WALTER R. SMITH LTD.

For Complete Tropical and Coldwater Aquaria also Tropical Marine
100 Varieties of fish usually in stock on view
in 76 polished stainless steel aquariums

<table>
<thead>
<tr>
<th>POLISHED STAINLESS STEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frames</td>
</tr>
<tr>
<td>24 x 15 x 12</td>
</tr>
<tr>
<td>30 x 15 x 12</td>
</tr>
<tr>
<td>36 x 15 x 12</td>
</tr>
<tr>
<td>48 x 15 x 12</td>
</tr>
</tbody>
</table>

DISTRIBUTOR OF—

- McLYNN'S FISH FOOD
- ES-ES PRODUCTS
- ELECTRICAL AND GENERAL
- WATER LIFE, AQUARIST, DITCHFIELD'S AND T.F.H. BOOKLETS
- REJECTORS, SEDUETS, AND MAINTENANCE EQUIPMENT
- PROCTER, SUMMIT AND STAR PUMPS
- CONSTAT THERMOSTATS
- AQUAFERN AND COLORFERN PRODUCTS
- HYFLO PRODUCTS
- LIVERINE PRODUCTS
- STOKES FOUNTAINS
- WINDMILL PRODUCTS
- ROCK GRAVEL AND STRATA ROCK WORK
- STUDENTS' MICROSCOPES
- ALL FEEDING AND AERATING APPLIANCES
- MERCURY, SPIRIT AND DUMMY THERMOMETERS
- STUART TURNER WATER PUMPS
- ZOOGEBKO AND BIKO PUMPS
- VI-FIT FISH FOOD
- BLACK MAGIC GLAZING COMPOUND
- GLASTICON '93' AQUARIUM SEALER
- AQUAMASTA GLAZING COMPOUND
- LIQUIFRY AND INTER-PET PRODUCTS
- FIBRE GLASS PONDS
- OTTER WATERFALL AND FOUNTAIN KITS

Angie iron Aquariums, Frames and Stands a speciality.
Odd sizes made to order, painted any colour, guaranteed square and free from welds. Stone enameled Corner Bowls, Bow Fronts and Wrought Iron Units.
Half Carriage Paid on these Items.

M. & R. (DOG-FISH) LTD.

presents

Over 120 varieties including Marine Tropicals on show and for sale. We are Direct Importers of Tropical Fish. Decorate your tank with 2,000 year old wood—stocked only by us. Fish for personal shoppers only.

466 PAISLEY ROAD WEST, GLASGOW, S.W.1
Telephone: 1880 X 303 Open Sundays 11 a.m.—2 p.m.

PHILLIPS TROPICAL FISH

Fine Grade for Tropicauls and
Coarse Grade for Cold-water Fish

Earns high in protein and rich in vitamins and minerals, Phillips Fish Food contains dried shrimp, daphnia, meat meal, white fish meal, alfalfa, milk powder, cod liver oil, wheat bran and yeast, scientifically blended to provide a well-balanced, nourishing food.

For all Cold-water Fish . . . 1/4d
For Tropicals . . . . . . . 1/6d

Phillips Cold-water Fish Food contains Saprolegnial to prevent against the ravages of "cotton wool" fungus.

PHILLIPS YEAST PRODUCTS LIMITED, Park Royal, London N.W.10
Breed your fishes
NOW using
LIQUIFRY
as a first food

Mr. Y. W. Ong, the well-known writer
on aquarium topics from Singapore, says
"Many breeders of Siamese Fighting Fish use
LIQUIFRY as the first food. LIQUIFRY is also
used for raising and breeding brine shrimps."

The unique liquid consisting of (a) particles of immediate food value
to the fish and (b) substances to produce natural infusions in
the minimum possible time.
The product is in liquid form to ensure the correct particle size
and to give rapid dispersion throughout the tank with minimum
disturbance to the delicate fry.

LIQUIFRY No. 1 for fry of Egg layers 3/6d
LIQUIFRY No. 2 for young Livebearers 2/6d per tube

START YOUR BABY FISH ON LIQUIFRY AND WATCH THEM GROW!
Exported to 47 countries

VITAWIL  Staple Food
The world's most popular
fish Food

Now in new English Packs
2/- : 3/- : 6/9d : 22/6d : 70/-

A product by Vitakraft-Werk H. Wuhmann
Bremen-Ma., W. Germany

The Modern way
to heat your aquarium

THE Inter-Pet SUPER SUBMERSIBLE
COMBINED HEATER/THERMOSTAT.

There are technical reasons why this unique
design gives an even temperature in the tank.
100, 125, 150w. Price only 29/6d

Please write for details of these and our many other quality products.

INTER-PET  18 Church Street - Dorking - Surrey
Sales Division of Liquifry Co. Ltd.

July, 1965
AQUARIUM
BOW-FRONTED AQUARIUM
24 x 12 x 12" WITH 16 x 12 x 12 FLAP 145 0 0
48 x 16 x 16 / 3 STAND 217 0 0
48 x 16 x 16 / 3 FLAP 173 0 0
48 x 10 x 16 / 5 FISH BOOK CASE 432 10 0
48 x 10 x 15 / 5 FISH BOOK CASE 410 10 0
ABBE PLASTIC BOW-FRONTED AQUARIUM
(Polyurethane for heating and lighting. Heater and lamp bought only to be added.)
18 x 12 165 0 0
24 x 12 175 0 0
24 x 15 175 0 0
30 x 15 185 0 0
COUSER CONCAVE FRONT 230 0 0
CARRIAGE ON AQUARIUM AT COST. TERYL CASH WITH ORDER.

AQUARIUM BOOKS
TROPICAL FISH IN THE AQUARIUM 13 5
ALL ABOUT TROPICAL FISH 42 0
AQUARIUM PLANTS 28 0
ENCYCLOPEDIA OF TROPICAL FISH 43 0
ILLUSTRATED DICTIONARY OF TROPICAL FISH 11 0

PAMPHLETS OF THE WORLD 67 0
BONE-FRAMED AQUARIUM FISH 94 0
LEAFLET TROPICAL AQUARIUM FISH 90 0

PEMCO STAINLESS STEEL FRAMED AQUARIUM
24 x 12 x 12" 130 0 0
20 x 12 x 10" 105 0 0
16 x 10 x 8 1/2" 87 0 0
12 x 10 x 6 1/2" 55 0 0

TOOTHCARP IN STOCK
N. RACHOCHI 28 7 0
P. BALINSKI 19 7 0
A. CALIARIANT 29 7 0
A. DEVLUND 15 0 0
A. GULARE 16 0 0
TROPICAL FISH PERSONAL CALLERS ONLY 27 0 0

SEDIMENT REMOVERS
SWIFLO BATTERY POWERED 46 0
SUPER WINDMILL AIR REJECTOR MANO 13 0 0
PERMA COLOURED GRAVEL 1/4" 1.5 0 0
RED YELLLOW LAVANDER ORANGE BLUE RAINBOW

J. T. HUNT (AQUAPETS) LTD
17 LEELAND ROAD, WEST EALING, W.13
Tél. Ealing 2748

UNLESS OTHERWISE STATED PLEASE ADD POSTAGE ON ALL GOODS
UP TO 10/- 1/2d.; 20/- 2/-; 30/- 3/-; 4/- 4d.

THE AQUARIST
STAR '64

THE LARGEST SELLING PUMP OF ITS SIZE IN THE WORLD

★ Silent in Operation
★ Fully Guaranteed one year
★ Will aerate from one to six tanks

39/- EACH

FROM YOUR DEALER TODAY

Available in two sizes
1 oz 2/-  4 oz 6/-
Polythene containers complete with instructions—

Invaluable for cleaning live food for immediate relief of fouled aquarium water due to overfeeding or dead fish, etc. Effective treatment for finrot, fin congestion, bacterial infection of the gills, popeye, etc.

If you have difficulty in obtaining any of the above products write direct to

SOUTH COAST AQUATIC NURSERIES LTD., Old Bath Road, Colnbrook, Slough, Bucks

July, 1965
The Brilliant New
GRO-WEL Bubble-up Filter

BRILLIANT IN DESIGN

★ Wide bore siphon speeds fast flow.

★ Output about ¾ gallon per minute.

★ Aerates and circulates water in tanks up to 50 gallons.

★ Filter body takes ordinary filter medium.

★ Patented design airlift pressurizes bubbles — causes phenomenal output with less air requirement.

Price 35/-

Distributed by
Inter-Pet
18 Church St. - Dorking - Surrey
Tel. Dorking 2566
Mr & Mrs F. J. Caffell

are the new owners of

MARSHALL’S AQUARIA LTD

26 Westbury Lane, Buckhurst Hill, Essex

Phone BUC 4708

Open every day 10 a.m. to 6 p.m. including Bank Holidays

Our aim is top quality stock at rock bottom prices

Plant Parcel Offers

30 Plants for 10/- incl. Water Lettuce

40 Plants for 20/- incl. Water Lettuce, I. Cryptocoryne, I. Aalengeta.

All the books written by T. H. Marshall are still available, at a reduced price.

6/- each or 32/- the set of six POST FREE.

The now famous N.O.F.F. fish food is also still available at 2/6, 4/-, 6/-, and the new

breeders pack at 10/-, post free.

Please send S.A.E. for price lists.

For wholesale plant list Trade headed paper please.

Please address all correspondence as address above.

July, 1965
Queensborough Fisheries
QUEENSBOROUGH HOUSE - FERRY LANE - HYTHE END - WRAYSBURY - Nr. STAINES
(One minute from the Feathers Inn)

Visit the beauty of the tropical aquatic world and the fascinating life of this—your hobby at our new Wraysbury hatcheries. Open to the public on Sundays and Thursdays 10 a.m. to 4 p.m.

Thousands of fish & plants on sale at reasonable prices

Your comments on your visit will be appreciated and printed in the next issue of "The Aquarist"
### SPECIAL PLANT COLLECTIONS (post only)

All post enquiries: 111 Goldhawk Road, W.12. 2s. post and packing on all collections.

#### TROPICALS

<table>
<thead>
<tr>
<th>No.</th>
<th>Plants</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50 plants including Dwarf Lily, Cryptostegia, Wateria, etc.</td>
<td>£1</td>
</tr>
<tr>
<td>4</td>
<td><em>Nymphaea Stellata</em> 1, <em>Glaucescens</em> 1, <em>Vallisneria</em> 1, <em>Glaucis Sagitaria</em> 1, <em>Cryptostegia</em> 1, <em>Indian Fern</em> 1, <em>Parrot Hair Grass</em></td>
<td>£1</td>
</tr>
<tr>
<td>6</td>
<td><em>Portion Hair Grass</em> 1, <em>Portion Clover</em> 1, <em>Micro Sagitaria</em> 1, <em>Bacopa</em> 1</td>
<td>£1</td>
</tr>
</tbody>
</table>

#### POND PLANTS

<table>
<thead>
<tr>
<th>No.</th>
<th>Plants</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>50 plants including Marginals</td>
<td>£1</td>
</tr>
<tr>
<td>8</td>
<td>20 Pond Plants</td>
<td>£1</td>
</tr>
<tr>
<td>9</td>
<td>2 Bul Rush</td>
<td>10/–</td>
</tr>
<tr>
<td>10</td>
<td>2 Burr Rush</td>
<td>10/–</td>
</tr>
<tr>
<td>11</td>
<td>2 Forget-Me-Not</td>
<td>10/–</td>
</tr>
<tr>
<td>12</td>
<td>2 Water Grass</td>
<td>10/–</td>
</tr>
<tr>
<td>13</td>
<td><em>Nymphaea</em> and Yellow Water Lily</td>
<td>12/6</td>
</tr>
<tr>
<td>14</td>
<td><em>Princess Alba</em></td>
<td>3 for £1</td>
</tr>
<tr>
<td>15</td>
<td><em>Water Lilies</em></td>
<td>£2</td>
</tr>
<tr>
<td>16</td>
<td><em>Nymphaea</em> Tree</td>
<td>£2</td>
</tr>
<tr>
<td>17</td>
<td>Lilies</td>
<td>£1</td>
</tr>
<tr>
<td>18</td>
<td>Dark Pink</td>
<td>15/–</td>
</tr>
<tr>
<td>19</td>
<td>Tubular Roses</td>
<td>15/–</td>
</tr>
<tr>
<td>20</td>
<td>Blush Pink</td>
<td>15/–</td>
</tr>
<tr>
<td>21</td>
<td><em>Marinae Cattley</em></td>
<td>15/–</td>
</tr>
<tr>
<td>22</td>
<td><em>Marinae Campanula</em></td>
<td>12/6</td>
</tr>
<tr>
<td>23</td>
<td><em>Nympha Alba</em></td>
<td>5/–</td>
</tr>
</tbody>
</table>

#### AQUARIUM OR POND

<table>
<thead>
<tr>
<th>No.</th>
<th>Plants</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>50 Plants for your Aquaria—Value 50–</td>
<td>£1</td>
</tr>
<tr>
<td>17</td>
<td><em>Giant Amazon Sword Plants</em> 6-8 inches</td>
<td>7/6</td>
</tr>
<tr>
<td>18</td>
<td>Water Lilies</td>
<td>2/6</td>
</tr>
<tr>
<td>19</td>
<td>Water Hyacinth 6-8 inches Returnable Plants</td>
<td>7/6</td>
</tr>
<tr>
<td>20</td>
<td><em>Sporaster</em> 3/–</td>
<td>3/–</td>
</tr>
</tbody>
</table>

#### TROPICAL OR COLD

<table>
<thead>
<tr>
<th>Plants</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lilies</td>
<td>£1</td>
</tr>
<tr>
<td>Dark Pink</td>
<td>15/–</td>
</tr>
<tr>
<td>Tubular Roses</td>
<td>15/–</td>
</tr>
<tr>
<td>Blush Pink</td>
<td>15/–</td>
</tr>
<tr>
<td><em>Marinae Cattley</em></td>
<td>15/–</td>
</tr>
<tr>
<td><em>Marinae Campanula</em></td>
<td>12/6</td>
</tr>
<tr>
<td><em>Nympha Alba</em></td>
<td>5/–</td>
</tr>
<tr>
<td>Live</td>
<td>2/–</td>
</tr>
<tr>
<td><em>Daphnia</em></td>
<td>1/6</td>
</tr>
<tr>
<td><em>Tubifex</em></td>
<td>2/–</td>
</tr>
<tr>
<td>Mowermiclifter</td>
<td>3/–</td>
</tr>
<tr>
<td>White Worm (Post Free)</td>
<td>3/–</td>
</tr>
</tbody>
</table>

Algae eating Pond Snails: 6d each

14"-16" Hygoi Carp: £15 per pair. Limited Number Available.

Large Stocks of Coldwater Fish—Thousands of Tropical Fish in Stock

Stocks of all Ponds, Fountains, Statues, etc.

FULL CATALOGUE ON APPLICATION S.A.E.
Special News

See Page VI

We are specialists in aquarium installations. All sizes and styles to customers' own specifications carried out. We have many designs set up in our showroom. Why not call and let us quote.

BOW AQUARIUMS

STANDS

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 x 10</td>
<td>£75</td>
</tr>
<tr>
<td>12 x 12</td>
<td>£75</td>
</tr>
<tr>
<td>15 x 15</td>
<td>£85</td>
</tr>
<tr>
<td>18 x 18</td>
<td>£95</td>
</tr>
<tr>
<td>24 x 24</td>
<td>£125</td>
</tr>
</tbody>
</table>

REMEDIES, etc.

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malachite</td>
<td>£5</td>
</tr>
<tr>
<td>Aquarium Glass</td>
<td>£2</td>
</tr>
<tr>
<td>Aquarium White Spot</td>
<td>£2</td>
</tr>
<tr>
<td>Copper</td>
<td>£2</td>
</tr>
</tbody>
</table>

Please add 1/6 extra postage on all items over 20p up to 30p, 30p up to 50p, 50p up to 75p, free post over 75p.

FULLY GLAZED AQUARIUMS

111 Goldhawk Road, SHEPHERD'S BUSH, W.12
(1 minute from Shepherd's Bush Market)
Telephone: 3432 2355
Hours of Business: Mon. to Sat. 9 a.m.-6 p.m.

QUEENSBOROUGH FISHERIES

QUEENSBOROUGH HOUSE, Ferry Lane, Hythe End, Wraysbury, Nr. Staines
Telephone: 4063 2898
Hours of Business: Mon. to Sat. 9 a.m.-6 p.m.

THE AQUARIST
The Flame Tetra

by A. W. Skinner

Although the fish mainly bred by us are barbs and angelfish, we have for the past 3 years been breeding the gloatligh tetras (Hemigrammus erythrozonus) quite successfully. It has been a thrill for us each time a batch of gloatligh tetras were raised and as the tetras are such a delightful little fish we thought maybe we would try another type.

An opportunity soon arose when a fellow member of our aquarist society called to ask if we would like to have a pair of flame tetras (Hyphessobrycon flammeus) which he thought were ready for spawning. He himself did not have the room for breeding; may I mention here that one of the advantages in belonging to a society is that there is always someone ready to help you out, either with fish or a word of wisdom.

After quarantining the pair of fish for a fortnight in one of our all-glass tanks specially kept for this purpose, the male and female were then separated for 2 weeks' conditioning, during which time they were given plenty of Baphia, white worm, chopped liver, root vegetable and dried food. After this period the female looked really well rounded and the male was in beautiful colour. One could certainly see where the name of flame had come from.

As the fish seemed ready for spawning, I then prepared the breeding tank, which was 28 in. by 10 in. by 10 in. I washed it well in salt water, being careful to rinse it thoroughly in cold water under a running tap. Then the bottom of the tank was covered with a layer of gravel and small stones which had been boiled, then filled with two parts of tap water and one part of aquarium water, taken from one of the conditioning tanks. (As our tap water is soft we did not have to add anything to it.) Spawning medium used was nylon mop and a little floating plant (Indian fern), making sure there were no snails or snail eggs on the plants; temperature was 80 F (26 C).

The tank was set up ready for 2 days and on the evening of the second day the fish were introduced, first the female and then the male. When the fish appeared settled, the fish-house lights were switched off and we hoped to see them spawn the following morning.

Next day they did not seem to want to co-operate at all and although frequent visits were made by us to see if they were spawning they were just not interested.

About 8.00 p.m. my wife went to put the light on in the fish-house and casually glancing at the tank, was quite
amazed to see the fish merrily spawning away. She was worried that they had been disturbed, but they were still spawning when I arrived home from work at 9.13 p.m.

The spawning procedure absolutely fascinated us. The fish would swim around together, then suddenly they went to the top of the tank, where they would suddenly spin round and round each other, the female releasing quite a large number of eggs, which were fertilized by the male.

This continued for about 2 hours, with the intervals between the spawnings growing longer. We then took the fish out of the tank and put them back into the conditioning tank. Throughout the spawning the female lost all her colour and, in fact, during later spawnings of these fish, this was one of the easiest ways of telling that they had actually settled down to spawn.

As soon as the adult fish were moved from the tank, it was covered with newspaper to keep the light away from the eggs. We follow this procedure with any eggs we try to hatch out. It does seem to be the best idea with the tetras to leave the tank covered for, say, 3 days, by which time the baby fish could be seen hanging on the glass sides of the tank. A small amount of egg yolk was added at this time and then, in another 2 days when the fry had moved off the glass, we fed with egg yolk three times a day.

After another week I tried some brine shrimps in the tank and was pleased to see the little fry swimming around looking ready to burst. It is very difficult to spot the fry until they are 2 or 3 weeks old as they dart against the glass sides of the tank at the least movement, but as long as there are a few to be seen the rest are there somewhere.

By the time the younger fry are a month old, they should be able to take sifted Daphnia and Brine shrimp, fine dried food etc. They still seem to appreciate the egg yolk about once a day as well.

Our first batch of flame tetras were moved into a larger tank (30 in. by 15 in. by 12 in.) at 4 weeks old and in another 4 weeks were just coming into some colour and were now feeding on anything put in the tank, which included Daphnia, white worm, roe, liver, peas, spinach, dried food and still a little yolk occasionally.

Since this we have had about six batches of young flame and each spawning has been more or less identical.

It has been suggested that it would be to best to use two males to one female when spawning the flame and as there appear to be quite a number of eggs not fertilized, this may be the answer. As we grew up some of the first batch of fish, we shall now be able to experiment further along these lines with, we hope, even better results than already achieved.

If there are any aquarists who feel tempted to try and breed tetras we can well recommend the lively and colourful flame, knowing that you will be both pleased and proud with the results.

---

**Metynnis schreitmuelleri**

by JACK HEMS

**Metynnis schreitmuelleri**, a strikingly beautiful species from the Amazon basin, is a member of the family Characidiae, and attains a length of about 6 in. Clear, soft, well-oxygenated water having a neutral to acid reaction, and a temperature of about 72°F (24°C) to 80°F (27°C) suits it best. Its body is pencil-shaped, with a notched or serrated belly, and almost circular in shape. The general colour is brilliant silver overcast here and there, but more especially on the flanks, with a delicate brassy green to steely blue sheen. The long-based anal fin, which is noticeably fuller in the male than in the female (only, of course, in well-grown fish) is brick red anteriorly and along most of the outer margin. The other fins are more or less colourless. It is closely related to the similar-shaped piranhas (Serrasalmus)—the most savage fishes found in tropical fresh waters, but unlike them is quite peaceful.

**M. schreitmuelleri** should always be kept in a group of four or more because it is happiest when it can enjoy the company of, and ideal with, its own kind. It is an active fish and, given a congenial environment and large helpings of food—but not so large as to leave any to spoil on the compost—lives a long time. Speaking of food, all live or dried foods are eaten with relish, but the fish is largely herbivorous and needs plenty of tender greenstuff included in its diet if it is to look its best. In point of fact, if it is not given such things as duckweed, nettles, lettuce, cooked spinach, cooked nettles and so forth daily, even a single specimen will sometimes strip a thickly planted 24 in. by 12 in. aquarium of most of its vegetation within the space of a week.

Although **M. schreitmuelleri** was known to pioneer tropical aquarists in Germany before the outbreak of World War I, there are only two or three records of its being bred in captivity. From all accounts the spawning procedure as follows: after some chasing about the aquarium, the two sexes take up a side-by-side position on the sandy bottom, and there deposit as many as 2,000, large, non-adhesive eggs. These the parent fish neither watch over nor eat. At a temperature in the low eighties (°F) the eggs incubate in about 3 days and 3 or 4 days later the fry become fry-swimming. Thenceforward, with proper feeding, they make rapid progress.
A Modest Start With Marines

by A. J. McLEAN

If you would like to begin with marines on a modest scale and you live within half a day's journey of an unpolluted rocky sea shore, why not try keeping sea anemones? I say if you live within a reasonable distance of the sea, because half the fun of having a task of anemones is derived from being able to say exactly where they came from. On the other hand, if you prefer to let someone else do the collecting, anemones have been advertised for sale in The Aquarist.

First of all, for those who are a little vague about what exactly a sea anemone is, here are a few words of explanation. If you are already familiar with them, well, you need not bother to read the next two paragraphs.

Although, as their name implies, sea anemones look rather like flowers, they are in fact animals and together with jellyfish, hydroids, corals etc. belong to the phylum Coelenterata. There are many different genera of sea anemones common between the high and low tide marks around our coasts but, although they vary considerably in colour, size and shape, they are all of the same general type of structure. The body, when the creature is extended, forms a roughly cylindrical column, varying in length between only a fraction of an inch and 6, or sometimes more, inches. The base of this is invariably attached to a rock, pier pile or some other comparatively immovable object. At the centre of the upper end is a mouth fringed with tentacles, the latter being used by the anemone to capture and partially kill its prey.

When the anemone closes up, which is often the case when it is touched or uncovered by the tide, the tentacles withdraw and the animal contracts into an irregularly shaped blob of jelly. One exception to the rule is the nudibranch anemone (Anemonia sulcata), which is unable to draw in its long tentacles.

An invaluable beginners' guide to anemone identification, and indeed to all our common sea shore creatures visible to the naked eye, is Collins Pocket Guide to the Sea Shore by J. Barrett and C. M. Yeoge. With the help of this book it is possible to give names to at least the more identifiable anemones. For the more academically inclined, the standard work on the subject is T. A. Stephenson's British Sea Anemones, published in two volumes by the Ray Society.

Tank for Anemones

But what of keeping sea anemones? First the tank. Salt water has a highly corrosive effect upon certain metals and in many cases when it comes into contact with them it produces a solution poisonous enough to kill sea creatures. Thus, although the ordinary angle-iron aquarium can be effectively treated with bituminous paint (Bitouche, for example), I have found it is easier to obtain a tank which is more or less made for the job. All glass and all plastic tanks are perfectly satisfactory but they seem to be limited in size, or alternatively very expensive, and I have found that so far the ideal tank for my requirements has a nylon-coated frame and measures 24 in. by 12 in. by 15 in.

The tank should be blacked out on three sides as most anemones seem to dislike too much light. Black-out can be achieved by painting the sides of the tank but I think that the job can be done more neatly by using plywood fastened together in the manner shown in the diagram. When completed this can be painted with any colour which will make a suitable background to the rockwork which will be added later. In this way the tank itself is not spoilt and the streaky effect so often obtained when painting on glass is avoided.

Aeration and good water circulation in my anemone tank are dependent upon an air pump, which, apart from odd breathers of about half an hour or so when I remember to switch off, is kept running continuously. The plastic air line (rubber and salt water do not go well together) from the pump is divided at a T junction not far from the tank. At this point one tube runs to an ordinary diffuser stone and the other is connected to the air lift of an under-gravel filter. The latter not only keeps the water perfectly clear but also makes it possible to cover the tank floor with a thick layer of gravel without the appearance of black deposits. This layer of gravel is from 2 to 3 inches deep.
a factor which enables me to keep, in their accustomed surroundings, those anemones which normally have their columns buried and their tentacles flush with the gravel surface. To offer suitable sites for the majority of anemones, however, plenty of rockwork has been provided.

Although I live only 3 miles from the sea shore, finding suitable containers and transporting sufficient sea water to fill my aquarium presented quite a problem. In the end I found it easier to use Mearnsita, a 4 lb. bag of which, when dissolved in ordinary tap water according to the instructions on the pack, produces 10 gallons of sea water. The only accessory necessary in the process was a hydrometer and with the aid of this inexpensive instrument I made up the salt water to a density of about 1.023, although any figure between 1.021 and 1.025 seems to be equally satisfactory. Once the salt water is in the tank I make periodic checks to ensure that the density remains within this range. Any major increase in the hydrometer reading times for collecting for it is then that the ebb tide uncovers parts of the lower shore which are normally under water. These tides occur every fortnight about the times of the full and new moon.

Whenever I go in search of anemones I find three things invaluable. These are plenty of small plastic bags, a backpack to carry them in, and an old garden trowel. Water-tight bags are in every respect better containers than jars but their chief advantage is the fact that they don't break if you slip while scrambling over wet rocks. The trowel is useful for prising anemones off the rocks and digging out those where the columns are buried in mud.

Once you have arrived at your selected collecting ground, search carefully on stones, under stones, under weeds and overhangs, and in pools. Incidentally, if you turn stones over, remember to put them back as many shore animals soon die when exposed to sun and wind. Follow the tide

The plumose or powder-puff anemone (Metridium senile) occurs at the lowest tide line. It is shown here contracted and expanded.

can easily be rectified by the addition of tap water until the required density is restored.

At present the tank is covered by a piece of glass resting upon four corks placed one at each corner of the top frame. This keeps out the dust but drops of water tend to collect on the underside of the glass and some of these run towards the outer edges where they drip on the aquarium frame. This is no great problem as the water can easily be wiped off but it is highly probable that readers can think of much better arrangements—but remember to avoid metal.

Collecting

Once the tank is ready for its occupants the real fun begins and finding anemones can be as satisfying as keeping them alive and healthy afterwards. Any rocky sea shore in Britain which is unpolluted will offer a selection of sea anemones but the south west of England is one of the most profitable hunting grounds.

Once you have decided where you are going to search for anemones, consult the local tide tables. These are given in the local newspapers of most sea-side towns and show the time and height of high tide. If you can arrive at the beach about 3 hours after this, you can follow the tide out over the lowest part of the shore, which is the best collecting ground. It is always easiest and often safest to follow the tide out to this point rather than to let it drive you back. Spring tides (nothing to do with the season) are the best

but watch for it turning, especially if there is any possibility of being cut off.

The first anemone liable to be encountered is the beardlet (Actinia equina). These anemones may be brown, red, orange or green but they are easily identified by a ring of 24 height blue spots inside the top margin of the column. If you want to take one home, gently prise the base of the anemone from the stone to which it is attached. Once a start has been made the rest is easy.

But there are more interesting species than the beardlet. Some are difficult to identify but nearer the low tide level the easily distinguished dasher anemones (Tetilla felina) may be found. These are much larger than the beardlets and also harder to remove from their positions. Careful prising with the trowel, however, usually does the trick.

Possessing a more difficult problem is Cerena pedunculata —no common name! I'm afraid, which may be buried in muddy gravel, except for the attractively coloured tentacles exposing them with the surface. Here the trowel comes in handy but try not to disturb the mud too much or the anemone will disappear under a smoke—or should I say a mud—screen and may be difficult to locate. Be careful too not to touch the anemone too roughly or it will vanish below the surface of the mud and again prove hard to find again. The base will usually be found to be attached to a stone or shell some 3 inches deep and again must be prised off. If you find a sausage shaped object in the mud
where there was once an attractive anemone, don't be put off, that's what you are looking for and it will open up again in the aquarium.

As you collect your anemones, put them into the polythene bags with plenty of damp seaweed and a drop of water. Just enough water is required to keep things moist. As long as the seaweed is damp the anemones will not come to any harm for a few hours. They seem to survive better in this way than if they do when completely submerged in water which cannot be aerated in transit.

Once the anemones arrive at their destination they can be transferred to the tank which has been prepared for them. Arrange them as you wish on the bottom or slightly sloping surfaces of the rocks and don't have the aeration working too violently at first. This will give the anemones time to fix themselves to the rocks. If the anemones have any other ideas about their position they will move to a more favourable site. If this is hidden from view or on the glass front of the tank, you can try other positions until eventually there is mutual agreement between you and the wanderer. Once the anemones are settled they will rarely move again from their chosen place.

Cerco pedunculata can be partially buried at the foot of a rock and it will do the rest itself. If you can put the anemones in places similar to those in which they were found you will have little trouble.

Most anemones settle down within 24 hours, and after that they seem to prefer plenty of water movement. Any of your captives which remain unpopped or look sickly after a day or so are best removed to a spare tank, for instance a large goldfish bowl with air stone and half filled with sea water. Here fatality will cause no difficulties and if your patient improves it can be returned to the anemone tank. On the whole, however, anemones are very hardy and deaths are rare.

Feeding

Feeding presents few problems as most species accept bits of uncooked shellfish, small or chopped-up pieces of raw meat, or in fact anything of this nature. The food should be dropped gently on the open tentacles and the anemone will either transfer it to its mouth or discard it. In the latter case the offending morsel can be removed to avoid pollution in the tank. Some books recommend feeding anemones once a week but I have found that feeding with small amounts every other day is more satisfactory.

Occasionally anemones slough their skins or pieces of waste matter accumulate around their bases. These can be siphoned away but watch the tentacles carefully as these are delicate and sensitive parts of the body are susceptible to the stinging barsbs of some anemones. An occasional agitation of the water in the tank also helps to remove these waste materials which can then be siphoned out of the aquarium.

Anemones seem to be able to withstand the cold rather than warmth, so don't keep their tank in a warm room. They also thrive better if some of the water in their tank, about one-sixth, is changed each month or so, although whether the new water is natural or artificial salt water does not seem to matter.

In fact, keeping sea anemones is an easy introduction to the field of marine aquaria, so why not try it?

Can You Make a Good Catch?

by PETER E. PAVEY

No aquarist can afford a bad catch. For a clumsy netting can mean at least uprooted plants, and at worst a stunned or injured fish. If the fish you are after starts a panic-stricken scurry round the aquarium, leave it for a while and try again when the fish has calmed down. Never net two fish together.

Keep several nets of varying sizes. These you can make yourself quite simply by stitching nylon curtain netting on to frames of galvanised iron wire. Use a big mesh for fast swimmers, a small mesh for rarely-seen-in-hydrography slow fish.

Hold the handle of the net you use for middle-water swimmers so that, having enveloped your fish, you can grasp the ends of the net with the glass. A faint tap of your finger on the outside of the glass will send the fish deep into the net. Then swiftly, surely, up and out with the fish.

If you do not do this, as you lift the net the fish will swim quickly away up the glass, and you will have to start all over again. Anglers in particular are best caught in this way, for when frightened they remain themselves so easily.

A loach is more easily driven, by means of a gently swishing rod, into a net than chased. Not poked or jabbed mind. And make sure the net used is of finest mesh. A big loach will wriggle in a twisting through a hole you will have difficulty in finding afterwards. I have seen a squint eel, one of the most awkward fish to catch, neatly trapped between two nets. But the nets must be held firmly together as the fish is lifted.

Butterfly fish, I find, are better lifted out in a jar than netted, and one's other hand held over the top to prevent any sudden leaps. Neither of my own butterflies has ever tried to jump when being moved, but one of them did develop mouth fungus after being clumsily netted. Not by me. It was possible even, in final desperation, first to cut, and then to pull away the deadly white beard successfully with tweezers, still without netting the fish.

Gudgeon fish, if they must be transferred to another tank, are best moved in a net suspended in a jar of water, rather than by net alone. I have never lost gudgeon—nor had deformed young—moving them in this way. And baby livebearers, up to a quarter of an inch in size, are easily and probably more safely moved in this way, in a net.

A carpish, though a tricky customer, is well and truly yours once it is in your net, for as you lift the net, the cat will dive naturally downwards. Get to know the natural reactions of your fishes. It simplifies catching them enormously.

As you lift the net out of your tank, cup your other hand gently about the body of the fish, or, if the fish is a small one, completely enfold it in the net, as in a ball. This will prevent your fish indulging in any of those hair-raising leaps, and save you a frantic search on the floor!
AQUARIST'S Notebook

by P. M. FULLER

FORGIVE me if this month’s “Notebook” is somewhat
Greek in flavour, but I am at present travelling
in that country and have encountered many topics of
interest to aquarists. But first an item concerned with an
event before I left England.

On making a routine tour of my tanks one evening I was
alarmed to find my water-jack toad in an apparently
mummified condition; its mouth was wide open and its whole
body was in a tangle of musus. It was not until I had
removed it from the tank that I realised what had happened.
The toad had spawned and attempted to swallow the
infertile strand, but had become completely entangled in
the process. I would be interested to know whether an
attempt to devour their own spawn is a usual occurrence
among amphibians, as it is with fishes, or whether it is re-
stricted to single specimens whose spawn would otherwise
merely stagnate.

One interesting feature of Greece is the variety
of reptiles and amphibians one encounters in the most un-
expected places. In the famous Ceramicus cemetery in
Athens, where the great were once buried, frogs now
leap in profusion; in Delphi, sanctuary of the great god
Apollo, little snakes slip across the ruins, and everywhere
where there are stones and sun-basking lizards are seen.
Along the roadside there are toads and, splashes as lizards
and frogs hurry out of the way of the approaching danger.
This abundance of animal life is quite unlike anything
encountered in Britain, where one has to hunt for single
specimens.

Naturally, the paradise of reptiles and amphibians
encountered, and the first people I met in Greece
were a young taxidermist and an old snake hunter travelling
from Vienna to trap and study fishes and reptiles. The
taxidermist spoke enthusiastically of capturing barracudas,
which he maintained existed in thousands in the coastal
estuaries of Thessaloniki. I haven’t come across any
barracudas yet, but perhaps the taxidermist has.

However, even as I write I can easily count eight distinct
species of fishes swimming close to the harbour wall at
Neaiss in the east of Argolis. No doubt when I start
collecting, as I hope to do shortly, I shall find countless
other species, for there is an even greater abundance of
fishes than of reptiles and amphibians.

It is not surprising therefore that fishes and aquatic
animals generally at one time held particular fascination
for the people of this land. In classical Greek vase pain-
ting, however, fishes appear only a limited number of times; it is the prehistoric epoch that has to turn to find
aquatic animals constantly reproduced.

In Minoan vase-painting, the product of the famous
civilisation of prehistoric Crete, sea-horses, cerato-
squids and fishes of several distinguishable species are
used to create fantastic submarine patterns, the graceful
curves of the various sea creatures harmonising wonderfully
with the shapes of the vases. Over and over again the
Minoans employed these themes—and in the process
created many wonderful works of art.

Reptiles in classical Greek sculpture are represented
perhaps more frequently than fishes on vases. The symbol
of Asclepius, god of healing, was a snake—and all rep-
resentations of the god include the snake (as do the
insignia of various medical organisations, such as the
RAMC, in Britain). The sole example of a lizard in
Greek sculpture that I have come across is “Apollo, the
lizard slayer”, by Praxiteles, which is now not in Greece at
all, but housed in Italy. It depicts a young Apollo, about
to strike a lizard dead with a stone.

Despite the abundance of fishes in the seas and rivers
and the quantities of reptiles that may be found, the hobbies
of aquarium and vivarium keeping are rarely to be en-
countered. In fact the only aquarium I have seen any-
where was a rather diminutive decoration in a shop window
containing two drab coldwater specimens. Public aquar-
iums are rarer, and on the mainland of Greece I have
heard of none. However, on the island of Rhodes an
aquarium of some reputation does exist and it is my inten-
tion to see it when I visit that island. The reason is, I
think, a simple one. Aquarium keeping is a luxury—as
are public aquariums—embellishments which Greece can
afford, despite favourable conditions, when the poverty
of the country is such that she cannot even properly
maintain her ancient monuments.

To the Early Christian Church in Greece the word
“fish” had mystical associations, because the letters which
form the Greek word were the initial letters of a religious
saying—thus one frequently finds the fish represented on
early Christian remains. But to the modern Greek the
fish means one thing and one thing only—food. One is offered
many species of fishes done in many delicious ways, and
even if the hobby of aquarium keeping is non-existent, as
the fish is no longer represented in the arts of the country—
this at least is some compensation.

It was one of my hopes when I set out for Greece to find
specimens of the Greek tortoise—so common in captivity
in Britain—alive and free in the wild. As yet I have been
unsuccessful, perhaps, because I have not looked hard
enough in the right places. The nearest I have got to
finding them is on several occasions encountering flattened
specimens on the roadsides, as hedgehogs can be seen in
England. However, I have been admirably rewarded in
looking for other animals—and it is always comforting to
know when looking for reptiles in Greece that of all the many
species of snakes that are to be found only one is poisonous.

THE AQUARIST
ABOUT THE POND THIS MONTH

Water Plants can become too Rampant

by

A. BOARDER

WATER plants in the garden pond should be making vigorous growth during the warmer months of the year. It may be necessary to prune some of them to ensure that they do not get too rampant and take up too much space. It is not always easy to keep a good balance so that there is enough plant life to maintain a clear water and yet not so much that there is no free space in which the fishes can swim around.

Plenty of plants growing well means that the water will be more likely to remain clear and the free-floating green algae will not be able to get established. The under-water or oxygenating plants are the ones which are important for this purpose. Usually all types of these plants grow vigorously, as they are never lacking in water as are the ordinary plants in the garden. However, it is possible for the under-water plants to get so thick that the fishes are unable to swim about and be seen in the pond. This state of affairs may be healthy for the fishes but it can be disappointing for the pondkeeper.

Thinning Out

Any of the under-water plants that are too thick should be thinned out. Those left behind may look a bit sad for a time but they will soon recover and make fresh growth. Water lilies may also get too rampant, but it is not easy to deal with these at this time of the year. Any lilies which had become too large should have been pruned in the early part of the year, April or early May. When a water lily gets so large that the leaves take up all the surface of the pond the fishes may never be seen in it at all and a great deal of the beauty of the pond will be lost. Some of the largersurfaced leaves can be removed, with care. Make sure that no flower buds are damaged while this is being done.

Often it is the fault of the pondkeeper that the lilies become too rampant. If a large growing type has been planted in a small pond it is certain that before long it will get too big for the space and overcrowd everything else there. The ideal sized lily is one which when at its maximum growth covers only about half of the surface of the water. If it is too large then instead of the leaves lying spread out on the top of the water, they will be unable to find space and so will grow up into the air and look anything but attractive.

Other water plants may also be too rampant; such plants as Pontederia cordata and Sagittaria japonica can soon spread and need thinning out. The reeds can also grow so vigorously as to need dividing. Very often any pond under 3 years old will function very well for as long as plants are concerned. After that time many plants may form such masses that the pond can lose the previous attractiveness.

Duckweed growing on the surface of the pond can quickly become too thick and will need attention. This weed is splendid for shading out the sun from a freshly constructed pond as it tends to restrain the growth of the green algae. If it gets too thick it will cover the whole surface of the water and become a nuisance. It is quite easily removed. If a strong jet of water from a hose is played on it from one side of the pond it is possible to roll it across to the other side. It can then be raked out without much trouble.

If there is a bog garden running around the pond the plants there can also need attention. Some of them can spread over into the water, and while it does not matter if a small amount spreads, excessive overhanging growth must not be allowed or the water might become polluted. Some of the bog plants are not intended to grow in the water but just in a very damp place. It is a very good plan to surround most of the pond with a bog garden as if it is continually wet it tends to deter crows from fishing there. However, it also makes it difficult for the pond-owner to get to the water when necessary.

Pond Watching After Dark

During the warmer months of the year it is an excellent plan to make an evening visit to the pond about twice a week. Wait until it is dark and then go quietly to the pond with a hand torch. It will be surprising if some pests are not seen at this time of the day. Many lie very quietly well down in the water whilst it is daylight only to emerge when it is dark in search of their prey. With the aid of the torch and a net it is possible to catch many pests. The larvae of dragonflies and water beetles will often be seen near the surface, when it is so easy to catch and destroy them. Another pest which can be dangerous to small fishes is the water boatman. During the day it is no easy task to catch these pests but at night they can be seen hanging from the top film of the water. Another dangerous one is the leech. These also come near the surface at night and so can be captured then. If a pond-keeper has never examined his pond at night he will be in for a surprise when he eventually does do so.

The fishes in the pond will be eating well as long as the

July, 1965
A hardy and beautiful perennial aquatic plant that grows strongly in shallow water is Pontederia cordata

water is in good condition and contains plenty of oxygen. It must be remembered that there is always a certain amount of food in the pond which is natural for the fishes and they are not likely to be in need of artificial feeding unless the pond is either over-stocked or has insufficient water plant life. To test whether the fishes are hungry or not a small piece of dry brown bread can be thrown on the water. If the fishes make no attempt to take this food do not give any more food for a day or two. If the fishes soon go for the bread, then some ordinary fish food can be given. If this is always offered at the same spot the fishes will soon learn to come there for food and it will be possible to see whether this food has been cleared up or not. Make sure that you do not give any dry fish foods if the fishes are not eating well.

Live foods are always better to offer when in double, but a varied diet is generally the best for most types of pond fish. If the fishes have spawn they is probably that an extra amount of food will be appreciated and should be given as long as the fishes are in an active and healthy condition.

If any young fishes are seen in the pond it may be as well to catch them and rear them in safety elsewhere, particularly if they are from a good strain of goldfish. If the pond contains plenty of water plant life and the fishes have spawn it is probable that a few fry will have escaped the attentions of the parent fishes. These can be left as if they have grown large enough to be noticed it is possible that they will be able to survive.

The question often arises as to what is a safe size for goldfish to go through the winter out of doors. I do not think that this depends so much on the size of the fry as on the purity of the water. I have had very small fantail goldfish go safely through the winter in outdoor tanks. This has only been because the water has been in good condition. If the water is at all foul it is certain that if the water freezes over the foul gases trapped underneath will be dangerous to small fishes, in fact to fishes of any size. If young goldfish are to be wintered out of doors make sure that the tank has been cleaned out and that it contains only pure water. There need not be much plant life in the tank. If it has a good surface area it is probable that the water will get sufficient oxygenation from the atmosphere; oxygenation by the plants in winter is not a very reliable event since many water plants become quite dormant during the cold weather and may indeed foul the water instead of oxygenating it.

Transporting Tropical Fishes
by B. WHITESIDE

For the aquarist who lives a long way from his nearest tropical fish dealer the problem of how to transport fishes arises. The usual polystyrene bag is no longer suitable and a suitable substitute has to be found. The problem is often solved by making some sort of an insulated wooden container in which is placed a glass jar. For the aquarist who has not the time or the tools to build such a container a useful and efficient substitute is an ordinary 2 pint vacuum flask.

Such a flask may not look very large at first view but for transporting small tropical fishes it is invaluable. Up to eight or more tropical fishes can easily be transported over fairly long distances. The smaller the fish, the more can be transported, but for larger fishes the neck of such a container is too small to permit their entry without damage.

A 2 pint flask will retain the original temperature long enough to transport fishes for a number of hours and the water capacity will contain enough oxygen for the period. To make sure that the water remains at the proper temperature, the flask should be rimmed out with water of the required temperature at the dealer's shop, before the water for actual transportation is added. This will ensure that no drop in temperature will occur because of the difference in temperature of the inside of the flask and the water added. A piece of grease-proof paper placed round the neck will prevent it from coming into contact with the water and will ensure a better seal at the mouth of the container. The flask should only be filled about three-quarters full to permit a quantity of air to remain at the water surface.

If the flask is well washed out after each purchase there is no reason why it should not be used for its normal purpose of keeping drinking beverages hot or cold.

Being relatively small in size a flask full of fishes can easily be slipped into a brief case or a small travelling "grip", making it unobtrusive and easily carried. A 2 pint flask is not very expensive and can give many years of service as a fish transporter or for picnics beverages if care is taken not to let water get inside the metal casing, which can result in rusting.

THE AQUARIST
The Flame Nettle
(Coleus)

COLEUS are very ornamental plants with leaves which are nettle shaped and grow in a variety of colours. They should be grown from seeds sown in spring in a temperature of 75° F (24°C). The seedlings are potted on firmly in a good compost and as the young plants develop they can have the growing tip pinched out to produce a bushy plant.

Coleus is grown for its leaves and any flowers which are produced should be removed to prevent the plant from losing its energy on seed production. The plants require frequent watering and a spoonful of liquid fertiliser added to the water twice a week will produce strong brightly coloured plants.

A position in full sun is what the plants require and this will also enable full advantage to be taken of the bright hues of the leaves. More plants can be grown from cuttings taken from a mature specimen. Plants will survive the winter in a temperature of 49-53°F (7-13°C).

B. Whiteside

Our Experts' Answers to Tropical Fish-Keeping Queries

Many queries from readers of The Aquarist are answered by our experts each month, all aspects of the fancy being covered. Not all queries and answers can be published, and a stamped self-addressed envelope should be sent so that a direct reply can be given.

Many queries from readers of The Aquarist are answered by our experts each month, all aspects of the fancy being covered. Not all queries and answers can be published, and a stamped self-addressed envelope should be sent so that a direct reply can be given.

Please tell me how to set about obtaining a culture of Infusoria to feed to my fry.

Into three or four pint-sized glass jars introduce a closed handful of wilted lettuce leaves, or one overripe banana skin, or a thick slice of raw potato, and fill up with warm water, preferably taken from an established aquarium. Now place the jars, shaded from strong light, in some spot where the temperature stays around 70°F (21°C), and leave them undisturbed for at least 5 days. Don't be dismayed by a temporary cloudiness and slight unpleasant smell. Both are caused by the growth of bacteria. The infusorians arrive later (from air-borne spores) and take over from the bacteria, which they feed on. As they clear the bacteria, so it follows that they clear the water and the smell. It is then, if you hold one of the jars up to a strong light, you will see, sometimes with the unaided eye, countless numbers of infusorians moving about in the water.

I would appreciate some information on the fish called Hasmus's barb, or Osphronemus grahami, was first introduced to tropical fishkeepers in 1931. It is native to Thailand, and many of the islands which make up the Malay Archipelago. In the wild it sometimes exceeds 12 in. in length. It is quite amenable to aquarium life provided that it is given plenty of swimming space in well-oxygenated water. A temperature of about 75°F (24°C), with a range of 5°F either way, suits it best. In the matter of food, almost anything is eaten, including vegetable matter. Young fish are more attractively coloured than adults. So far as we know, the species has not bred in captivity.

Would you please tell me how to keep and breed a small, dwarf-sized fish which I bought under the name of Persian pearl fish?

The fish you have is probably a member of the genus Aphanius—in all probability A. dispar or A. mento. Plenty of feathered foliage plants growing at or near the surface, a level teaspoonful of sea salt to every gallon of water in the tank, and a temperature range of 68°F (20°C) to 78°F (26°C) are its basic requirements. Aphanius spp. will usually eat dried foods, but plenty of small live food such as gnat larvae, Daphnia and white worms is necessary to keep the fish in good health. Scrapings of mossy algae, or a substitute green food such as cooked spinach, should also be included in the diet. No special preparations are needed for breeding. Spawning time is heralded by the enhancement of the fish's colours and distension of the female's sides. Though the adhesive eggs deposited in the plants, and the fry that hatch out in about 10 days, are seldom unmated, it is recommended that the parent fish are transferred to another aquarium after spawning is over.

Please give me the names of a few easily grown, fry-sheltering plants ideally suited to a shallow-water tank in which I intend to breed Hemichromis bimaculatus.

You cannot do better than choose from any of the following: Vincetoxia dubysas, Notopterus fluvialis, Utricularia gibba, or a warm water-grown hornwort (Ceratophyllum).

I introduced a pair of dwarf gouramis into a small tank housing some new tetras. The latter contracted "moss tetra disease", and have since died. Do you think I should place the gouramis (which look perfectly healthy at the present writing) in a medicated bath as a precautionary measure?

We very much doubt that your gouramis will develop
the same disease that killed the neon tetras. All the same, as the tank is a small one, it would be a good idea to empty it and set it up afresh with thoroughly washed and sealed compost, sterilised plants and water that has been boiled.

Diffuser stones should be cleaned occasionally to avoid blockage (see below)

My diffuser stones soon become choked with green scum, which prevents a proper outflow of air. Scrubbing them with a stiff soil brush has not provided the answer to this problem. Must I keep buying new stones, or is there any way I can render them serviceable again?

Ten minutes' immersion in a saucepan of boiling water usually results in a clogged-up diffuser stone being given a new lease of life.

Time and again I have tried to breed white worms in a shallow box filled with soil from the garden, but my efforts have never been crowned with success. For one thing, the white beetles could not live. A useful article always turns up fairly soon after I introduce it. For another thing, the worms just disappear into the soil and are never seen again. Please tell me where I go wrong.

In all probability the soil taken from your garden is unsuited to white worm culture. Try again with yellow loam or leaf mould obtained from a horticultural sundriesman. Next, see that the moisture compost is covered with a sheet of glass to prevent rapid drying out. On top of the glass place a piece of limejuice or hardboard to exclude the light. Lastly, don't introduce too much food at the start, and use a small quantity of wholemeal bread, or cooked porridge oats, rather than ordinary white bread.

Me newly installed aquarium is illuminated by electricity. I have discovered that although the lights are switched on the upper levels of the water become warmer than those at the bottom. Will this difference in temperature affect the health of the fish?

Fish do not suffer any harm if there is a slight difference in temperature between the bottom of the water and the top. After all, similar conditions exist in Nature. In warm, sunny weather the surface of slow-moving or stagnant water is warmer than the bottom. During the colder days of winter it is the other way around.

What is the life-expectancy of a salmin molly? Generally speaking, a salpin mollies live for about 2 to 3 years.

How does one sex Cynolebias majori, and can this catfish be bred in captivity?

In mature fish the female has a larger and anteriorly wider (fatter-sided) body than the male. As to breeding the species, it is no more difficult to propagate than C. parvipinnis or C. aequilis.

Would a zino-bottomed tank be suitable for keeping guppies? Neither guppies nor any other tropical fishes should be housed in a zino-bottomed tank unless the metal is first insulated from contact with the water by a thin layer of cement and sand (well-soaked in several changes of water before being set-up for fish), or by glass cut to size and bored over it on ordinary aquarium mastic, or hot pitch. Zinc is highly toxic.

Does the glass catfish (Kryptopterus bicirrhis) make a suitable occupant for a community tank?

K. bicirrhis settles down quite well in a community tank. If other fishes live in it, they are quiet-living and non-bullying by nature. But a point to observe is to keep at least two glass catfish together. Solitary specimens miss the company of their own kind and soon die.

What water suits White Cloud Mountain mimnows best? Soft water with an acid reaction, or hard water with an alkaline reaction?

Water of moderate hardness with a reaction towards alkaline suits these fish best.

COLDWATER FISH-KEEPING

In feeding with micro worms I find it difficult to prevent them from their food getting into the tank. How can I avoid this? Also, how long does it take to get a culture of white worms going? How can a novice tell if he has a ripe culture of leathromonas?

If you place small sticks in your micro worm culture the worms will climb up them and then can be transferred to the tank. A small piece of glass laid on top of the culture will prevent further escape. It will take about 3 weeks to get a good culture of white worms. The best way is to get several boxes going; they can be added one on top of the other so that they take up little space. The medium can be fine damp past. Feed with damp bread with a drop of cod-liver oil on occasionally. A small knob of cheese will attract the worms so that a large quantity can be picked out with tweezers after 2 or 3 days. Keep in a cool and dark place and have a sheet of glass laid directly on top of the past. Use from one box at a time so that you always have a reserve. Examine a drop of water under a microscope to see if the small mobile organisms known as Infusoria are present.

I am hoping to catch some newts in a local pond. Can I keep them in a 24 in. tank with some small fishes and what care do the newts need?

The newts will eat almost anything moving and garden worms will be greatly appreciated. The newts could attack very small fishes. Remember that newts only go to the water to spawn, and once the eggs have been laid the parent newts will leave the water until the following spring. The newt tadpoles are very interesting to rear but they too will leave the water when fully developed.

THE AQUARIIST
Can I have a North American cichlid such as a "pumpkinseed" in a tank with goldfish?

This will be in order as long as the tank is not overcrowded. Add one inch of fish to each 24 square inches of surface area. These sunfish like a diet of live food and it may be difficult to get one to feed on any other type of food.

I am a member of a sports section of the firm where I work and we have a fish tank with some goldfish in it. I take care of the tank and add a fish pond for our angling section. It will over about one and a half acres and will be 3 ft to 6 ft deep. We have been given a number of fishes from a distant canal which was being filled in. There are many perch and a few crucian. I am most concerned about feeding the fishes whilst the pond is being established. Can you give any advice?

It will not be long before your pond becomes self-supporting. Worms etc. will enter the water and many types of insects will lay their eggs there. You can assist at first by giving plenty of worms, frog tadpoles etc., and also some dry bread can be added. The perch will be likely to feed on any of the above or any small fish. To encourage the fishes to breed you should gather plenty of water plants from surrounding ponds and try to establish them in the shallower part of the pond. Perch spawn early in the year and at such times last, sometimes well into July.

One of my shubunkins has developed an incurable disease. I would like to kill it quickly and painlessly. What do you suggest?

A very quick way of killing a fish is to dash it on a hard surface, such as a concrete path. Death is instantaneous and I know of no better way.

I have four-year-old moor in a bare tank. The temperature of the water is 62-64°F (17-18°C). I have reduced the light to retain the velvety black on the fish, but having no plants I find that the fish are continually at the surface of the water.

In the first place by keeping the moor at such a warm temperature. I think that you are encouraging them to lose their black and turn bronze. This has been my experience. The fish keep near the top to obtain more oxygen, which is essential in the water. This probably because the water is warm and there are no water plants in the tank. Include some growing water plants in the tank. Not only would they tend to keep the water in a purer condition but I am sure that the fish would prefer these conditions.

I have a tank 36 in. by 15 in. by 12 in. set up last November. My fishes are: two shubunkins, two fantails, two velvets, two moor, two catfish, one comet (all about 3 in.), and one goldfish goldfinch (3 in.). About 2 weeks ago the catfish died. I bought another and that died. Since then I have added seven fishes but they have all died within 48 hours of being placed in the tank. The original fishes are healthy and appear happy; however, as soon as I add another fish it goes. What is the trouble?

It appears that your trouble is that you are trying to keep too many fishes in the tank. It will hold only 18 as fish. The original fishes have no doubt grown and need more space. When you introduce a fresh fish it may not be in the peak of condition. As there is a lack of oxygen in the tank the fish will soon die. The fact that some fishes keep all right in the tank is an indication that there is nothing radically wrong with the setup. It is just that when more are added the overcrowding becomes apparent and one or more fish die. It is probable that even if you do not place any more fish in the tank one or more more of the fishes already there will die as their space cannot be so much easier to keep fishes and plants in good condition when the tank is not overcrowded, and there seems little sense to me in trying to over-stock.

I have lost several goldfish from my pond. They apparently died through a form of green fungus on their bodies. What is the cause and cure for this?

The green fungus was really the ordinary fungus, which is white at first; in a pond where there is a quantity of green algae the white soon becomes green. The usual salt bath treatment will usually effect a cure.

Is there any particular make of bitumen paint available for painting cement that is not harmful to plants and fish?

Any good make of bitumen paint should be safe to use. However, a few hints on using it may help you. You cannot paint this on to a damp surface as its nature to repel moisture; the surface must be dry. After a couple of days the cement should be well washed before refilling with fresh water.

I have a goldfish which is 13 years old. Some time ago the body seemed to swell to one side and the back became bent. The fish has now lost its balance and stays at the bottom for a long time. What is the cause and the cure?

I do not think that anything will cure the curvature of the spine. It may be due partly to old age, just as humans may get curvatures when they are old. You could try the fish in shallower water, and a little warmth might help its balance to be regained.

I hope to breed telescopic eyed moor. Have you any information on the subject?

All moor should have telescopic eyes. Their breeding conforms to the general method of other fancy goldfish. There are two types, the veiltail and the fantail moor. The latter is perhaps the easier to breed for the inexperienced. Try to get some good stock from an established strain to start with.

I lost three or four dozen goldfish in the winter. The water in the pond now smells very foul and looks black. Would it be safe to introduce any more fish?

The water is obviously unfit for keeping alive any more fish. Empty as much as possible of the water and fill up with fresh. Leave for a few days to see if the water remains pure. If not, repeat the treatment. Once the water is clear and do not have a bad smell new fish can be added. There is no doubt in my mind that it is not the cold alone that kills pond fishes, but the foul water with little or no oxygen in the danger when the pond freezes over.

Is there a way of maintaining a supply of Daphnia in a 18 in. by 12 in. tank to supplement dried food for seven 2 inch shubunkin?

I do not consider it possible to keep up a supply of Daphnia for your fish in a tank of this size. You would find it very difficult even to keep alive a number of Daphnia in this tank for more than a week. They need a good supply of oxygen and must also be fed. You will be well advised to concentrate on breeding white worms instead. These are far easier to breed and a very good form of live food.

Can you tell me what the creatures are which swim about in my tanks? They are very small and multiply very rapidly. I think some are eaten by the young fish but they also eat the goldfish eggs.

From your description I think the animals are planktonic. If your fishes eat them, then withhold all other food for a time and the plankton will be lessen in numbers. You can kill them by adding a tablespoonful of household ammonia to each 5 gallons of water, but you would have to remove the fishes first.
Is it my fault that 50 per cent of the goldfish I buy die in the first 3 months? They came from six different firms and all seemed healthy when bought. They certainly appear very thin when compared with those purchased previously. After about 3 weeks they go off their food and soon die of liver or what seems like malnutrition. The ones which survive the first 3 months become plump and healthy and later breed.

It is possible that the fish you bought have been kept in overcrowded conditions and have been bred in a warmer climate. Many of these imported fish never establish themselves in this country. They can often be seen crowded together in tanks, wobbling about with their fins closed and mouthing at the surface. They never seem to swim on an even keel but keep to an angle of about 40 degrees from the top. It is not easy to get such fish in a healthy condition, and the best way is to give them plenty of space and a good supply of live foods such as white worms or chopped garden worms.

What is the best temperature for young Bristol chubhuns during their first winter if they have been reared at 60°F (16°C) until then?

It is customary to reduce the temperature of the rearing tanks gradually, in October, to the lower fifties. The fish will not notice the difference if this is done over a period of about a fortnight. These fish could stand as low as 40°F (5°C) quite well if they have been brought to it in stages. I think that at 50°F (10°C) they will do better, but do not expect them to feed at the same rate as they did when the temperature of the water was higher.

FISH DISEASES

Dropsy

The body tissues and certain internal organs of a fish suffering from dropsy fill with fluid. This causes the belly to swell to enormous proportions and makes the scales stand out at right angles to the body. The fish quickly loses its colour and becomes extremely languid. In the early stages of this fatal disease the symptoms can easily be mistaken for those associated with scale protrusions.

Very little is known about dropsy. It has been found, however, that dropsy can be contagious when a fish is infected with a parasitic-type virus and the exudation from the blistered body tissues contaminates the surrounding water.

Drawing off the fluid from a dropsical fish with a hypodermic syringe will help to check the declining condition of the fish but it does not bring about a permanent cure; quite often the victim will linger for weeks before it eventually dies. Good results may be achieved with the use of chloromycetin but the sale of antibiotics in Great Britain is not permitted without an authorised prescription.

Tropical fishes generally possess a high resistance to dropsy, with the possible exception of aged mollies, but it is likely to occur sporadically in collections of fishes.

R. E. MACDONALD

Octopus in Captivity

Since the new saltwater pipeline was installed last year, octopus specimens are surviving better in the Vancouver Aquarium. A small male specimen weighing 15 pounds was captured by Terry McLeod and John Rawlin late June, 1964. It now weighs 55 pounds and appears to be very healthy. Both the rapid rate of growth and the period of survival in captivity (11 months) are records for this Aquarium, although the Point Defiance Deep-Sea Aquarium in Tacoma, Washington, has succeeded in maintaining them for a longer time.

Another male octopus, about 44 pounds in weight and 10 feet across from the tip of one tentacle to the tip of the other one, was caught at West Vancouver this May for the Aquarium. The divers descend 50 feet or so and locate the octopus, which is put in a plastic bag beneath the water as soon as it is captured. In this way the animal can be transported to the surface in the cool water from the bottom and not be brought into contact with the warmer surface layers. The rise in temperature can kill an octopus from deeper water.

We have found leeches in our garden pond and have been told that some fish eat them. Which kinds are they, please?

I do not know of any coldwater fish that would eat fully grown leeches. Small ones might be eaten by tench or perch but I have had no actual experience of this. A better way of ridding the pond of the leeches is to tie a piece of raw meat on a piece of string and lower it in the pond each night. Wrap a piece of small mesh wire netting around it to prevent the fish from eating it. If the meat is removed each morning it will be found that many leeches will be adhering to it and then they can be killed.

Can you give me the name of a small book which deals with the setting-up of an aquarium from scratch?

The book Coldwater Fishkeeping, price 5s 4d from The Aquarist, will be most helpful to you.

Could fungus be introduced to a tank by adding new plants?

Fungus could appear in a tank at any time and need not have been introduced especially on fresh plants. The spores causing fungus are often present in water, but if the fishes are in good condition they can withstand any attack. The mucous covering is a protection against disease and as long as this is present over all the fish it will prevent foreign forms of life from living on the skin of the fish.
A Waterfall and “Babbling Brook” in a Suburban Garden

by W. HULL

OVER a period of years I had constructed four informal ponds and a pond-cum-bog garden at the rear. They had been built at different levels, and channels had been left at each end to serve as insets and outlets for water. At the far end of the pond on the left I had built up a solid rockery. It is not so easy as it might seem to persuade a stream of water to flow with a natural effect, and as I built this up, it was channeled out here and there, on the top, whilst odd bits of stone were stuck into the wet concrete.

The pond at the lowest level was close to my garden shed, where I already had electric lighting. I bought a centrifugal pump, also a foot valve and strainer supplied by the manufacturer; the strainer is essential to prevent mud and leaves being drawn into the pump. The maximum output of the pump was 750 gallons per hour, with a consumption of 210 watts. I screwed the pump to a shelf in the shed, about 4 feet higher than the bottom of the pond. Following the maker’s simple instructions, electric wiring was quickly completed.

From the foot valve and strainer in the pond to the pump in the shed. I used flexible connecting hose, 1 inch bore, and adjustable pipe slips, as a suction lift must not be restricted in any way with small bore pipes. Inside the shed I used galvanized metal piping, 1 inch bore, and two stop valves. My purpose here was to be able to control two streams of water, together or separately, both of which could be shut off, or increased, as I desired.

The longest length of piping ran from the shed to the back of the rockery and was hidden from view behind the walls of the left-hand pond. The shorter length led to the near end of this pond, which was close to the garden shed. Under the rockery, a channel led into the pond-cum-bog garden and the outlet from here led to a channel on the right-hand side of the large central pond. The outlet from this was under the footpath and into the pond at the lowest level, as was the outlet from the central pond. Thus the water drawn from the pond could be divided into two streams, both of which would terminate at the source from which they were drawn, the same water being used over and over again.

Continued at foot of next page

Plan view of the garden described in the article. Ponds A, B, D and the ‘central pond’ C are connected via piping (broken lines indicate buried sections) to one another and the pump P. Arrows indicate direction of flow. Pond A supplies the bog garden and ‘brook’. TI and T2 are stop valves on pipes from the pump.

July, 1965

69
BREEDER’S RECORD

Success with the Emperor Tetra
(Nematobrycon palmeri)

by H. E. R. THOMSON

A MEMBER of the characin family, this little fish inhabits the San Juan Basin of the Pacific slope of Colombia, and although not carrying the flashing colours of the cardinal or neon tetras, it has a beauty of its own and is, in my opinion, equally as attractive as those in a quieter way. The back of the fish is brown, shading through gold to a wide blue area which scintillates as the light catches the fish in various positions; below this blue area a wide band of black extends right through the body; the belly is golden. The eye is of great attraction, giving a brilliant blue to green spot which intensifies according to light. Dorsal, caudal and anal fins are edged with black, and the anal, which is rather large, has a pale yellow margin which is more intensified in the male. A distinguishing feature is the black filaments through the centre of the caudal or tail fins, which together with the black edging, gives a three-pronged effect; this centre filament and the black edging on the dorsal appear to be longer and more pronounced in the male. Fully mature specimens measure up to 2 inches in length.

I have two pairs of these little beauties in a community tank, and when the males put on a show for the females, it is a sight to make any aquarist pause in admiration. In temperament the fish is neither aggressive nor timid. It is fairly active but rests in the proximity of plants long enough to allow one an opportunity to study. A temperature range of 72°F to 78°F (22°C to 25°C) suits very well, with slightly higher temperatures for breeding.

Spawning and Rearing

I should like to describe my experience of spawning and raising the emperors. A 24 in. by 8 in. by 9 in. angle iron tank was used, filled to a depth of 6 inches with soft clear water; tests showed the water used was 7 degrees hard and had a reaction of pH 7.4. A 1 inch bottom layer of peat moss was put into the tank and allowed to stand for 5 days with gentle aeration. Spawning medium used was coconut fibre, as used by uplodinaters (boiled before placing it in the tank). The breeding pair were introduced together at a temperature of 80°F (27°C). I did not actually witness the spawning, but during the next 2 days both fish were unusually active and the colours of the male noticeably intensified.

I was certain spawning had occurred although I could not detect any appreciable difference in size of the female. However, confirmation came when 5 days after introducing the pair, I saw the first free-swimming youngster. The parents were immediately removed and during this procedure I was pleased to see several more babies emerge from the spawning medium. Infusoria was introduced and observation over the next 5 days proved that the tummies of the fry were full to capacity. Newly hatched brine shrimp was then given and rapid progress noted; a few days later micro worm was added to the diet.

Small Brood

At the time of writing the babies are 10 weeks old and measure 1 to 1 1/2 inch in length. They carry the full colours of the parents, the gold colouration being rather more prominent, but as yet do not show the extensions to tail and dorsal. Twenty-six have been counted, and I understand that 30 is the most that can be expected. I consider the emperor tetra to be a most desirable fish for the community tank as it is quite hardy, is a good mixer and will take any food, although, like most fishes, it shows a preference for live food. To anyone with an interest in spawning, this fish is a challenge, not being classed among the more ready breeders, but nevertheless a fish from which one can, with patience, expect results.

A Waterfall and “Babbling Brook”

continued from previous page

When the pump was switched on at last, the result was very effective. Water flowed over the rocks, into the tiny pond below it and into the large central pond, while the “babbling brook” ran through the bog garden and made its way under the footpath to the lower feed pond. All the piping had been concealed and my visitors were enchanted with the lovely spectacle. As for myself, I considered that any labours had been well worth while; in fact, a huge success.

The fact that I had five ponds need not deter would-be enthusiasts, as it is a simple matter to provide a waterfall for even one informal pond, using its water content for both source and stream. I would be pleased to answer any queries on this subject, through The Aquarist.

Pumps may also be housed anywhere out of doors, so long as an electric supply is available.
Red-tailed Sharks

I READ with great interest Mr. Birkin's letter (The Aquarist, May) particularly so because yesterday evening we watched a performance by our red-tailed black sharks which could only have been a rehearsal for a future mating.

We have three sharks, and when no. 1 and no. 2 (by size) sangrew their tank I shifted them to another. This is a 12 inch diameter all-glass round tank of depth 9 inches with a bottom of small stones. It is rather sparsely planted and is kept at about 76°F (24°C). Knowing that Lates calcaratus likes to lurk, I placed stones so that shark no. 1 had a large cave and shark no. 2 had a small cave adjoining and with a passage through which no. 2 could travel, but not no. 1. No. 1 always chased no. 2 out of his cave very briskly. For 2 or 3 days no. 1 has been performing diving rolls at low altitude over the stonework in a manner which suggested either gill flukes or romantic bonhomie. Suddenly no. 1 and no. 2 met, and folding their drenches over each other's backs, danced a samba-esque pas de deux, which continued for at least 5 minutes. No. 2 then dived into no. 1's cave and, to our surprise, no. 1 did not chase her out. She stayed in and fanned around, fanning her tail and apparently driving out rubbish, then proceeded to poke her nose out at intervals until no. 1 approached his cave. She left for her own and no. 1 had his turn of fanning around in circles. Then another little chase occurred, followed by the above-described in-and-out of cave routine.

No eggs were deposited or fertilised as no doubt these fishes are too young (about 5 months at the most). But I live in hopes. I can't help thinking that it is the rockwork which is the vital factor. I feel that the two widows and the two angels will have to come out of this tank; they are greatly brutish.

J. Baxter, Redcar, Yorkshire.

Science and the Aquarist

THERE has always been a certain amount of friction between the boffins and the layman, or even just scientifically systematic people and the person who tries by haphazard means to achieve the same ends (letter: "Breeding Fishes", May).

A lot is to be said for both methods, because it is a fact that good fish can be produced by selective breeding "by eye" and equal or even better results can be achieved by genetic breeding; in fact with the latter method results can be almost guaranteed. The point about both these methods is that the person who embarks on selective breeding might possibly get a better result earlier than the person who breeds strictly to genetic rules. The boffins, amateur or otherwise, may frown on this point of view, but I am certain that many aquarists who are not scientifically inclined would be disheartened if they had to follow the dictates of the scientific breeder.

A large number of good breeders are people who breed from experience, not from "books", and personally I should hate to see them go. But by the process of natural selection I should think they'll be with us for a long time to come.


Aquarium Backgrounds

I WOULD like to congratulate you for your very interesting magazine... I have been secretary for the Oslo Aquarium Society as well as the Norwegian Aquarium Societies Association and I have found quite a few hints on entertaining the members in your magazine under the heading "News from Aquarists' Societies."

I have even tried my hand in making my own magazine, sending out a duplicated issue once a month. I very much enjoyed that, but unfortunately my time is short and my family and pets suffered.

In your May issue was a note about metal foil as a background. I have backgrounds on all my aquaria, consisting of foam plastic of the kind used for insulating buildings, refrigerators etc. It is sold in white sheets and can easily be fitted into the frame, but outside the glass. I paint it black with a matt latex paint. On top of that I make a few bold light green strokes in a cross-cross pattern. In this way I get a pleasing background with depth in it, and at the same time I achieve insulation of the aquarium against loss of heat; in the severe winter we have in Norway, as you have as well in England, that is a great saving.

Claude Strangter-Thorsen, Aas, Norway.

Pen Pal Club

I AM writing this letter in hopes to start a "Pen Pal Club" for aquarists around the world. My idea is to write to several different countries to exchange ideas and different
things with each other around the world. So far I have written to South Africa, Scotland, England, Hawaii, Australia, New Zealand, Canada, India and France.

If you think this is a good idea please let me know your views on it. As I receive letters I will put the name and address, plus the type of fish that is raised, and mail each member a list. There will be no dues or fees, just the price of a stamp.

Jack Roper,
1119 W. Drummond Place,
Chicago, Illinois,
U.S.A.

Fin Rot

During the early spring of this year, my 30 in. by 15 in. by 12 in. community tank, containing a fairly wide range of tropical fishes (black mollies, guppies, catfish, zebra, swordtails, moors, glossohths and harlequins) became severely infected with the above. My water temperature never alters by more than 1°, from 78°F, pH 6.8, the water is well aerated and filtered, also all necessary precautions are taken before entering new fish into the tank (to prevent chilling etc.).

I started treatment with the following recommended cures: (a) The salt treatment cured the black mollies and swordtails, but the infection returned after 4 days and the remaining infected fish were not cured. I lost during this period two harlequins and one zebra.

(b) After the failure of the above, I tried another well-known cure, using phenoxetol according to the manufacturer's instructions. Although I have had great success with coldwater fishes with this treatment, I did not with tropicals. The only effect which I noticed was that of turning the tank water oily and damaging the plant life. However, one result was obtained and that was the cure of a catfish (Corydoras melanodon) which suffered from "pop eye". This fish had the complaint for about 6 months. After leaving the phenoxetol for the recommended period of 3 weeks, during which time I lost one red swordtail, one zebra, one mosido platy, one neon, three guppies and three black mollies, I then gradually changed the water with 'aged' water of the same temperature.

I then tried the third and successful treatment with acriflavin tablets, one tablet being introduced into the tank 96 hours after the previous treatment, and the second 48 hours after. Within 24 hours of using the first tablet the fishes started to take interest once more in food (Daphnia and Tubifex being fed over the period of infection) and within 72 hours the most stubborn cases began to heal.

The result of using acriflavin I may add restored very quickly the general fish, plant and water conditions. Also within a week small fry were obtained from one female black molly and a green swordtail.

D. G. Czar,
Sec. secretary,
Wimbledon and Merton Aquarium Club,
London, S.W.19.

---

The Aquarist Crossword

Compiled by L. Bradley

Clues Across

1. Sounds as if this counting house is haunted (4).
2. Genus of swamp plant (6).
3. Commonly known as the water fly (7).
4. Fastest of the gods (6).
5. Rye (6).
6. Which ever way you look at it be a simpleton (6).
7. A cut (5-4).
8. Eel run (amp.) (7).
9. See 23 across, 6, 9 and 20 down (7).
10. Another great American (7).
11. Australian passerine bird (4).
12. Occurrence (5).
13. All change in cricketing circle (4).
14. I'd be seen in the river catching fish with this (5).
15. Small waterfowl (7).
16. 2 and 19 across, Cichla ramsayi (7-7).
17. ——— the terriory (A).
18. Albatross (7).
19. Animals that are set in their ways (7).
20. Many by name thiscore (4).
21. A question for the first woman according to Heine (7).
22. A fish having added pigment above (6).
23. L. and 19 across, Dermatophyton resedaceus (6-6).
24. Satin by last part of 24 across (5).
25. Torch by back of 26 across (5).
26. L. and 19 across, Chrysolobum multifasciatus (7-7).
27. The mixed up crew or so called in deduced (7).
28. March unguishful fit for royalty (5).
29. Clue even (7).
30. Robin (amp.) (4).
32. Island (4).

Solution on page 74

The Aquarist
THE Three-Aquarist Society held their fourth annual Open Show recently. The show was a great success, even more so than the previous three, attracting a record number of entries.

The Society is having a "Bring and Buy" at the "Fishing Div." Royal Baptist Church, Southport, on the 20th.

The Midland Association of Aquarists' Societies (M.A.A.S.) held their fourth annual show in the Midlands on the 11th.

Tropical Fish Club Show: The show was held in the Midlands on the 11th.

The New Forest A.S., for the past year, was successful in its efforts to attract more members and hold more activities. The next meeting is on the 11th.

The Newport A.S. held two very good meetings. At the first, there was an excellent talk on the care of fish by Mr. Jones of Chiltenham. The second meeting was on the care of amphibians.

July, 1965
The Riverside Aquarium Society held their Annual Show at Blythe Hall, Harrower, recently. The show was well supported, there being over 300 entries and a general interest was shown in the exhibits. Several of the large tanks were well arranged and displayed with care and attention to detail. The Society's new exhibit building was well used and the displays were admired by the visitors.

The show was judged by Mr. J. B. Brown. The winners were as follows:

1. Mr. G. W. Smith (Hampstead) - Best in Show
2. Mr. J. B. Brown (Harrower) - Reserve Best in Show
3. Mr. J. R. Anderson (St. Albans) - Youngster Best in Show
4. Mr. A. W.找准 (Harrower) - Best in Show
5. Mr. J. B. Brown (Harrower) - Reserve Best in Show

These were the winners in the main classes:

1. Mr. G. W. Smith (Hampstead) - Best in Show
2. Mr. J. B. Brown (Harrower) - Reserve Best in Show
3. Mr. J. R. Anderson (St. Albans) - Youngster Best in Show
4. Mr. A. W.找准 (Harrower) - Best in Show
5. Mr. J. B. Brown (Harrower) - Reserve Best in Show

The judges were Mr. J. B. Brown, Mr. J. R. Anderson, and Mr. A. W.找准. The show was a great success and the Society is to be congratulated on the excellent arrangements and the high standard of exhibits.

The Society's next meeting will be held on 10th October. Details will be announced in future issues of THE AQUARIST.
When fish are properly fed, they keep fit and they live longer
There is a ‘Hobby’ Food for all circumstances

Hobby Yolk Flakes (Yellow):
Made from pure egg yolk, easily digested, therefore the best food for young fry.

Hobby Leaf-Green Flakes (Green):
Containing chlorophyll, recommended for such algae eaters as Plecostomus & Molly.

Hobby Mixed Foods (Red):
A mixed diet which even the “difficult” fish enjoy.

Hobby Gold:
A diet rich in vitamins and proteins which will maintain all fish in perfect health.

At 2s. each per packet, or 2s. 4d. by post.
Breeders’ packs of any of the above, 7s. each, or 7s. 6d. by post.

Hobby ‘BLUE DAILY’
Hobby “Blue Daily” is vacuum packed, so it is as fresh when you open it as when it left the factory. Made from crushed insects, fish, and mosquito larvae. Your fish will really appreciate it.
Price 3s. per packet, or 3s. 4d. by post.

HILLSIDE AQUATICS

Importers of Tropical Fish for
Wholesalers
Members of the Pet Trade Association

NATURAL SILICA
QUARTZITE GRIT
IRON AND LIMESTONE FREE

Wholesale and Retail enquiries invited
Deliveries to all parts U.K.

WINDMILL PRODUCTS
244 VAUXHALL BRIDGE ROAD,
LONDON, S.W.I. Telephone VICTORIA 4242

July, 1965
FOR THE BEST FISH-FOOD
McLYNN’S
FISH-FOOD
THE FOOD
IN THE PLASTIC BOX
1/6, 2/6, 5/-, 6/6 & 17/6
THE DIET FISH PREFER
CONTAINS EVERY
ESSENTIAL INGREDIENT
WILL NOT POUL THE WATER

From your Pet Shop or direct from:
McLYNN’S AQUARIUM
EWHURST, Nr. CRANLEIGH, SURREY
Telephone: EWHURST 446

New from Denmark

Vacation Food. When taking your holiday, drop one Hykro Vacation Block in your tank. This will feed your fish in an average size tank for at least 2 weeks and does not foul the water.

Also New. Nylon Clamps, Tees and 4 ways. These are as strong as metal, do not wear or rust. Obtainable at all good Aquarist and Pet Shops.

Hykro Foods. Although reasonable in price are still the best and stocked by all good retailers.

JOE GRASSBY
The Hykro Depot, Mobberley, Nr Knutsford, Cheshire
JUST SQUEEZE!
and watch your fish go for
TUBIFLEX
the new tubed paste food from
WARDLEY'S
so simple!
so economical!
so nourishing!
TUBIFLEX
is the name
your local stockist has it now

U.K. DISTRIBUTORS
T.F.H. PUBLICATIONS (London) LTD.
13 NUTLEY LANE REIGATE SURREY.

NATIONAL OPEN SHOW
Sponsored by Nottingham
and District Aquarists' Society

DRILL HALL, DERBY ROAD
NOTTINGHAM
Sat 11th - Sun 12th September 1965
Schedules covering over 100 classes
with prizes for 1st - 2nd - 3rd every class.
from

W. J. CHRISTIAN (Show Sec)
20 Beaumont Gardens, West Bridford
Nottingham
Tel 233447

USE "CORAL"
AS YOUR
BASIC FOOD
It is a BALANCED
PROTEIN DIET, not
just a cereal filler.
From dealers in 6d., 1/-, 2/- drums.

Keep Them Healthy on Coral

July, 1965
21st Annual
MIDLAND OPEN AQUATIC SHOW
and F.G.B.S.
INTERNATIONAL OPEN GUPPY SHOW
Bingley Hall, Broad Street, Birmingham, I
AUGUST 25th—30th
Admission Adults 2/-, Children 1/-
77 Classes, Trade Stands, Displays and Exhibits
Bar and Buffet
Parking Space

GOT A TIGER IN YOUR TANK?
THEN WE CAN'T HELP YOU.
WE SUGGEST YOU TRY A BUTCHER . . .
BUT IF YOU KEEP FISH—
COLD-WATER, TROPICAL, FAMILIAR,
EXOTIC, RARE, VALUABLE, OR
SIMPLY SWOPPED FOR A JAM JAR—
ELITE IS THE FOOD FOR YOU
ELITE (Tropical) 2/- and 5/-
ELITE (Coldwater) Large Tin 2/6
Trade Agents:
Barry M. Austin,
230 Staines Road, Twickenham, Middlesex.
Or post free direct from the original maker:
DERHAM'S FISH FOODS LTD.
'Roxton Dene', South Rd., Chorleywood, Herts.
Phone: Chorleywood 2386

Tel. Lincoln 26758

SUDBROOKE AQUATICS
14, Monks Road, Lincoln.
tropical and coldwater fish equipment and plants

THE AQUARIST
PREPAID ADVERTISEMENTS
5d. per word (12 words minimum) Box number 2c extra

FOR SALE


PEEK'S. 1st. and 2nd. Floor. Amazingly large selection of Tropical & Coldwater Fish in Gloucestershire. Excellent Water Conditions. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.

AQUARIUMS AND FISH. Large selection of Tropical and Coldwater Fish in Gloucestershire. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.

SUPER VIVARIUMS. 1st. and 2nd. Floor. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.

AQUARIUMS. A highly recommended direct from the manufacturers. 1 x 1 x 1 ft. steel tanks: 36, 78, 156, 234, 312, 390 l.; 4 x 3 x 1.2 ft.: 36, 78, 156, 234, 312, 390 l.; 5 x 3 x 1.2 ft.: 36, 78, 156, 234, 312, 390 l.; 6 x 3 x 1.2 ft.: 36, 78, 156, 234, 312, 390 l.; 7 x 3 x 1.2 ft.: 36, 78, 156, 234, 312, 390 l.; 8 x 3 x 1.2 ft.: 36, 78, 156, 234, 312, 390 l. All tanks made to order. W. W. Money refunded if not satisfactory. For further details please phone. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.

WHEN IN STOKE visit our Eaton's for tropical and coldwater fish, plants and aquarium supplies. Eaton's Aquarium, The Aquarium, 19, Forest Road, Stoke-on-Trent. Phone: 48553.

CALLING ALL AQUARISTS. Call and see our largest selection of Tropical and Coldwater Fish in Gloucestershire. Visit us at Eaton's Aquarium, The Aquarium, 19, Forest Road, Stoke-on-Trent. Phone: 48553.

AQUARIUMS. A highly recommended selection of Tropical and Coldwater Fish in Gloucestershire. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.

AQUARIUMS. A highly recommended selection of Tropical and Coldwater Fish in Gloucestershire. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.

AQUARIUMS. A highly recommended selection of Tropical and Coldwater Fish in Gloucestershire. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.

AQUARIUMS. A highly recommended selection of Tropical and Coldwater Fish in Gloucestershire. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.

AQUARIUMS. A highly recommended selection of Tropical and Coldwater Fish in Gloucestershire. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.

AQUARIUMS. A highly recommended selection of Tropical and Coldwater Fish in Gloucestershire. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.

AQUARIUMS. A highly recommended selection of Tropical and Coldwater Fish in Gloucestershire. Hansky Gardens, 6, King Street, Cheltenham. Phone: 28669.
WANTED
WANTED. Coloured water lillies, live betta, poecilia and other good class mollies, also large melanotaenia males. Highest prices paid for small or large quantities. Water Lily Ponds, Chiswick, Westhampnett.

APPOINTMENTS VACANT


AQUARIUMY and pet shop in Surrey area requires full time staff. Applicants, who should be over 21, must have sound knowledge of tropical and coldwater fish. Apply: Box 5222, The Aquarium, The Body, Brentford, Middlesex.

REPAIRS
GUARANTEED HEATER REBUILDS. 6s. 6d. each. Send old heater and spare guarantee, 6s. 6d. All by return. J. Wills, 7, The Drive, Welling.

W. Harold Cotton
P.R.M.G.

ICHTHYONOMIST
POST MORTEM EXAMINATION
of Tropical and Coldwater Fishes
Specimen should be wrapped loosely and very wet in a green, glazed paper, surrounded by a damp cloth and then re-wrapped in dry grape-proof paper and sent in a strong envelope. A brief history and any relevant details should be given. No examination fee.

Examination fee £3.

29, Brook Lane, Kings Heath,
Birmingham 14
Phone: Hillside 1677

Aquatic Plants
(Our Speciality)
Retailers! Order direct from a specialist wholesale grower, your requirements in Water Garden Plants, Cold & Tropical Aquaria Plants. Choose from the finest range anywhere. Prompt and personal attention. Lists on request.

J. Ellis, Healing, Grimsby
Telephone: Healing 2105

Fast Growth

FISH SHOAL
Food

As Used in the Trade

Rapid Growth

Food Better Colours

The Constat 25/-
Thermostat Type G.K. Outside Fitting
Ask to see it at your local dealer

Distributed by
BARRY M. AUSTIN
95, Crown Road, Twickenham, Middx.
Wholesalers to the Aquatic Trade

Wessex Aquaria
and Pet Stores
(Member of the Pet Trade Association)
35, Beecroft Road, BINFIELD,
Berkshire. Tel. Bracknell 670
(No. "Shoulder of Mutton" Public House)
For tropical fish, Marine Coral Fish, Plants, Accessories, Tubs, White Worms, Reptiles and Amphibians. S.A.E. for Lists.
POST!!!
ALL PARTS OF THE U.K.
ALL PARTS OF THE WORLD
WE OFFER YOU A POSTAL SERVICE SECOND TO NONE—PROMPT AND EFFICIENT—ALL ORDERS ARE ATTENDED TO ON THE SAME DAY AS RECEIVED. IMMEDIATE NOTIFICATION GIVEN IF ANY DELAY IN DELIVERY

MADAGASCAR LACE PLANTS...
APONOGETONS FENESTRALIS
SMALL SIZE 7/6 each, 3 for 20/-
LARGE SIZE 12/6 IN LEAF 17/6, 25/-

APONOGETONS ULVACEUS
SMALL SIZE 7/6 each, 3 for 20/-
LARGE SIZE 12/6 IN LEAF 15/- 20/-

DON'T MISS THESE PLANT BARGAINS
AMBULIA
RED CABOMBA
GREEN CABOMBA
AMAZON SWORDS
WATER WISTERIA
VALLIS. TORTA

SEEING IS BELIEVING...
COME ALONG AND SEE OUR DISPLAY
OF TROPICAL FISH.
7,000—9,000 FISH ALWAYS IN STOCK

ILLUSTRATED CATALOGUE
This catalogue is a new and complete price list of all aquarium requisites including tanks, covers, stands, heaters, thermostats, thermometers, air pumps, ornaments, books, cleaning equipment and all other accessories. Available by return of post. Send 6d. to cover postage, etc.
AUGUST 17th OUR NEW RETAIL SHOWROOMS OPEN

Tropical Fishes — All grown beyond size usual in the trade

DISCUS (Wild Brazilian) 3½-5½ from 30/- each to £15 pair
Piranha (S. Spilopleura) 4” Aquarium conditioned 75/- each
ANALEPS (The curious four-eyes) 4½-5½ Limited numbers 37½ each
CARDINAL TETRAS 1½ adults 40/- pair Small fishes 7½ each
NEONS (Wild Peruvian) Nicely conditioned 3½ each 8 for £1
ANOLOIDES ANOSTOMUS Fine specimens 20/-, 25/-, 30/- each
ADULT BLEEDED HEART TETRAS 12½ each ADULT EMPEROR TETRAS 12½ each RUMMY NOSE TETRAS 10½ each PLATINUM TETRAS 3½ each GOLD TETRAS 5½ & 7½ each COPPER TETRAS 5½ each
LEMON TETRAS (Adults) 5½ each ROSY TETRAS 5½ & 7½ each PHANTOM TETRAS 5½ & 7½ each WIDOWS (Large) 3½ each BEACONS 2½ each FLAMES 2½ each BLOODFINS 2½ each BLACK NEONS (Large) 5½ & 7½ each
PENCILFISH — Anomalus, Marginatus, Trifasciatus all at 5½ each
CLOVER LOACH 40/- each BLACK BANDED LOACH 5½ each
RED TAILED BLACK SHARKS 5½, 7½ & 10½ each RED FINNED SHARKS 5½ each
GOURAMIS Blue 2½ each Opaline 2½ each Leel (Large) 3½ each Chocolate 5½ & 7½ each Crawling 5½ each Jerei 5½ each Giant 5½ each Adults 20½ pair Dwarf 10½ pair Thicklip 10½ pair Kissing 3½ each
CATFISH Leopard 10½ each Spotted 7½ & 10½ each Marbled 7½ each Bronze 7½ each Banjo 7½ each Whiptails 10½ & 12½ each Otocinclus 7½ each Acanthoeris 5½ & 7½ each Beautiful Golden Corydoras Pulchra 10½ each Black banded cats 7½ each Rabino 7½ each etc etc
BARBS ALL THE USUAL PLUS—
Adult checkers 7½ each Hexanemus 5½ & 7½ each Adult Cherry 7½ pair
LIVEBEARERS ALL THE USUAL PLUS—
Adult Green Veilfins Mallies £3, £4, £5 pair High Fin Platy Varieties £5 pair

MARINE TROPICALS PLUS ALL THE EQUIPMENT REQUIRED
All conditioned and able to be fed on prepared foods
All the information needed for successful maintenance available

FANCY COLDWATER FISHES
Home-bred Veiltails, Moors, Bristol Shubunkins, Imported Fantails, etc
SPECIAL AUGUST OFFER Young Brinvilles 5½ each 6 for 25½

WE REGRET THAT FOR THE TIME BEING WE CANNOT SEND FISH

AQUARIUM PLANTS
Wonderful bargains in unusual plants for callers
SPECIAL AUGUST/SEPTEMBER — £2 Decorative Collection by Post

PLEASE NOTE — All enquiries requiring a reply MUST be accompanied by a S.A.E. Our premises are situated on the main Stratford-Birmingham road, 3 miles from Birmingham, Midland “Red” Bus No. 150 from Bus Station, Birmingham, passes the door, slight at “The Crown,” Monkspath.

HOURS OF BUSINESS — Weekdays 10 a.m.—6 p.m.; Summer, 10 a.m.—5 p.m.; Winter. Sundays 10 a.m.—12.30 p.m. (Also Sunday Afternoons May-July Only)

TERMS OF BUSINESS — Cash with order please. Fish sent by road. Tropical minimum order £7-10½. Monocult cattle and carriage 10½. Cold water minimum order £3 plus 10½ each and carriage. Plants by post minimum order £3 plus add 1½ each and carriage.

Printed and Published by Buckley Press Limited, London and Brentford