed using a flower pot as a "cave". Raise the fry separately from the parents and feed them on brine shrimp and then fine, dried foods.

■ Power pump

I ALREADY have a 20 x 12 x 15 tank and I intend to buy a bigger one. Should I use an external filter powered by an airpump or use a power filter? If you think I should use an external filter what sort of airpump should I buy with a view to using it for four tanks?

What breeds of larger fish are suitable for a community tank? — R. Hopkins, Dunmow, Essex.

If you can afford it, a power filter is much more efficient than a box or undergravel filter. With enough partial water changes there is no need for any filtration.

As to recommending a best buy, it usually follows that the best is dearest. I suggest you buy the best you can afford.

An airpump that can be used later to operate more tanks is a double outlet one. You can join the outlets for one tank and separate them later for more tanks. Petcraft do a reasonable double outlet version.

There are many large fish that are peaceful and so suitable for the community tank. But any fish with a mouth as large as your smallest fish will simply consider it as food you have given him.



■ Stepping up

AFTER keeping smaller tropicals for about a year I am keen to move up to bigger fish. I am interested in the Cichlid family, particularly the Firemouth. I intend to use a 24 x 12 x 15 tank for these fish.

But I should like your advice on the following points:—

● How many fish could I keep in the tank without danger of fighting?

● What type of plants would stand up to any rough treatment these fish might hand out?

● Would a power filter be necessary to cope with the digestive rate of these fish? If so what output size would you recommend?

● Will these fish take dried food and what meats will they take?

● What size fish would you recommend and how much should I expect to pay? — Miss I. Hopkins, Portslade, E. Sussex.

Firemouths are not aggressive fish — except when breeding — so you may stock at the usual levels of one inch of fish per 12 square inches of water.

The fish should not attack any plants.

They do not have a high digestive rate. They are greedy and will accept any food. But they will only digest their needs and excrete the rest. Hence, if you overfeed you are simply polluting the aquarium via the fish. Any power filter will not remove this surplus. It is still there in the filter medium and releasing soluble to pollute the bulk water. So feed sparingly and rely on frequent partial water changes to keep the tank clean.

Firemouths will accept any food. So feed twice daily on as wide a range of scrap foods as possible. Also include a high quality flake food to ensure the necessary trace elements are supplied. Aquarian's Carnivore Flake will fulfill this.

AQUATIC QUERIES

Research by Dr. David Ford

■ Species for an aquarium at 60F

PLEASE advise me on the types of tropical fish suitable for a 48 x 12 x 15 tank with a temperature of 60 to 65 F without a heater.

About three months ago I set up a fish house in a wooden shed insulated with fibre-glass for insulation, covered with hard-board and painted with Aquaseal. The average temperature of the house is 80 to 86 F heated by paraffin.

The reason for the low temperature of this tank is because it is only four inches from the ground.

— J. Gay, publicity officer, Medway AS, Kent.

I would think this topic of suitable fish for a cool aquarium would make a lively debate when your society meets!

My contribution would be Guppies and White Cloud Mountain Minnows. Of course the fancy goldfish would be suitable.



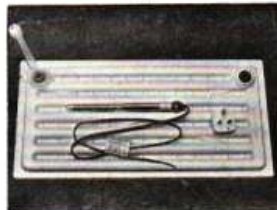
Fancy goldfish — ideal for coldwater aquariums.

■ Getting rid of sand snails

Can you help?

I have also unwittingly introduced the Malaysian Sand Snail to the tank.

I have tried chemicals, but despite following the instructions have lost some fish without killing the snails. Have you any suggestions? — J. King, Huntingdon, Cambs.



Undergravel filter — poor results for plants.

TWELVE months ago I took up keeping tropical fish again after a ten year break. I decided to start again with a 36 x 15 x 12 community tank. I am as interested in aquatic plants as with the fish. And I have endeavoured to set up a tank with conditions conducive to the good health of both. However, I have had very little success with the plant growth and cannot understand this as I had no trouble with my previous community tanks.

I use a mixture of lighting — a 20 watt Gro-Lux tube and a 30 watt tungsten strip which are on for about 12 to 14 hours a day. Water temperature is between 78 and 80F. Filtration is by undergravel filter covering about half the tank bottom, but which is only activated during the night hours.

Water is 50 per cent boiled tap water and 50 per cent matured rainwater. Planting medium is brown river gravel varying from 3½ inches deep at the rear to two inches at the front.

Fish are the usual common tropicals — about 24 inches in all.

I can remember no problems with my plants of ten years ago.

Your problem with the plants is the undergravel filter. It is now accepted that few plants will grow if an efficient undergravel filter is running.

You must either use plant pots or remove the filter. A successful formula is to layer one inch of garden peat, soaked for several days and then squeezed out to remove acid and colours, under one inch or more of fine gravel. The usual aquarium gravels are five millimetres, use two millimetres.

A box filter or two can replace the undergravel filter.

You are wise to stop using chemicals to kill the snails. Inevitably such chemicals must stress the fish. The safe method to remove snails is to lay a sheet of plastic or slate on the gravel and attach a tablet of fish food or a lump of beef heart held down and covered by an upturned saucer. The saucer prevents the fish eating the food. Snails will swarm over the slate and saucer during the night. Lay the bait each evening and remove the slate and saucer before lights on in the morning. Simply swill the snails away and re-bait at night. A week should see the end of them. Odd snails can be crushed by finger pressure. The fish will eat the carcasses.

■ Tank cloud

I HAVE been plagued with an algae problem since I took up fishkeeping six months ago. I first set up a 36 x 15 x 12 tank with undergravel filter and as all seemed well after a few weeks I started a second tank in the same way. Suddenly the first tank started to get cloudy. It was green in colour and got denser and denser until nothing could be seen. It was obviously algae and I decided to clean the whole tank out and start again. Now after two weeks the other tank has developed the same symptoms and it seems I am going to have to repeat the operation. Can you help? — D. Green, Newport, Gwent.

I regret to inform you that you did the worst possible thing in trying to clean the algae from your tank. A new tank has to mature and an algae bloom often occurs at this stage in the maturing process.

Cleaning everything and starting again simply means having to pass through the algae bloom stage again.

Plants do not grow very well with undergravel filters and this may be aggravating the problem. Pot the plants or change to box filters. As a beginner you may also be overfeeding your fish.

All about Marines

With Graham Cox and Dr. David Ford

■ Small tank



Make sure your Clowns have an anemone.

COULD you provide some information on setting up a marine tank? I have room for a 20 gallon tank and I realise this may be on the small side and will mean limitations on the marine life I could keep.

What type of filtration systems would you recommend?

What type and how much lighting should I use?

What inmates would be suitable? I was thinking in terms of two Clownfish or Damsel Fish plus invertebrates.

What combination of these inmates would be suitable?

In what order should the creatures be introduced to the tank?

Is there a book you could recommend? — R. Moore, Tamworth, Staffs.

A 20 gallon tank is a reasonable size for marine fishkeeping, providing water quality is maintained at the optimum.

Undergravel filtration is the cheapest. Power filtration is more efficient and the filter can be cleaned without stressing the fish. The approximate turnover per minute would be one tenth of the aquarium's volume.

Any lighting can be used — tungsten bulb, fluorescent, Gro-lux, Truelite, even Dichroic Spotlights. For a good algal growth, if desired, 20 or 30 watt fluorescent tubes or two 60 watt bulbs will suffice. Light the tank 12 hours a day.

Your tank could hold up to six medium sized coral fish, that is two to three inch specimens, and as many invertebrates as you want.

The combinations depend on what fish are available at your price rather than what is desired. One tip — if you have Clowns have an anemone for each. They are unhappy without an anemone. There is no particular order in stocking.

Many books are available, one you could try is *Marine Aquarium Guide* by Frank De Graaf, Pet Library, 30 Borough High St, London SE1 ISBN 0-78826-011-0 (about £3).

■ Bringing fish from the Gulf

I WORK in Saudi Arabia, and during my free time I snorkel in the Gulf, studying at close range the beautiful coral fish and invertebrates. Recently I managed to catch six fish averaging four inches in length.

Could you advise me of the best way to transport them back to the U.K. during my next leave? I estimate my total travelling time as 12 hours. — E. Ashford, Millford Haven, Dyfed, Wales.

First of all you must starve the fish of all food for at least 72 hours — preferably five days — prior to packing them for travelling.

For fish of this size you need twelve well made polythene bags — that's two bags per fish — measuring 6 x 12 with one six inch side opening. They should be strong and made of at least 400 gauge polythene.

Next, take four sheets of newspaper. Lay them on top of each other and fold them to make a bag approximately 6 x 6. Now thread the two bags inside each other with the newspaper bag sandwiched between the two.

The newspaper prevents any hard fin rays or spines which may penetrate the inner bag from reaching the outer bag — so preventing leaking.

Now half-fill the polythene bag with crystal-clear, nitrite-free seawater and gently net the fish into the bag.

Tightly inflate the polythene bag with neat oxygen. Tie off the inner and outer bags separately with stout elastic bands and place into a moulded styrofoam box. Replace the tight fitting lid and tape all round the joint to seal it as well as possible.

Next, put it into a cardboard box, similarly sealed with tape. Packed like this your fish should be quite safe for 48 hours providing the box is not exposed to temperatures greater or less than 70F for long periods.

When you open the box do so in very subdued light and correct the imbalance between the bag water and your tank over 30 or 40 minutes.

Treat the aquarium with a prophylaxis such as Myxazin on days one, two and three to help the fish recover from the stresses of their journey.

■ Safe lid

I HAVE bought an aquarium 48 x 12 x 15. This tank was supplied with an aluminium lid which was not painted on the underside. Is it safe for a marine aquarium? — M. Hingerton, Thornton Heath, Surrey.

No, it most certainly is not safe for use over a marine aquarium. Aluminium, whilst being relatively stable in chemicals of lower than neutral pH, forms toxic salts very rapidly in association with chemical solutions having a pH greater than 7. Since healthy seawater has a pH in the range of 8 to 8.3 you will now appreciate the danger of aluminium in aquaria.

Please also note that anodising the aluminium does not help since the coating is only a few microns deep and is easily scratched.

However, all is not lost if you carry out the following sequence:—

- Paint the entire inner surface with metal primer paint — specify one suitable for aluminium.

- Paint one coat of NON-LEAD white undercoat — for example "Dulux" undercoat.

- Paint at least one coat of non-lead white gloss — again "Dulux" would be an example.

- As a final measure use close-fitting cover glasses.

You now have a perfectly safe aluminium hood. But you would find it hard to believe how many calls we take at SeAquariums from aquarists who have lost all their coral fish through aluminium poisoning because they were not aware of the above dangers when they purchased their tanks.

■ The cost of a marine aquarium

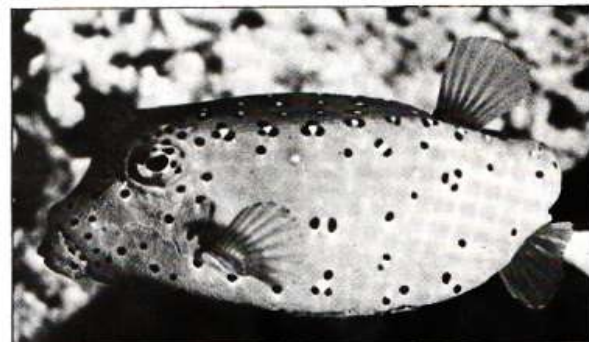
WHAT will it cost to run a marine aquarium? I have kept freshwater tropicals until now and the cost of maintaining them has been negligible. But if I have a much larger tank requiring more powerful filtration and a bigger heater I am wondering whether the running costs might prove prohibitive. Can you also advise me whether there are any marine species which have bred in home aquariums? — Miss P. Millson, Rickmansworth, Herts.

You have asked an impossible question because all the factors on running costs are under your control. Since the freshwater tank did not affect your elec-

tricity bills I would expect the marine tank to make little difference. The heating and lighting is similar and the power consumption of aerators and filters is much lower than heating and lighting.

Your major cost will be the artificial seawater and the fish. Do as many partial water changes as you can afford. However marine fish are much longer-lived than freshwater tropicals so the costs may even out and prove to be similar.

Many aquarists have bred marine fish but none has raised the fry to maturity, hence no tank bred marines are available.



A boxfish — maries live longer than freshwater tropicals.

Write to:

Letters

Practical Fishkeeping, Bretton Court, Bretton, Peterborough, PE3 8DZ

Cichlid fan

I HAVE been a Cichlid fancier for five years now and have had many memorable moments with these intelligent fish. The one that stands out most is when my two Blue Discus came down with fungus, shortly after I had placed a third, younger Discus into the tank.

I consulted my books and decided to use Fungus Stop. In desperation I netted the two Discus and placed them in a plastic bucket with water from the aquarium. I then drained the tank, boiled the gravel and rocks, washed it out with salt water and replaced all the plants with plastic ones.

Setting up the tank again I used tap water with one tablespoon of sea salt to each five gallons. Instead of the usual water conditions of pH 6.5 and DH 5 this was now pH 8 and DH 16. I put my Discus in with fingers crossed. I left off the outside filter and had strong aeration.

After three days the fish looked better and with water changes every other day survived. I think



No good publication is the same without a lively letters page. We want you, the readers to have your say — to tell us of your views and experiences. So come on! Put pen to paper.

this shows Discus are hardy fish even in a weakened state. — C. Snell, Ilford, Essex.

Fish genius

I finally took the shallow plunge into aquaria six months ago after contracting the bug from fishkeeping friends and family. I've now five display tanks and a couple of smaller breeder/hospital tanks. I have had pleasing success from my Leopard Danios, Platies, Kribs and Panchax.

Among the fascinating antics of my fish there are a couple I've not seen reported before.

I feed my fish in one tank by dropping the flakes between hood and frame. Some always catch on the wet edge of the hood. My male Dwarf Gourami took to jumping up to these, but soon tired of the headaches caused by his violent contact with the hood!

With remarkable ingenuity he learned to spout water — just like the Archer Fish — to loosen the flakes. Is he a piscatorial genius or have other readers seen similar uses of "tools"?

Another tank holds a pair of Hora's Loaches which I now know are the source of an elusive clicking noise which for

some time puzzled me. The sound was just like small stones hitting the side of the tank. Having watched the Loach's courtship dance, the click is audible at each flick of their bodies. — Tony Walden, Tunbridge Wells, Kent.

Sorry tale

IT is regrettable that Longridge and District AS have had to reduce the number of society meeting nights because of a poor response from lecturers (PRACTICAL FISHKEEPING, February).

In Huddersfield there are two lecturers on hand to come and speak at meetings both for Longridge and any other society secretaries struggling to complete the calendar for 1979/80.

In the event of circumstances making it impossible for the booking to be honoured, the two lecturers are prepared to interchange dates.

They are: — Derek Harrop (Tel: Huddersfield 651892) and Ian Bingham (Tel: Holmfirth 4505) — D. Harrop, Huddersfield, Yorks.

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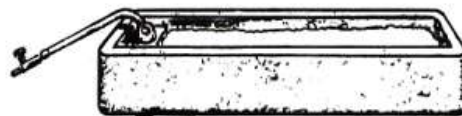


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Fami

THE Platy is one of the most popular members of the community tank. Originating from Central America the species has been selectively bred to give hundreds of different colourings and markings. These fish are popularly known as "Mickey Mouse" Platies because of the three black spots at the base of their tails — giving an impression of the cartoon character. Platies are members of the livebearing toothcarp family and they are easy to breed. Our main picture shows four delicate gold fish. And the smaller inset picture illustrates how the colour can vary. This cloud of Platies are much darker.



ANOTHER member of the Platy family is this magnificent Swordtail. Again a native of Mexico he comes in a huge variety of colours and marking.

THERE is no mistaking the beautiful red and blue colouring of the Neon Tetra. Few aquarists have not kept this species. And what a superbly decorative little fish he is. Simple to keep, the Neon is a native of the Amazon system.



3 favourites

Three popular community species for your aquarium



Practical
fishkeeping



Pond Special

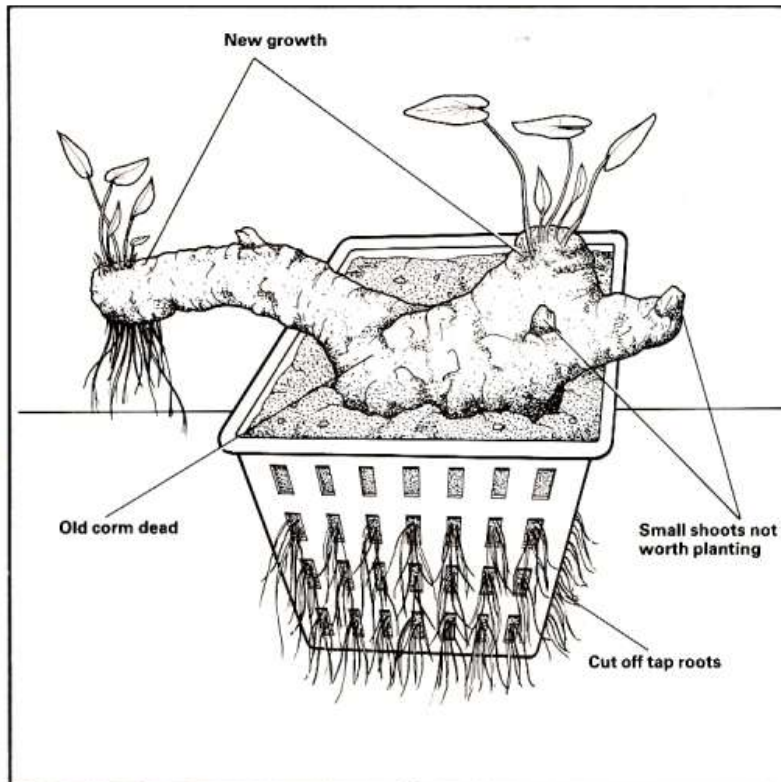
**A four page guide to preparing
your pond for spring
-by Roger Cleaver and Peter Bull**



Roger Cleaver



Peter Bull



The corm in its plastic basket.

If you think the only way to introduce colour and variety into your pond is by careful selection of fish, take a close look at this picture!

It shows just a few of the hundreds of fountains, waterfalls, lighting systems and special effects which are now available to the pondkeeper.

The picture is of a special display room at the Stapeley Water Gardens near Nantwich, Cheshire.

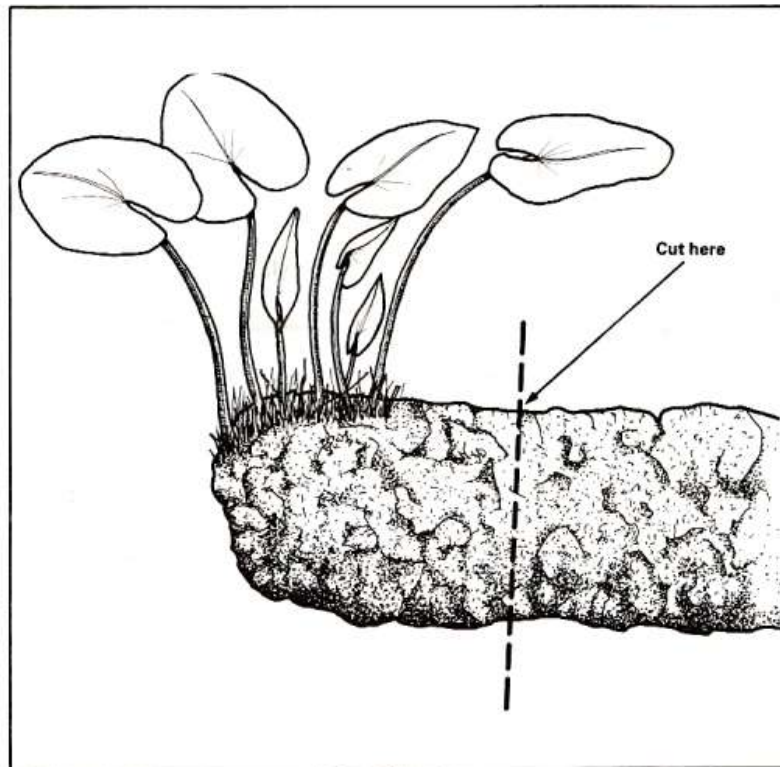
There you can see an incredible combination of accessories which can create almost any colour or water effect.

This month our experts Roger Cleaver and Peter Bull of Coventry are concentrating on preparing the pond for Spring.

Roger and Peter are the ideal combination for your pond advice.

The fish expert is Roger. He is chairman of the Midland Koi Association and has vast experience in keeping all types of pond fish.

Peter is a pond plant expert as well as being an all round aquarist as manager of an aquarist shop in Coventry.



This drawing shows where to cut off the new growth. Discard the old corm which is susceptible to rot.

WINTER frosts have passed and the arrival of spring means the pond keeper can turn his thoughts to preparing his pool for spring . . . and perhaps the breeding of his fish.

Before considering any new additions to the pool some thought must be given to clearing out the debris left from winter months.

Although this early maintenance is important it involves very little, except perhaps the effort needed to brave water that is still very cold.

First task is to remove by netting, as much rubbish as possible from the pool's shelves and bottom.

While carrying out this operation it's best to remove about one third of the water, trying if possible to draw it from the bottom.

Once cleaning is complete the water can be topped up again direct from the tap. But it must be run into the pool very slowly. And one other task should be undertaken prior to this step.

Prior to refilling, one has the opportunity to look at the plants and check for any in need of replanting.

By spring most water plants will have started to grow their shoots, and if they have outgrown their containers, now is the time to split them.

On a well established plant you will notice tap roots have grown through the sides of the container.

As these are primarily for anchorage, they can be cut away flush with the sides of the container, thus allowing the main corm to be removed for splitting.

Lillies

The lily corm is a strong, woody growth, which tends to grow in any direction often with sufficient strength to split even a strong plastic container.

On inspection you will see new shoots are on the end of each of the log-like corms which have grown from the original plant.

There may be more than one of these new crowns growing, all of which can be cut away from the old corm and replanted.

Once the new crowns are removed the original plant can be repotted and covered with fresh unfertilised soil or loam.

Marginals

Marginal plants are treated in a similar fashion to the lily, cutting rhizomes from any plant which has grown out of the container and repotting as new. The original plant should have any dead stems cut off and any lost soil replaced.

Oxygenators

Plants in this classification will not yet show any real signs of growth so take care not to uproot them. Containers low in soil can be refilled and any dead growth removed.

With this small maintenance programme completed your plants should continue to make excellent progress throughout the coming year.

Many pool owners look forward each year to breeding their fish. And quite often are disappointed when this is not achieved.

Basically fish will only spawn if they, and their conditions, are correct.

As the season progresses your fish, which until late spring have remained fairly inactive, begin to show signs of greater activity as temperatures rise.

Initially only a small amount of food will be accepted but soon large amounts of either live food or proprietary brands of flake and pelleted foods will need to be fed.

It will be soon after this that your fish begin to show signs of coming into breeding condition. Females become very portly in appearance while males develop breeding tubercles on their gill covers and first rays of their pectoral fins.

These tubercles are a series of small, whitish pimples, which protrude from the skin and a novice may mistake them for whitespot.

Breeding usually begins with some preliminary half-hearted chasing of the female by several males.

This soon changes to a more determined pursuit. In the chase a female is driven into bunches of oxygenating plants where, through her own struggles, and the attention given by the male, will release her eggs.

The eggs themselves are very sticky and adhere to the plant where they are fertilised by milt from following males.

Early morning sunlight is often the physical stimulant goldfish need to begin spawning. The courting continues for several hours.

A common problem during spawning is that the female suffers superficial damage caused by the chasing. But such damage is usually limited to the loss of scales or split fins.

Both will soon heal if given a small amount of attention. The damaged females should be separated from the rest of the fish and treated with a weak salt bath and a proprietary fungus cure.

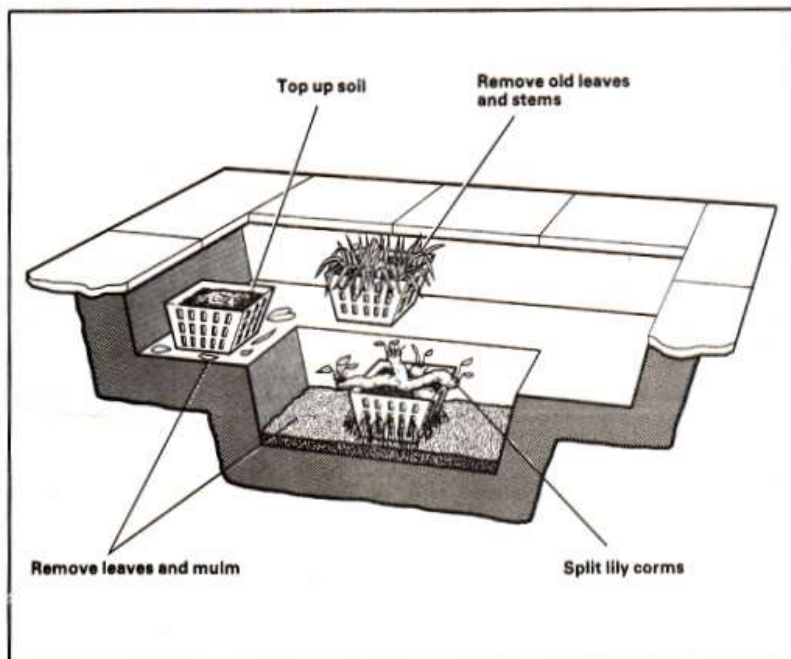
Unfortunately, the eggs once laid become a much sought after food, other fish in the pool will follow the spawners around eating the eggs.

Once spawning is complete, even fish involved in the chase will begin to eat their own eggs. If left in the pool the eggs, even though many hundreds are laid, will soon disappear.

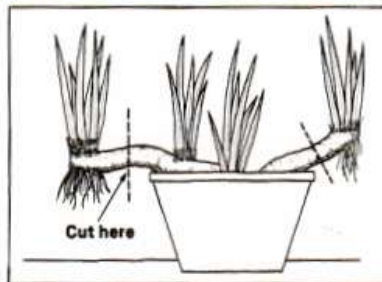
In a thickly planted pool the greater amount of cover may mean a few eggs survive.

Eggs can be saved by removing the plants on which they have been laid and allowing them to hatch in a tank or pool without fish.

Another method of saving even larger quantities is available to the pool keeper prepared



Above: Cross section of the pond showing where to spring clean.



Left: This shows the rhizome of the iris which needs to be dealt with now. Cut off the new growth and replant.

to hand spawn his fish. But one word of warning, ensure the fish are in condition and ready.

In fact it's probably better to watch for a natural spawning to begin and then select fish from those doing the chasing.

On seeing the spawning activity, carefully net a female and one or two males and place in a suitable container.

Next take a small bowl and add water from the pool, together with some oxygenating plants to which the eggs can become attached.

A male can now be netted from the container and placed in the bowl.

Hold him above the bowl and apply light pressure with your fingers just in front and a little above the anal opening. A small squirt of white liquid will then be expelled, and it is this milt that will later be used to fertilise the eggs.

By using a small bowl a single spray of milt should be enough to fertilise all the eggs and it is pointless to remove more from the male.

After stripping the males can be replaced in the pool and the water in the bowl stirred gently to spread milt throughout the water.

A female is then netted and by holding her in a similar position the eggs are stripped from her by applying gentle pressure just above the anal opening.

Great care is needed not to squeeze the fish too hard otherwise internal damage will be caused.

If you're not confident of holding the female

correctly, gently hold her against the side of the container. Her own movements, as she struggles past your hand, will cause the eggs to be released. Again don't completely strip the female of all her eggs and once sufficient have been released she should be replaced in the pool.

As soon as the fish are back in their pool drain off the water from the bowl and top up with fresh, making sure temperatures are equal.

Now swirl the plants and eggs in the fresh water to remove any surplus milt adhering to them.

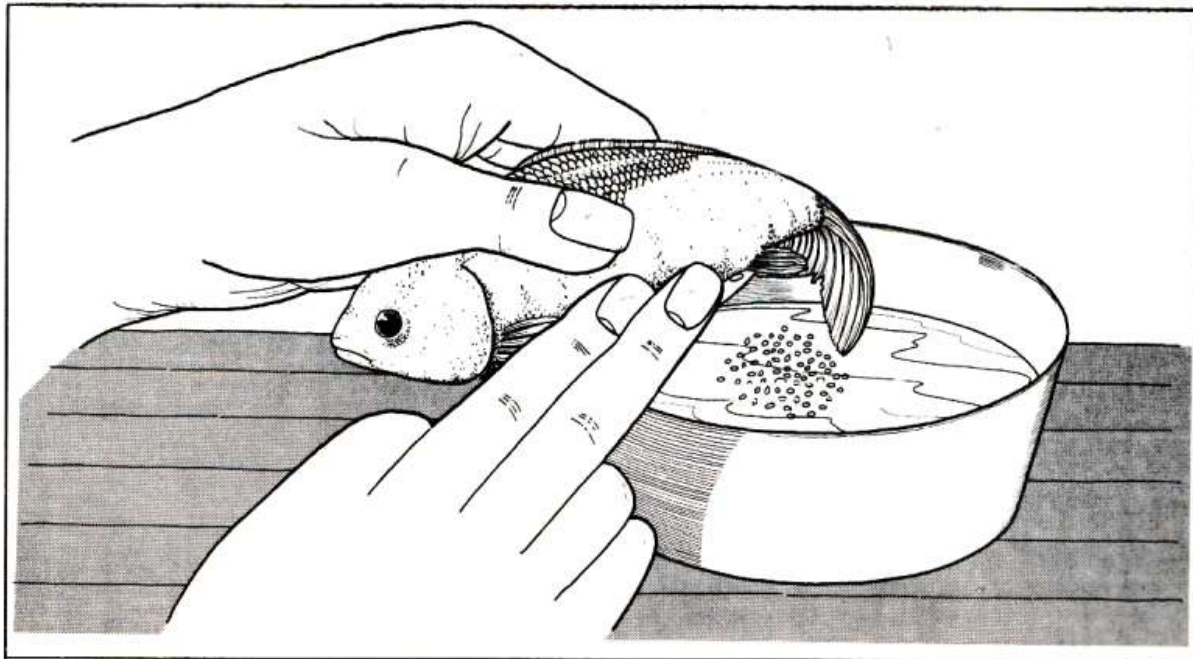
Plants and eggs can now be placed into tank to allow them to hatch.

By hand stripping you will have obtained around 90 per cent hatch rate and you can expect to have quite a few fry on your hand within a week.

If you hope to raise a fair number of these fish you will need a large volume of water at your disposal into which the fry can be moved as soon as they are large enough.

For goldfish to make adequate growth they require plenty of room and good foods. One half an inch long they will thrive on being introduced to the main pool along with parent stock.

Initially young fish will need considerable amounts of microscopic food called infusori. Fortunately this is available nowadays as commercially prepared product, making it need to cultivate your own obsolete.



Above: Hand stripping the female fish. Use a shallow container and gentle pressure to persuade her to release the eggs.

Right: The other method of stripping. Use oxygenator plants in the shallow dish. The female and male's flapping will strip them of eggs and milt.



At two weeks old the fry will have grown enough to take fine daphnia or brine shrimp. Try also to make various types of powdered dried food available as this will be a great asset when trying to raise large numbers of goldfish.

After a month or so the young fish should be able to take some of the growth food which is available through fish stockists.

And as they continue to grow it is quite common to see some deformities among the brood.

These should be discarded as soon as possible in order to give the healthy fish the maximum space possible in which to develop.

We have already described how pond fish can spawn of their own accord if they are in the right condition. But the only way to achieve this is to make sure they receive a plentiful selection of food.

Many people believe that once a pool is established the natural life in the water will be sufficient for their fish to live on. This may be the case in a few instances, but most pools require some form of additional food if the fish are to thrive.

Ideally if you want your fish to spawn extra amounts of live foods should be added.

Probably the finest food for conditioning them is the earthworm. These are readily available simply by undertaking a short digging session in the garden. Chopped into tiny pieces even small fish will greedily feed on them.

Maggots also make a fine food for this purpose and many pondkeepers prefer them since they are easily obtainable from fishing tackle shops.

Maggots are the larvae of several types of flies, and a word of warning to anyone who buys them. If kept too long they will hatch and you can end up with a house full of flies.

Two types are generally used for feeding goldfish, firstly 'pinkies' which are a small maggot suitable for all sizes of fish, and secondly large whites which bigger fish readily accept. Coloured maggots should be avoided if possible.

Fish shops themselves usually have a variety of live foods available, daphnia and bloodworms being the most popular. These can also be caught in almost any farm ponds so you can collect your own if you want to go to the trouble.

One thing to remember if you collect live food is never take it from a pond which contains fish. This is one source which could introduce disease to your pool.

Another worm sold by shops is tubifex but this is not recommended for use in pools since any uneaten worms fall to the bottom where they bury into the mulm and die, causing pollution. Many pond owners prefer to feed commercial foods. Basically they are sold in two forms, either flaked or pelleted.

Flake, as the name suggests are small thin flakes of a dried food, mixed to produce a balanced diet to keep fish healthy.

The same applies to pelleted food but these have a big advantage for the pool keeper in that they remain on the surface for several hours.

This allows for the removal of any left overs before they can pollute.

One advantage of both flake and pellet food is that they bring your fish to the surface to feed, enabling you to view them at close quarters.

Personally we find that to keep fish in top condition a variety of all food types should be fed. Remember that a fish in good condition is more able to resist disease.

Changing the subject slightly, a word of warning for all pondkeepers. With the warmer weather and the additional activity of your fish, you want to be the only person interested in seeing your fish at close quarters.

The heron, who is an excellent fisherman, will be viewing your stocks and if possible eating them. Protection can be given by either covering the pool with some bird netting or by constructing a small fence approximately 12 inches high around the pool.

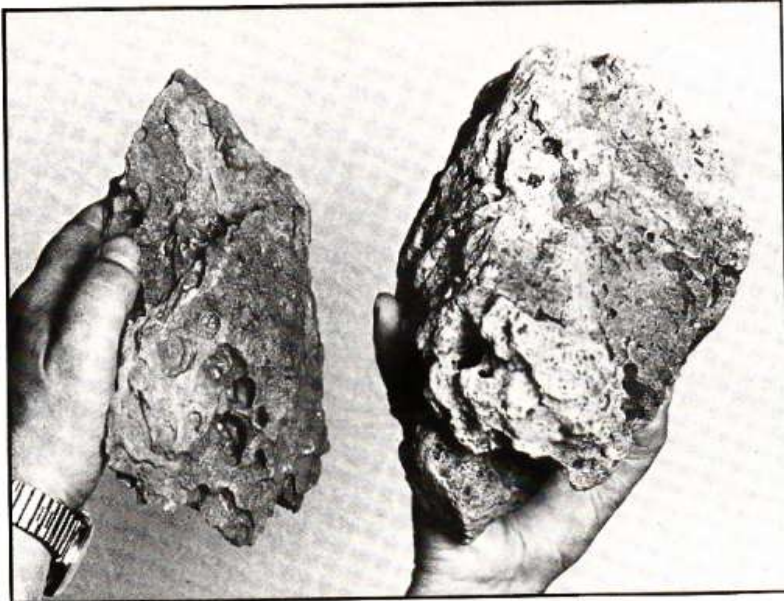
Several strands of nylon fishing line can then be run from the fence across the pool.

Any heron who touches the line as he prepares to wade into the water will be scared off.

Another predator who can become a problem is the next door's cat. It never seems to be your own who shows interest in your fish.

Total enclosure of the pool with garden netting is the answer.

Fortunately cases of cats and herons molesting garden pools are not too common. And with a little care and attention given during the early part of the year to your pool and to the feeding of the fish there should be no reason why it should not flourish throughout the year and the fish breed readily.



Choose hard rocks like these which also have interesting marking and texture.



Make the most of plants

How to design an attractive Community tank
— by David Shields



WHEN it comes to aquatic plants David Shields has certainly got green fingers. He seems to be able to coax any plant into living and thriving.

And his long list of wins in furnished aquaria sections of big shows goes to prove that.

His 10 ft lounge tank, which he is pictured next to, full of the notoriously difficult *Cryptocoryne* varieties also testifies to his skill and knowledge. It also proves you need patience for successful plant cultivation —

that tank has taken David five years of work! David is a leading member of Halifax AS, W. Yorks.

A fish house, greenhouse and pond at his home show that David is an all round fishkeeper.

David is a sales manager in the town. At 39-years-old he has been fishkeeping for more than 20 years.

One of his proudest achievements at the moment is a fabulous growth of Java Moss in his home community tank.

AN attractive furnished aquarium with well chosen plants and the right arrangement of rocks and gravel will bring the best out of your fish.

And that goes for the fishkeeper who only wants one community tank in his living room, just as much as for the aquarist who has a dozen tanks and who wants to start entering furnished aquaria show classes.

As far as I am concerned it isn't any different preparing a tank for a show, or your own home.

Granted you have rules and techniques to follow for the show, where you can do what you like for your own community tank.

But the principles are the same and, as far as I can see, it is not a difficult job.

I do not do anything special or have any secret methods for planting a tank. So there is no reason why any aquarist — novice or experienced — cannot own a tank full of attractive plants.

Let me explain how I would furnish a community tank. Obviously if I was doing it for a show I would use my experience to decide what sort of design would appeal to certain judges. I would follow all the techniques I have built up over the years.

This tank is not for a show. But I am using just the same principles.

The basic rules start with filtration. I am not a believer in undergravel filters for successful plants.

So my advice is not to use an undergravel if you want an attractive tank full of plants.

In my own 10ft lounge aquarium I do not use any filtration at all. But the internal box filters are quite good.

Power filters are obviously very efficient if you can afford them, but outside filters are remarkably good and inexpensive.

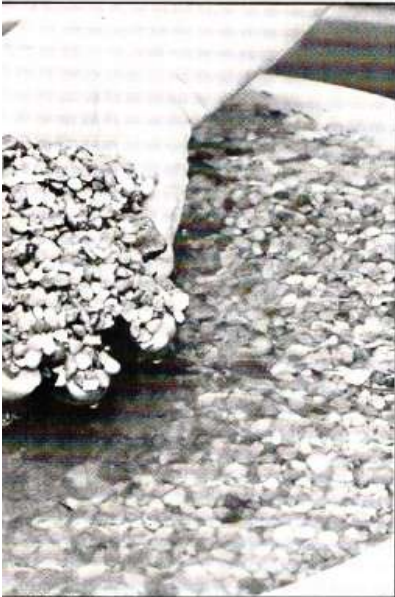
Next consider the gravel and rocks you need.

There are many types of gravel available. You can choose any. Here I have used ordinary aquarium gravel.

Beautiful rockwork can improve a tank no end. You can buy rocks, but I prefer to collect my own.

I have found superb samples in all sorts of places both in this country and abroad.

PRACTICAL FISHKEEPING



Wash the gravel well. This is ordinary aquarium gravel, but you can use different types which are usually more expensive!



Simply tip the whole lot into the tank.



Now arrange the gravel with your hands. Bank it up at the back and make a pleasing design.

PRACTICAL FISHKEEPING



Here I have arranged the rocks. I have left plenty of room for planting at the back and room to display the fish.

always seem to return with some new rocks wherever I go.

As a simple rule, always choose hard rock. For instance the sandstone around my Halifax home is useless because it is too soft.

If you are not sure about a sample you have collected, simply put it into a bare aquarium for a couple of weeks with a Guppy as a test fish. If the Guppy thrives, then the rock is OK.

I look for a good texture of rock. Samples with holes and crags are particularly good. And I personally like to use rocks of the same texture in the same tank.

But as with everything in fishkeeping, use your own tastes and preferences. The tank is for your home and you have to live with it, so do your own thing.

It's the same with plants. Choose what you like and the varieties you can get hold of.

But it is important when you plant a tank to keep specimens of the same variety together. Don't dot them here and there because the tank is then impossible to keep tidy.

A tank is just like your garden, but underwater. You keep the same varieties of vegetable together on your outdoor plot. Do the same under the surface.

Then when the plants put out runners or start to spread in other ways you can prune them back to keep them away from the areas where you don't want them to spread.

Now you have your tank, plants, gravel and rocks.

At this stage I sit and work out a little rough plan of what I want.

Remember the tank is for fish. So allow them plenty of space to be seen.

That's why the basic rule is to use tall plants at the back and sides and smaller plants at the front. That way the fish will be displayed nicely.

First step is to arrange the gravel. I wash it thoroughly under a running tap. Use two buckets with all the gravel in one.

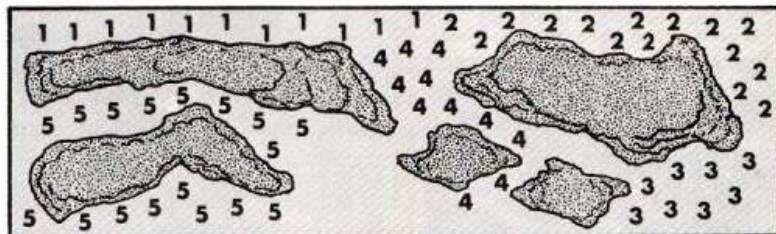
Run the tap on to this bucket and pick up handfuls of gravel, wash them under the tap and then transfer them to the clean bucket.

Then simply tip the whole lot into the tank and start arranging it with your hands.

A good method is to bank it up steeply towards the back, leaving very little at the front. This allows sediment to run to the front where it can be cleaned out.

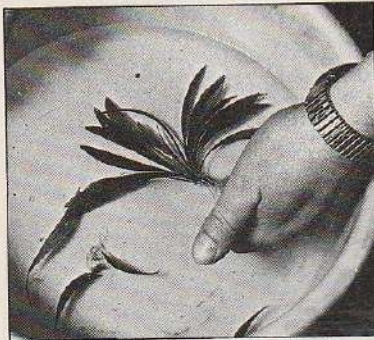
In this case I have left a good avenue for the

Suggested tank layout

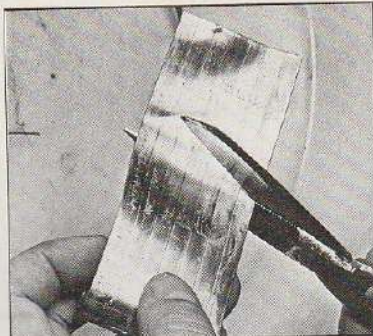


CODE	SCIENTIFIC NAME	COMMON NAME
1	Vallisneria Spiralis	Straight Vallis
2	Cambomba Caroliniana	Fanwort
3	Synema Triflorium	Water Wisteria
4	Echinodorus	Pygmy Chain Sword
5	Sagittarias Pusilla	Micro Sagittaria

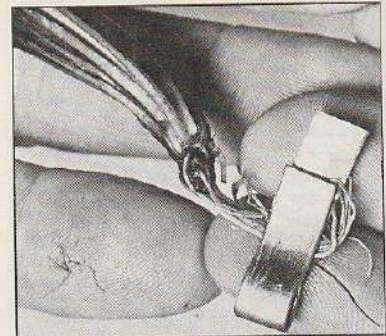
Make the most of plants



Preparing the plant by gently washing the roots and removing any dead leaves.



Cut a two inch strip of soft lead from a window lead roll.



Pinch the lead around the folded roots like this.

fish in the middle of the tank.

I always sit back and look at the tank and keep adjusting the gravel until I am satisfied with the look of it.

Do the same with the rockwork. Move it around until you feel happy with the way it looks.

Next comes the planting. I personally fill the tank with water at this stage and plant with my trusty planting stick that I have had for years.

But it is simpler to plant dry and then gently add the water so you don't disturb the roots.

Fill a bowl full of water and then follow this process for each specimen you plant:—

Put the individual plant in the bowl and gently wash all the mulm from between the roots. Remove any dead leaves carefully.

Cut about two inches of soft strip lead. Then gently fold the roots back as I have in the picture and pinch the lead around them.

Then decide where you are going to plant it, and push the lead and roots firmly into the gravel.

It really is as simple as that. All you need to do now is follow those rules I mentioned earlier about keeping the same plants together and putting the taller ones at the back and sides.

I have drawn a planting diagram for the layout shown in the pictures. This suggests the type of plant and the arrangement I think would look good.

But this is just my taste. You must live with it, so choose the plants you like.

A tank like this can be reasonably easy to maintain. Just remove any dead leaves and keep each variety of plant to the section you have chosen for it.

To light this tank I would use a couple of 60 or 40 watt tungsten bulbs for 12 or 14 hours a day. A single Gro-lux fluorescent tube would do the same job for about five or six hours.



The raw material for tank furnishing — a tray of aquatic plants in David Shield's cultivating house.



The plant — in this case a Pygmy Chainsword — is then ready for the aquarium.

Inset: Simply push the roots and lead firmly into the gravel.

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Fancy fighters

Nick Fletcher looks at the magnificent fighting fish and their fascinating nest of bubbles

THE first view many fishkeepers will have had of the Siamese Fighting Fish is a row of splendidly coloured males, each contained within the dealer's own version of 'solitary confinement' — a jamjar. Such treatment would kill most other species of fish within hours, but such is the hardiness of the fighter that he can survive and apparently thrive in these cramped quarters.

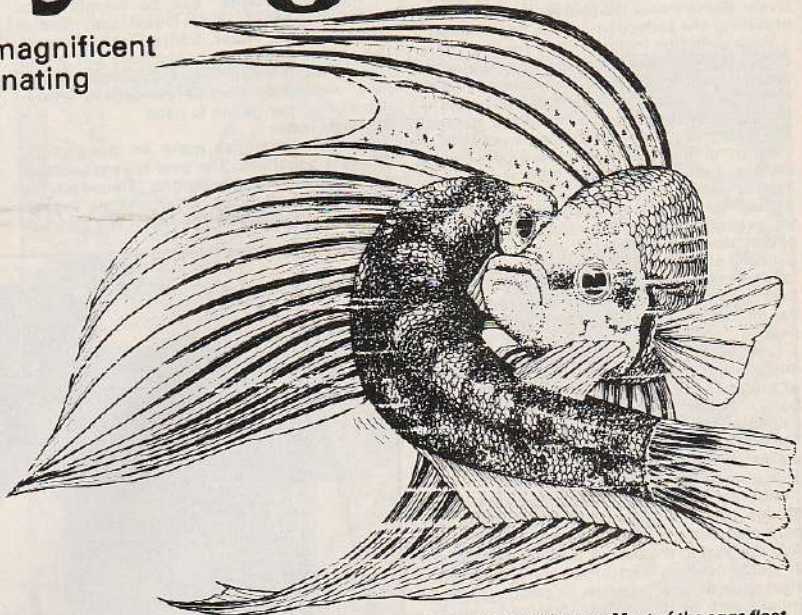
This should not be interpreted as the ideal way to keep these fish in the home. The only reason a dealer uses jamjars is that he is likely to have several male Siamese Fighters in stock, and if kept in the same tank, they would soon rip one another's fins to shreds. But here ends their ferocity; it is only among the males of their own kind that animosity exists. Otherwise they are a reasonably peaceful community fish, though they should not be kept with anything appreciably smaller than themselves.

The Siamese Fighting Fish (*Betta splendens*) is a native of Thailand and Malaysia, though the wild fish bears little resemblance to the resplendent creatures selectively bred for colour and finnage that we know today. Like the goldfish, Bettas have drab, greenish brown ancestors that give little hint of the glorious reds, blues and greens hidden somewhere in their genetic makeup. Nor do the wild fish approach anything like the size of their selectively bred counterparts — today, a five-inch fish (including tail) is by no means unusual.

The first Bettas appeared in Europe in 1896, when specimens were imported into Germany. At that time they were popular in their native country, not as a fancy fish, but as an outlet for the Malays' gambling instinct. Two males would be placed in a container of water, when after a few preliminary circlings they would engage in battle — nipping and tearing at one another's fins until the vanquished fish



The male fighter remains on guard over the nest and the hatching eggs.



In a majestic swirl of fins the Fighters spawn just below the bubble nest. Most of the eggs float up into the bubbles.

sank exhausted to the bottom. Heavy sums were wagered on the outcome.

Nowadays, Bettas are valued only for their fancy qualities, and steps are taken to keep adult males apart. The reason they can survive the resultant 'jamjar' treatment is their high tolerance of poor oxygen content in water — and this in turn is due to their membership of an exclusive family, the Anabantidae.

With the gouramis, Bettas share the ability to breathe oxygen directly from the surface, in addition to extracting the dissolved gas from water through the gills. They possess an additional respiratory organ known as the 'labyrinth', which is found in the gill chamber above the normal gills. The organ is made up of bony plates covered by a membrane. Air is forced over the plates and a network of blood vessels extracts the oxygen before the used air is blown out again. This explains why Bettas can survive in rice paddies, ponds and stagnant ditches in the wild — and why they can live on in tank water too polluted to support other tropicals. They have been known to jump out of an aquarium and hang on to life after hours on the floor, for this same reason.

The breeding of Bettas is a satisfying process, for both parents take an active part in tending the eggs and rearing the young — a situation rare outside the cichlid family. But for best results, the fishkeeper must beware of letting breeding become a random process, and instead follow a fairly rigid code of practice.

The selection of the parents is vital if healthy young are to be obtained. With mass commercial breeding now common in the Far East, many imported fish show undesirable traits like bent fin rays, crinkled fins, or short, stubby

bodies. Colour is often indeterminate, and although it takes several generations to fix a particular colour trait, it is only common sense to breed, say a red male with a red female if predominantly red young are wanted.

There is no difficulty in sexing Bettas. Only the males have the characteristic long, flowing dorsal, anal and caudal fins. The females are altogether less flamboyant, both in colour and finnage.

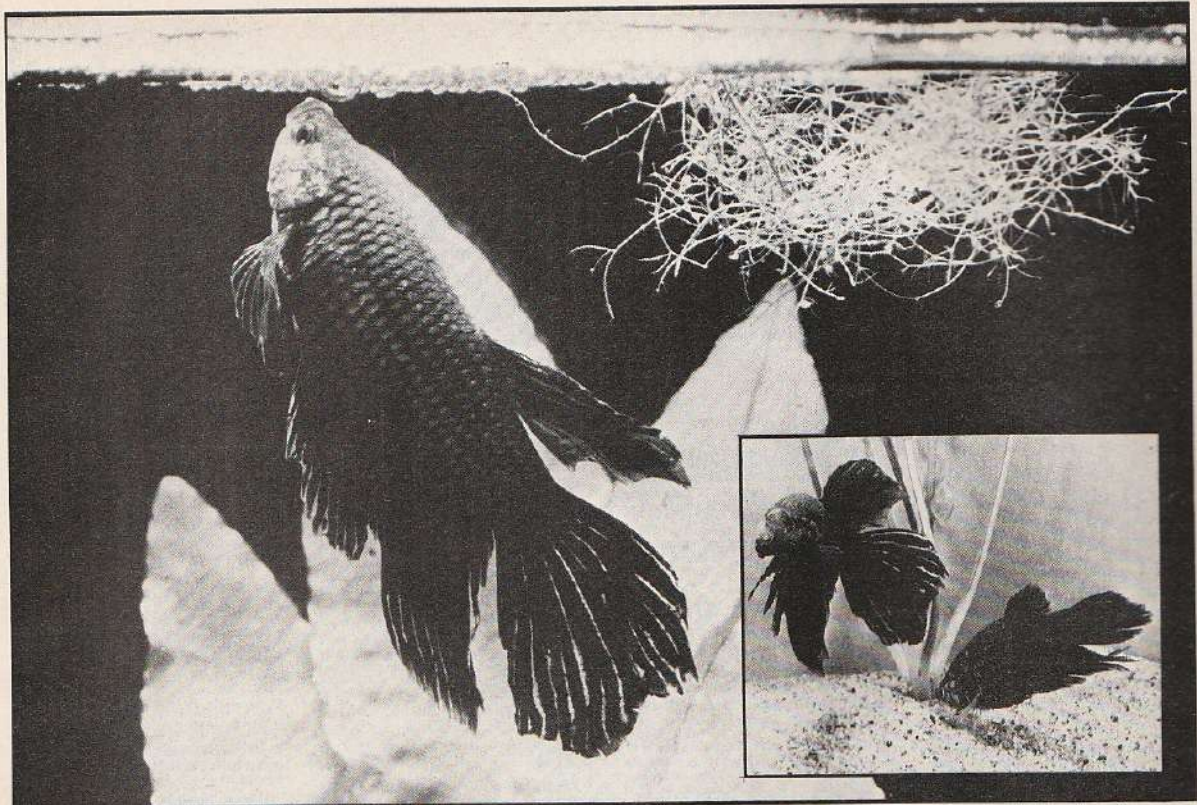
Bettas are fairly tolerant of water conditions, and although a pH of between 6.8 and 7.4 is best, they can readily adapt to anything not wildly outside this acidity/alkalinity range. Temperature, however, is more critical. For general health, 80°F is about right, and for breeding, 82-85 degrees is preferred.

The sexes should be kept apart before breeding, and it is as well at this stage to select males and females of roughly the same size — otherwise the somewhat rough courtship procedure can lead to the death of the weaker partner.

You will find that Bettas are more carnivorous than most community fish, so live tubifex, daphnia and whiteworm will form their usual diet. Conditioning should, therefore, mean simply ensuring adequate food supply. The breeding tank can be small — no more than five gallons — with only six inches of water. A glass cover is vital to prevent outside air currents upsetting what will be seen to be a unique and delicate process.

To begin breeding, the male is introduced into the tank and the female is kept in sight, but out of touch. For this, one of the commercial 'breeding traps' used for livebearers is ideal. It is transparent, and floats on the surface, but slats allow water to circulate through it. No furnishing of the tank is

PRACTICAL FISHKEEPING



A delicate nest of bubbles is carefully built up by the male.

Inset: The male fighter with the drabber female.

required, apart from a few floating plants such as water lettuce. Aeration is not only unnecessary, but positively harmful at this stage.

The male Betta initiates spawning, beginning with the building of a bubble nest. Air is taken into the buccal cavity and coated with mucous, then expelled to the surface in small bubbles. These adhere together and float to form a billowy mound covering up to six square inches.

In between blowing these bubbles, the male turns his attention to the confined female,



Any eggs which do fall to the bottom are carefully picked up by the male and guided to the safety of the nest.

treating her to an exciting display of flared fins that carries more than a suggestion of a threat.

The female can now be released from the breeding trap, and at this point the male reaches new frenzies of excitement in an effort to entice her beneath the bubble nest for spawning proper. But the female rarely responds first time, and may be injured by her over-enthusiastic partner. It is better to separate her once or twice more, with intervening rest periods, until she does agree to follow her mate beneath the nest.

Once this happens, the fish slowly circle one another, then the male moves in and takes the female in a U-shaped embrace. The fish turn upside down, trembling, and eggs are released to be immediately fertilized.

At this point, the male releases the female and catches the falling eggs in his mouth, spitting them up into the bubble nest. The female, after resting, joins him in the task. Several embraces may be made before the whole clutch is laid, and numbers vary between 200-450 eggs.

As soon as the female is empty of eggs, the male will drive her away, so it is better to step in and remove her to another tank out of harm's way, to recover and mend any split fins she may have entailed. The male will be fully occupied repairing and enlarging the nest, picking up any stray eggs from the bottom and standing guard over the floating bubble raft. With aeration, the bubbles tend to break up, but otherwise remain largely intact.

The young hatch in about three days, and the tiny fry can be seen hanging threadlike, tail down in the bubbles. Twenty-four hours later they begin to assume a horizontal position, and the following day are free swimming. The male can now be removed.

Like their parents, the young Bettas require live food, and because they are so tiny, even newly-hatched brine shrimp is too much of a mouthful for them at the beginning. Instead, they should be fed infusoria, which can either be introduced in tablet form or cultured in a separate jar to which crushed lettuce or spinach leaves have been added. The infusoria will appear as patchy clouds, and can be drawn off in a pipette or disposable plastic syringe.

After a week, the fry can be weaned on to brine shrimp, and small daphnia. If a whole brood is to be reared, it is best at this stage to move them into a larger tank of about 20 gallons. Aeration can be resumed three days after hatching, for the labyrinth mechanism does not immediately develop and the young fish are reliant on dissolved oxygen.

After about eight weeks, the sexes will begin to become apparent, with the males having enlarged anal fins. Even at this stage, these tiny fish will begin to circle and spar with one another, so ideally, the young males should be separated. If your object is not to raise quantity but quality, drastic culling should begin, selecting only the fish with the desired traits of finnage and coloration.

Bettas are quite short-lived fish, and anything over two years old is a venerable specimen. Consequently, they begin their breeding cycle early, becoming sexually mature at only three months. It is, therefore, possible to approach your ideal fish, through selective breeding, relatively quickly. The main problem remains tank space, since the males must be kept apart from one another at all costs... and jamjars, while probably doing the Siamese Fighting Fish no physical harm, prick the conscience.

news

Guppy Champ

A BLUE acrylic trophy was the centre of attraction at a recent Fancy Guppy Association Management Committee Meeting.

This was the 1978 European Guppy Breeders' Trophy, which was on its way to Austria to be presented to Erwin Renner and conclude a very successful and unique championship.

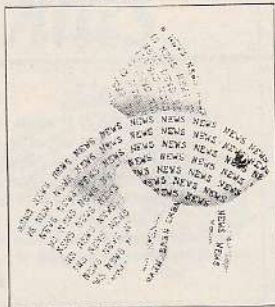
During 1978, European guppy breeders from five countries exhibited at the F.G.A. National, the Austrian International and the Berlin International shows.

All exhibits consisted of three matching males bred by the exhibitor, and at each show the highest pointed entry from each exhibitor counted.

Interest was such that all the competing clubs went to great lengths to get their fish to Berlin safely during the cold weather in November. The Austrians' fish were taken by road by the Austrian club President to Berlin, a round trip of 1,500 miles!

Second place in the competition went to F.G.A. member Ron Jones from Birmingham and third was Wolfgang and Silke Sander from Berlin. The F.G.A. is very appreciative of the help given by Aquarian in sponsoring this event.

The F.G.A. Journal, a specialist guppy magazine issued monthly to all members, reached a milestone in history recently with the publication of its 200th issue. A special Journal was produced for the occasion and included articles by Drs. Andrews, Carrington and Ford, well known to all



aquarists.

This magazine is now available to aquatic clubs at a cost of £4.00 per year. Any club interested should write to the Editor, 107, Woodplumpton Lane, Woodplumpton, Preston, Lancs, or ring 0772 864344.

The highlight of the F.G.A. calendar will be, as usual, the National Open Show to be held in Birmingham on 27th May, 1979. Last year something like 700 guppies were on display with examples of all the F.G.A. Standard Shapes. Anyone requiring further details should contact the Show Secretary, D. Beacham, 61 Upperfield Close, Church Hill, Redditch, Worcs.

The F.G.A. has members living in all parts of the country and seven sections meeting regularly. The Birmingham Section meets on the fourth Sunday of the month at the Glebe Farm Community Centre, Stechford, and visitors are always welcome.

Tyne clash

HERE are the results of the Inter-club competition between Tyneside societies Novos Tropical Fish Club, Priory AC and Mount Pleasant AC.

Class B: 1 B. Risbridger, Novos, 73 pis; 2 J. Johnstone, Priory, 67; 3 J. Johnstone, Priory, 63.

Class Da: 1 J. Best, Priory, 71½; 2 C. Hutton, Priory, 71.

Class C: 1 Mr. & Mrs. Hall, Novos, 73½; 2 B. Risbridger, Novos, 73; 3 J. English, Novos, 68.

Class Ca & b: 1 Mr. & Mrs. Hall, Novos, 80; 2 B. Risbridger, Novos, 77.

Class D: 1 G. Hunt, Novos, 71; 2 C. Hutton, Priory, 62; 3 G. Thompson, M. Pleasant, 58.

Class Dc: 1 P. Caddie, Novos, 71; W. Walton, Priory, 70.

Class Db: 1 C. Hutton, Priory, 73; 2 G. Thompson, M. Pleasant, 60.

Class E: 1 G. Thompson, M. Pleasant, 58; 2 G. Thompson, M. Pleasant, 52.

Class Ea: 1 W. Walton, Priory, 70; 2 W. Walton, Priory, 68; 3 B. Risbridger, Novos, 65.

Class F: 1 B. Risbridger, Novos, 71; 2 R. Kirkup, M. Pleasant, 68; 3 Mr. & Mrs. Hall, Novos, 65.

Class G: 1 B. Risbridger, Novos, 68; 2 Mr. & Mrs. Hall, Novos, 63.

Class H: 1 R. Kirkup, M. Pleasant, 71; 2 C. Hutton, Priory, 70; 3 C. Hutton, Priory, 69½.

Class J & K: 1 R. Kirkup, M. Pleasant, 73; 2 P. Caddie, Novos, 68; 3 A. Robinson, Novos, 67½.

Class L: 1 P. Caddie, Novos, 65.

Class M: 1 R. Kirkup, M. Pleasant, 77; 2 Mr. & Mrs. Hall, Novos, 66; 3 G. Hunt, Novos, 65.

Class Ma: 1 G. Hunt, Novos, 64½; 2 J. Johnstone, Priory, 64.

Class O: 1 B. Risbridger, Novos, 74; 2 R. Kirkup, M. Pleasant, 70; 3 P. Caddie, Novos, 66.

Class P: 1 C. Hutton, Priory, 78; 2 B. Risbridger, Novos, 72.

Class Q: 1 W. Walton, Priory, 79; 2 W. Walton, Priory, 77; 3 C. Hutton, Priory, 68.

Class R: 1 R. Kirkup, M. Pleasant, 83; 2 R. Kirkup, M. Pleasant, 71.

Class S: 1 A. Robinson, Novos, 73; 2 P. Hutton, Priory, 72; 3 G. Hunt, Novos, 68.

Class T: 1 J. English, Novos, 82; 2 R. Kirkup, M. Pleasant, 76.

Class Not: 1 J. English, Novos, 83; 2 R. Kirkup, M. Pleasant, 73.

Class Nbn: 1 J. English, Novos, 76; 2 J. Johnstone, Priory, 69.

Class Xol: 1 R. Kirkup, M. Pleasant, 77; 2 J. Johnstone, Priory, 78.

Best fish in show — Female Brachyrhaphis Rhabdophora owned by J. English of Novos.
Overall result: 1 Novos, 62; 2 Priory, 41; 3 M. Pleasant, 33.

Cash class

A BRAND new class has been introduced for this year's Ichiban Ranchu Society Show at Woodford Bridge, Essex, and it could net the winner a big cash prize.

This year the class is for lionheads. And the winner will receive a special shield plus 75 per cent of entry fees for the class. And as this already stands at £30 from advance entries the final figure is certain to be bigger.

The show is on October 20 at St. Paul's Church Hall, Chigwell Road, Woodford Bridge.

Entrance fee for each fish in this class is £5.

Closing date for entries is April 7 by post, or at the annual meeting of the society which is on the same date.

Entries and enquiries to Gary Lewis, 91 Bourne Avenue, Hayes, Middlesex (Tel: 01-673 1770).

New committee for Nailsea

Nailsea and District AS meet on the second Tuesday of the month at the Highcliffe Hotel, Clevedon, Avon. Their new committee is: — W. Holland, chairman; P. Fitchett, vice-chairman; Mrs G. Ellick, 3 Burrington Close, Nailsea, Bristol, secretary; R. Walters, treasurer; D. Kenwood, programme officer; M. Ellick, public relations; C. Brewer, R. Hall, committee.

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"In summary, we can say, with no reservations whatsoever, that Interpet has created a breakthrough in undergravel filters with their Constant Velocity filtration system. The entire patented design which provides a constant water velocity over the entire surface of the filter plate, its tremendous strength compared to the conventional flat plastic plate, combined with the large diameter lift tubes and high circulation rates, makes this filter one of the finest we have used or tested."

(March 1978)

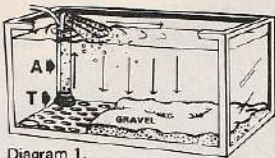


Diagram 1.

How it works

The CV Filter purifies the aquarium water using the natural biological ability of the gravel or coral sand. The filter is therefore designed to make the water circulate through the gravel. When air is pumped into air release turret T the bubbles cause water in the airlift tube A to rise so that the aquarium water will circulate through the gravel. (See diagram 1.)



Diagram 2.

New Strong Plate Design

This diagram shows the unique design which makes a very strong plate supporting rocks etc. and which gives a flow potential many times greater than the other undergravel filters. The water flow passages act like miniature 'caves' sitting on the flat base of the tank and even quite fine sand down to about 1 mm grain size will not pass through them in the same way as through slots on a conventional sub-gravel filter. (Diagram 2.)

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Diagram 3.

Versatile—For different sized aquariums



Diagram 4b.

It is possible to extend the columns (or make them smaller) by cutting along the lines of the columns, either to join to further plates or to reduce the size of the existing plate.

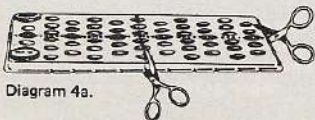


Diagram 4a.

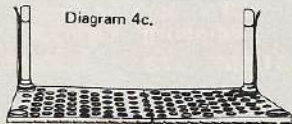


Diagram 4c.

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
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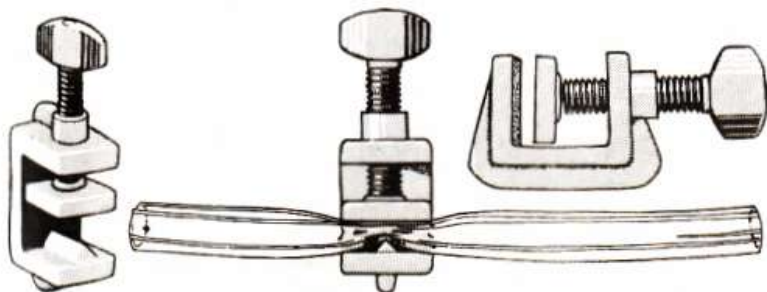
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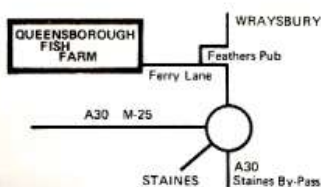
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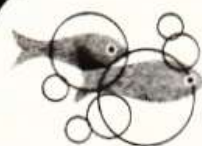
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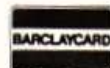
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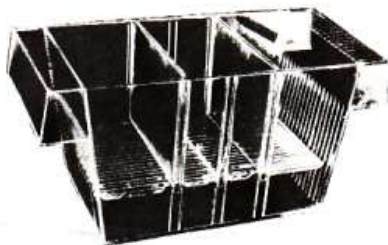
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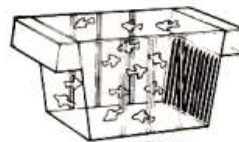
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