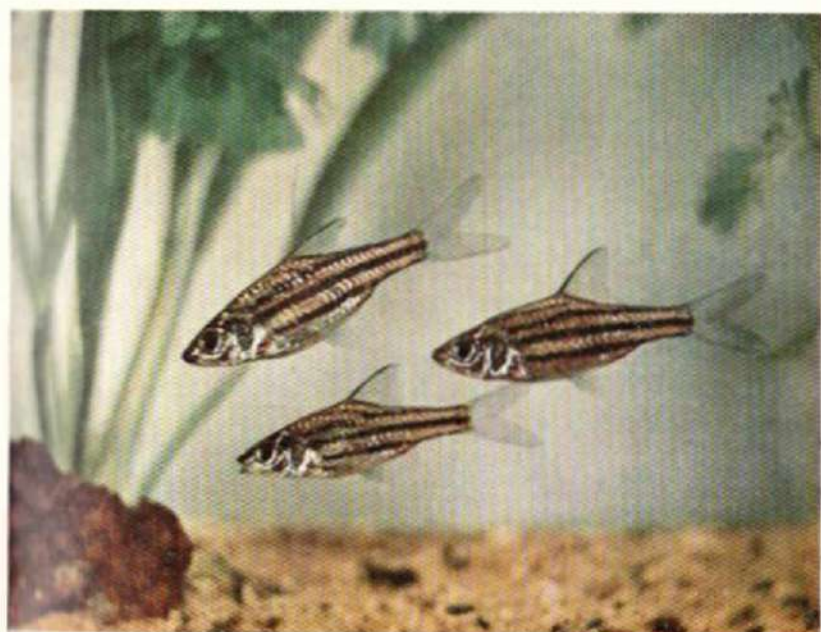


December 1957

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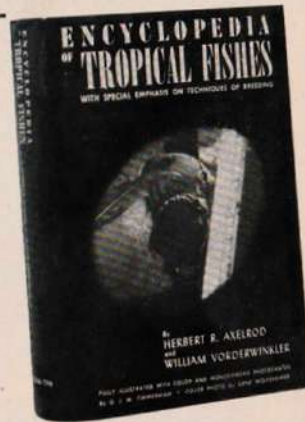
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Fishkeeping

VOL. 13 NO. 2  
NEW ISSUE  
DECEMBER 1957

## FISHKEEPING

and Water Life

### IN THE SWIM

Octopus Bred · Automatic Fishhouse ·  
Cryptocoryne Identification ·  
F.B.A.S. Secretary  
Retires · Show Gimmick ·  
Producing Livefood

● **Zoo's achievement.** For the first time in  
an inland public aquarium the Octopus has  
been bred. Young were produced in large  
numbers at the Aquarium of London Zoo;  
the event coincided with the first British  
Aquarists' Study Society's conference on  
October 26, when the young octopuses looked  
remarkably like Water-fleas (*Daphnia*).

The creatures lived for about a week until  
they required plankton in vast quantities which  
would be impossible to provide in an  
aquarium. Nevertheless, Dr. Gwynne Vexers,  
the Curator, is justifiably proud of the  
achievement.

● **Fishes see stars.** Aquarists will be on  
edge as one of the special features for the  
preview of Barnacle Bill at the Empire,  
Theatres Square, on December 11.  
Responsible for them will be Mr. A. Rous of  
Hounslowburgh Fisheries.

● **Scientific hobbyist.** Dr. F. N. Ghadially  
has the rare gift of reducing scientific jargon  
to the everyday language of the aquarist  
community. His series, entitled *Tropical Reflec-  
tions*, has drawn complimentary comments  
from at home and abroad since it was started  
in this journal at the beginning of last year and  
the articles have illustrated perfectly his  
abilities on the practical side of our hobby.

Dr. Ghadially began his fishkeeping eight  
years ago. At present he is busy planning  
and building a new fishhouse which will

house 80-100 tanks. Novel features to be  
included are a continuous mechanical feeding  
of dried foods and automatic topping up of  
all aquaria which will be in circulating ranges.  
Switches will operate the lights, aeration and  
automatic feeders at pre-determined times.

Although heating will be done electrically,  
no mains current will reach the tanks, and all  
lighting will be run off 12 volts. The fish-  
house will be entirely sectional and portable,  
made from Red Canadian Cedar wood, resin-  
bonded hardboard and glass wool for  
insulation.

Dr. Ghadially is professionally a lecturer in  
pathology at the University of Sheffield. In  
the hobby he is President of Sheffield A.S.  
and technical advisor to the British Aquarists'  
Study Society.



Dr. F. N. Ghadially and Dr. Gwynne Vexers  
(London Zoo Aquarium Curator) at the British  
Aquarists' Study Society's Conference in October.

● **Plant sort out.** The identity of the  
*Cryptocoryne* plants we grow in our tropical  
aquariums has given us a headache for a long  
time. Dr. H. C. D. de Wit, the distinguished  
Continental botanist from Hilversum, Holland,  
has been working on a revision of this Genus.  
In this issue he writes on *Cryptocoryne  
beckwithii*, and notes on other species will be  
published from time to time.

We believe they will help aquarists to sort

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out these plants which are lovely to grow but difficult to distinguish. A few species can be recognized quite easily. With others we have to wait for flowering before we can be certain.

● **Volume Alignment.** Some readers like to bind their copies of our journal and some explanation of the volume numbering would help them. Volume 12 consists of five issues (February-October 1957) and Volume 13 will have 14 copies (November 1957-December 1958). Thereafter the volumes will begin with the first issue of each year.

● **Handing over.** The hobby expects changes in the office bearers of its various organizations, and annual general meetings usually result in a few new faces appearing every year. In nearly every group, however, there is a number highly regarded for the way in which they perform their duties, who are voted back time and again.

In this category comes Mr. R. O. B. List, who was elected secretary of the Federation of British Aquatic Societies in January 1948 and has held that post, now called the General Secretaryship, without interruption until the present time. He is due to retire at the A.G.M. this month and does not seek re-election.

The F.B.A.S., and through it the hobby at large, has had efficient service from Mr. List for well over a decade. Prior to his becoming secretary he was F.B.A.S. assistant secretary. As he hands over the reins to someone else we wish him a happy period away from the tedium of office and thank him for the efforts he has made on the hobby's behalf.



Mr. R. O. B. List

● **For their welfare.** I wrote recently of finding novelties to attract the general public to our aquarium exhibitions. The Corby society had one unintentionally. Arriving for the club's annual show I joined a small queue at the entrance. A few moments later I realized

I would have some explaining to do—the queue was for welfare orange juice! Admission to the aquaria show was gained two or three feet away.

As the prospect of slaking my thirst in juvenile style diminished I noticed that many of the youngsters were peeping round into the exhibition. They returned, full of enthusiasm, to make sure few mothers that afternoon got away without passing round the fish show gangways. Corby recorded a profit. It is worth mentioning that subsidized orange juice made its contribution.

FISHKEEPING AND WATER LIFE  
wishes its readers  
A HAPPY CHRISTMAS

● **Livefood medium.** The open and soft culture medium required for Dwarf White (Grindal) Worms is not always easy to provide and the person who introduced these worms to the aquarium world, Mrs. Morten Grindal, is now using so-called white moss, actually *Sphagnum cymbellum*. She employs it in place of peat moss and finds it cleaner. The dwarf worms thrive in it.

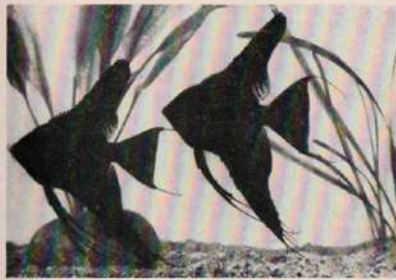
● **Healthy trio.** Three closely following engagements in and around London a short while ago gave a healthy indication of the present enthusiasm in our hobby.

First call, on October 24, was to an inter-area meeting of the N.W. London Group of Aquarists' Societies and the S.W. Middlesex Aquarists' Association. Over 200 fishkeepers from the affiliated societies were in attendance for a fish show won by N.W. London and for a display of very fine colour transparencies by Roy Skipper and Bob Calow.

Two days later there was the first British Aquarists' Study Society's Conference at London Zoo, and what a happy occasion this proved to be. The club is now firmly founded, but this was the first occasion many members had of meeting their fellows in person.

Finally, E. London A. & P.A. celebrated its 25th anniversary in appropriate style on November 1. Cecil W. G. Creed displayed colour pictures taken on his several journeys to Holland, and the prizes won at the club's show this year were presented. After a period out of the limelight, E. London shows every promise of returning as a flourishing force. L.W.A.

## ELUSIVE BLACK ANGEL FISH



Gene Wolfshamer photograph

Early sorting of the broods appears to be the secret of breeding success

by H. C. PARSONS

ABOUT 18 months ago I was very impressed with the beauty of the first Black Angel Fish I saw, so much so that I spent the not inconsiderable sum of £7 apiece on four of them. They had a body size of approximately a shilling. I have been breeding normal Angels (*P. cinctus*) in good quantities for many years. I might add that Angels have always been my first interest in my fishkeeping and I would feel lost without a few tanks of them around.

For a while the Black Angels appeared to thrive; they were kept with half-a-dozen or so normal Angel Fish that I was growing on for breeding and their diet was, as is usual with me for most fish, *Daphnia* and chopped *Tablix*. So long as *Tablix* is well chopped I have never found fault with it as a food.

About three months after the purchase of the Blacks I bought six Lace Angels, which are close relatives of Blacks and normal fishes and have the black lines of the normal Angels but these are diffused and spread over the intervening spaces, giving a cloudy black

effect. The Lace females were very robust and grew apace. Unfortunately such was not the case with the Blacks, which became finicky eaters and, with the exception of one, were obviously deteriorating.

I placed them in a tank by themselves and looked after them. With two I had a measure of success, the good one mentioned above continued to improve and another picked up and began to look hopeful but, within a few weeks, the other two sickened and died for no apparent reason that I could see. I was left with two Blacks and six virile Lace Angels.

The fish were now approaching a size when I considered breeding would soon be possible, but I was in for more disappointments. I was informed by a friend, Mrs. E. A. Allen, of Farnborough, Hants., that both my Black Angel Fish were males and, in any case, shortly afterwards I lost the smaller of the two.

Another experienced aquarist friend had a female Black Angel Fish and I lent him my last Black male and wished him luck. Three months later (about six months ago) my fish

was returned to me as my friend had had no good fortune.

Meanwhile, my Lace Angels had really developed. Two were paired and breeding well and all were densely coloured. The black suffusion had spread and settled to such a degree that the fish had to be seen in good light to be differentiated from their all-black cousin.

A little later, again with Mrs. Allen's assistance, I placed in a breeding tank my Black male and a Lace female. This time my luck changed; the fish settled happily together with the normal wrestling tactics indulged in. Three weeks after placing them in the tank I had a reasonable spawning on the broad leaf of an *Echinodorus rangeri*. The eggs went through the normal phases and eight days later I had a free-swimming batch of baby fish which were immediately fed on Brine Shrimps.

When the fishes were three weeks old differences in colouring were already apparent; some youngsters being much darker than others, and then I started to lose them. Always it seemed it was the smallest and darkest that died. From that first brood I produced 118 Lace Angels and 87 normals—no Blacks

surviving from this particular spawning.

Meanwhile the parent fish were spawning regularly and my friend, Mr. C. A. Allen (Farnborough, Hants.), volunteered to separate the dark fish from the normals in the second batch when the fish were four weeks old. One Saturday afternoon he did this and from the brood we had 304 dark fishes and 180 normals. Looking closely at the dark ones in a large tank Mr. Allen said: "I think I could pick you the truly Black ones from these". He had a try and sorted out 48 fish. I put these into a separate 18 x 12 in. tank. I have lost nine and the remainder are over fulling size and the most beautiful, active Black Angels I have ever seen.

Since then we have sorted a further larger brood which consisted of 162 normal, 308 Lace fish and 104 Blacks. We did this less than four weeks after the fish were free-swimming and none of these Blacks has been lost yet! It would appear that the Blacks are weaker at birth than the Lace or normals, but if they can be separated quickly enough and are able to obtain an adequate supply of food (from the remainder are over fulling size and the more robust normal and Lace fishes) they will survive and thrive.



Roy Skipper photograph

## Nannostomus espei

THE Continental aquarist was fortunate in having *Nannostomus espei* available to him in 1955. Here, in England, it has just made an appearance. It is similar in body shape to *Nannostomus ammatulus* although perhaps a little longer.

The five thick vertical bars are a dark brown colour, the body being a light green-brown. A thin green stripe traverses the body above the bars. The fins are clear except the anal which has a few dark spots.

Seeing this species presents no real problem as the male is a slimmer fish than the female and has a more developed anal fin. The bars

seem to be more indelible than the markings of other so-called "Pencil Fish" and the netting and moving of this fish does not cause a fading of colour, an irritating characteristic found with other representatives of the *Pencilfish* and *Nannostomus* Genera.

A hardy fish, *N. espei* does well in a wide range of water conditions and temperatures, 72-80 deg.F. suiting it quite well. It can be said to be omnivorous since it takes dried and livefoods with apparent equal relish. Peacefully disposed, it indulges in much active play with the pretty fin fluttering, a fascinating trait with all of the "Pencils".

## CRYPTOCORYNE BECKETTII

by DR. H. C. D. de WIT



*Cryptocoryne beckettii* grown in a marshy environment and flowering at the Laboratory for Plant Taxonomy and Geography at Wageningen. Drawing reproduced by courtesy of Hollandia, Baarn.

days to two weeks (depending on the temperature), the yellow inner surface of the limb and the charming dark collar or throat become visible.

*C. beckettii*, if not flowering, can be recognised by the bronze-green hue on the upper surface of the leaf. Both submerged and emerged leaves often show some dark violet oblique streaks (see next page). The leaf margin is somewhat wavy. The lower surface of the leaf is a striking brown-red, usually with a distinct purple tinge. The colour depends first of all on the amount and kind of light falling on the leaf.

There is a considerable difference in the shape of leaves grown below and above water. *C. beckettii*, on a very poor soil and poorly lighted, will show small light green leaves and then it is sometimes not readily recognised.

CRYPTOCORYNES rank among the best tropical aquarium plants and it would be helpful to have some notes on species known to occur in our tanks. The Genus *Cryptocoryne* comprises about 40 species and is confined to tropical S.E. Asia. The bronze-green, rather narrow leaves of *C. beckettii* add distinctive colour variety to the various green shades of other submerged aquatic plants.

*C. beckettii* is easily grown and is satisfied with every kind of soil. It demands only a reasonable amount of light and propagates readily. The temperature should not fall below 18 deg.C. (65 deg.F.) and should preferably be 22-30 deg.C. (72-86 deg.F.).

Actually, *Cryptocoryne beckettii* is a marsh plant, like many *Cryptocoryne* species. It grows life under water very well but flowers only if kept in a more natural environment, breathing the warm, moist air and moderately strong light of shaded places found in its tropical swamp forests.

If one wishes to see the flower, which consists of the narrow, whitish tube, ending in a characteristic coloured throat and a greenish or yellow limb, it is necessary to grow the plants in a mixture of coarse sand and peat, to keep the surface of the soil just covered by water and to place the plant in a closed, heated glass container. An aquarium may be used for this purpose. Mainly between October and February the flower, measuring about 10 cm. (4 in.) overall, may appear.

At first the tube is closed and ends in a long pointed tip. This splits at the top and slowly untwists until, in the course of four

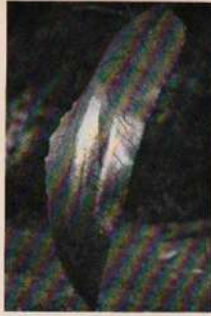


Adult plant of *C. beckettii* grown in an aquarium. Compare the leaf shape with that in the upper illustration where the plant has aerial leaves.

Plants which develop under water can be cultivated above water but will probably lose their leaves. The same happens if plants grown above water are submerged. Do not worry about these dying leaves. The rhizome should



Flowering *Cryptocoryne beckettii* in murky conditions at Wageningen. Photographs by Laboratory for Plant Taxonomy and Geography, at Wageningen.



Leaf, grown above water, of *C. beckettii* with the characteristic dark streaks present on it. The marks are deep violet and are referred to on page 15.

be left alone and soon sufficient new leaves will appear and remain.

Mr. T. W. H. Beckett discovered the species in Ceylon and it seems to occur on that island only. Mr. G. K. H. Thwaites, a director of the botanic garden at Peradeniya (1857-1886), who received Beckett's specimens, proposed to name the species after its finder and this happened when H. Trimen, his successor at

Peradeniya, published Thwaites' notes in 1885 (*Journ. Bot.* 23, p. 269).

Later authors neglected and misinterpreted *C. beckettii* but when Mr. T. Petch, a botanist working at Peradeniya, did some research in order to establish the identity of *C. beckettii* beyond all doubt, his findings (*Ann. Roy. Bot. Gard. Peradeniya* 11, 1928, p. 11) were generally accepted.

## FISHES NEW TO BRITAIN

*Variability of Veiltailed Angels opens up interesting breeding possibilities*

by P. MILLET

LAST month I mentioned the Veiltailed Angel Fish and now, having had some opportunity of studying this fish, more can be said about it. It appears to have occurred as a sport in a spawning of *P. scalare* in an East German establishment. Patient

breeding has resulted in a strain of Angels with extra long tails and fins. It is reported that the original stock of adults has been lost. Whether or not the hundred or so individuals in this country represents the whole of the stock is beside the point, and whether they are

*P. scalare, cimexei*, or even *altum* is equally unimportant because the fish do show an extraordinary growth of finnage compared with the normal Angel Fish.

They are not veiltails in the sense that Veiltail Goldfish qualify for that name as the caudal fin is single. This fin, however, is very variable in the Veiltailed Angels, for some individuals show forked tails; some truncate tails, and others (the majority) double emarginate tails.

It is this variability that makes the fish interesting, for if we cast our minds back some years, and remember what has been done with the Guppy, we may well wonder what may happen to the Angel Fish.

The Black Angel, another new sport, appeared in an amateur aquarist's tank. When a species starts sporting, whether in nature or under artificial conditions, other fundamental changes in the species can be expected. Prizes are awaiting the aquarist who produces the first veiltailed Black Angel, to say nothing of the telescopic-eyed, double-tailed, "scaleless" Angel!

The Veiltailed Angel differs in temperament from the Black Angel. The latter fish is, in my experience, rather vicious. The Veiltail seems to be more of a friendly fish.

If it stays, and if it can be improved, spectacular as it is at present, it is possible that in 10 or 15 years' time we shall have almost as many show classes for the Angel as we have for the Guppy today.

Thinking of black fishes, and going through



A Veiltailed Angel Fish showing the extreme development of its tail, dorsal, and anal finnage. Photograph by courtesy of Shirley Aquatics Ltd.

Fishkeeping

recent files of this periodical, the elusive Black Guppy comes to mind. The half-black Guppy mentioned in October 1956 by that well known breeder, W. G. Phillips, is now reaching this country from its originator in Frankfurt. This fish is another example of patient breeding in the right direction. Whilst, at the moment, it is far from being an all-black fish, any far-sighted Guppy enthusiast should be able to see great possibilities in line breeding this variety.

### Another Nandia

A new *Badis* has arrived from Siam, a country that is now sending us several interesting species. This fish, while resembling *Badis badis*, seems to have more colour even when it is small. Marketed as *Badis "siamensis"* it is probable that it is a local variety of *Badis badis*, possibly *Badis badis* var. *burnianensis* Ahl.

Yet another freshwater Puffer Fish has reached this country from S. America. Unlike *Tetraodon lineatilis* this Puffer is said to spend all its life entirely in fresh water, and is found far from the sea. Its colouring consists of dark brown and gold irregular markings. Superficially it bears a resemblance to an overgrown Wasp Goby. It has a gold, and very mobile eye, is extremely active and full of curiosity. The specimens seen swim around the tank in a compact little shoal.

Two spectacular, rare, but not new predaceous fishes have made one of their infrequent appearances, and for the aquarist who can provide their wants they are both desirable species if only for their novelty value.

The first one from Africa is the Butterfly Fish or Freshwater Flying Fish, *Pantodon buchholzi*. This handsome fish must have plenty of livefood, such as insects, either terrestrial or aquatic, but it will eat no food that it cannot capture on the surface. Since it is able to "fly" long distances (over six feet) a close fitting cover to the tank is very necessary.

The other fish is the Amazon Leaf Fish, *Monocirrhus polyacanthus*. This species also has to have livefood only and shows a distinct preference for Guppies and similarly-sized fish. The specimens seen will take large *Daphnia*, Water Boatmen, and other insects.

These fish so closely resemble floating dead leaves that it is almost impossible to tell them apart. They usually swim slowly at an angle of 45 degrees with the head down, but can show an amazing burst of speed when suitable food is present. They appear to be fearless with humans and make no attempt to avoid the hand or net if the movement is gentle. The species has been bred but the fry are cannibals of the worst sort!

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VERY suitable and popularly sized tank of 24 x 15 x 12 in. dimensions was used for the pictorial record here. With a new tank you are well advised to follow the advice given by the manufacturer, i.e. you wipe the inside firmly with a clean rag before filling.

Whether the tank is new or secondhand the very first task is to test it for leaks. To do this, place the aquarium on a level surface and fill with water. This should be carried out in the garden or kitchen where a little water will not cause too much inconvenience. Once you are sure that the tank does not leak, treat it with great care. A slight knock could easily lead to trouble. When moving the aquarium lift it under the top iron angle from the inside and do not hold it so that there is any external pressure on the glass side panels.

### Cleaning the Tank

A really dirty tank can be cleaned with a detergent and a nylon pan scrubber, and I keep such a scrubber for tank use only. The detergent must be well rinsed away with warm water and I always rinse the aquarium once more even when I am satisfied that the chemical has all gone. If it is a secondhand tank that you have procured it is advisable to disinfect it by filling right to the top angle with a deep pink solution of permanganate of potash and then to empty it and rinse.

Now the aquarium is ready to be put into position and once again it is most important to have a really level base. The bottom of the aquarium must be well supported all round because, when it is filled with water, gravel and rocks, it is going to be very heavy.

The necessary electrical fitting must be available for the heater and thermostat and



1. Cleaning the 24 x 15 x 12 in. aquarium with a nylon pot scrubber kept especially for this purpose.

2. Washing the aquarium gravel. Whatever type of planting medium is used, it must be thoroughly cleaned to avoid clouding the water in the set-up tank.

lighting, the lengths of flex tucked well away if the plug is not near at hand.

The next task is to prepare the compost (gravel) to go into the tank. A suitable aquarium grade is available at most pet stores and this should be well washed in running water until the water remains clear. Only a small amount of gravel is washed at a time.

Should you have collected natural sand from a river or beach it is wise to boil it first in a metal bucket and then allow to cool before rinsing it well. You will find that it may take a great deal of washing but this must be done thoroughly and just a small amount should be washed over and over again until the water runs clean. Remember, your tank will never be crystal clear unless the sand is clean.

### Selecting Rockwork

If you intend to use rocks in your set-up be sure that the stone is hard and free from sharp corners and deep crevices and scrub well with hot water before placing it in your aquarium. For best effect, bed well into the gravel.

The filling of your tank with water will be made easier by the method shown in the photograph. Briefly, a sheet of brown paper,

(Continued on page 70.)

## SETTING UP A HOME AQUARIUM

by G. FROST

(Photographs by Roy Skipper)

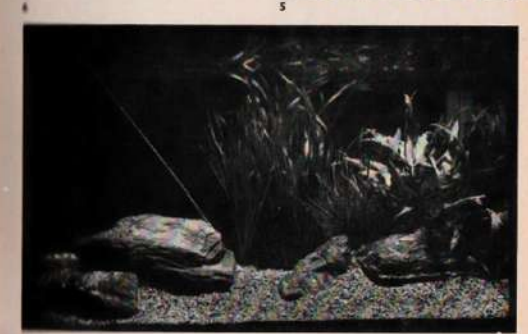


3. Selected rockwork (with no sharp edges) is cleaned with a scrubbing brush, using hot water.

4. The rocks are placed in position and bedded into the aquarium gravel to give a natural impression.

5. Siphoning water from a bucket into the aquarium. A sheet of brown paper is placed over the gravel to avoid undue disturbance which could cause clouding.

6. The plants are put into position with a planting stick. This is a tropical tank with good plant contrast.



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7. The completed aquarium artistically set with rockwork and plants. Ample room is allowed for normal plant growth and there is a good swim area for the fishes.

roughly the size of the tank, is placed over the rocks and sand, the water is then poured on to the paper which rises as the tank fills and the bottom remains undisturbed.

In considering the design of your aquarium it is as well to think of it as a living picture and to make a drawing of it as you would like it to appear when finished. You can achieve an effect of depth by contrasting the many different shades of greens and the varying formation of the leaves of your plants. The rocks, too, can play a big part in your scheme, but remember always to soften the face or edge of a rock with a small plant.

#### Buy a Plant Collection

The choice of plants for your aquarium is very wide and our advice is to buy a selection and find out by experience which do best then concentrate on those. The conditions required for aquatic plants vary considerably and your particular tank location, water composition and gravel will not suit every type. Handle your plants with respect, they are more tender than terrestrial plants and water that is too cold or too warm may kill them. If you allow them to dry out this will kill them as well.

Disinfecting the plants is a wise precaution; a medium pink solution of potassium permanganate is made up in a large bowl or basin and the plants immersed in this for about 15 minutes, afterwards washing them in clean water. Snails and snail eggs should be removed from the leaves at this stage.

A most important point to remember now is that you will want your plants to live happily

and so increase and to allow this you must give them enough room. The aquariums we see in exhibitions are intended to convey the impression of a well established tank and are usually overstocked with plants in comparison with our home aquaria.

#### Care of Roots

When planting remember that the roots of a plant are its lifeline and treat them with great care. Do not push them hard into the gravel but spread the roots out on the gravel and then cover with more gravel, as you would a plant in the garden.

Some of our plants will happily grow from cuttings and there is sometimes difficulty in getting a firm anchorage with these. It is permissible to hold these in place in the gravel with the help of a small clip made of soft lead. Once again allow each plant plenty of space to grow; plant individually and not in a clump. There are a large number of plants that do not grow very high and these are the ones that we select for the front of our picture, reserving the taller plants for the sides and back.

#### Time for Adjustment

It is suggested that you leave the tank for a period of two to three days before introducing the fish, this gives you time to adjust the electrical equipment and also allows the chlorine to escape from the water. A selection of community fish will now complete the picture.



Completed left side of the rocky pool beside the author's pool. The crevice-paving path has the slabs separated after laying. (Photographs by L. E. Perkins.)

## MAKING A WATER GARDEN (2)

Creating artificial rockwork—  
Planting the pool and introducing the fishes

by N. E. PERKINS

**B**EFORE attempting to form artificial rockwork for the rocky it is very advisable to examine the nature of real stones, nothing along which lines they tend to fracture. The shape most commonly adopted is largely controlled by this factor although, of course, subsidence may have caused breakage across the strata whilst exposure to the weather produces a rounding off of corners. The waste materials, such as bricks, pieces of paving stone, broken pottery, etc., were placed in position in my own water garden, artificial being used to form a rough skeleton of the same required. The soil was removed from around them so that a narrow trench some 3 in. deep by the same width would allow the rendering to be carried on below the finished soil surface thereby ensuring that the completed stone would appear to be well sunk in the ground. The rendering material was

formed of sharp sand and cement in the proportion of 3:1 and was wetted to a consistency where it would "stair" (i.e. remain in the desired position without slumping).

Before applying the rendering to the "skeleton" such bricks and stonework of which it was composed were thoroughly wetted to ensure that proper adhesion took place. Here it must be pointed out that cement can very easily cause dermatitis, the tolerance of different people's skins varying enormously so that some, like myself, are apparently immune whilst others contract the complaint with quite slight contact.

It is therefore essential to wear rubber gloves whilst actually handling the material but if the gloves prevent that delicate touch which senses when concrete will hold with the result



The bottom pond covered and rendered with the lower layer of artificial rocks completed.

that large pieces begin to fall, then only half the amount should be added, a return being made the next day to finish that particular stone. In my own case I completed most of the stonework without gloves but, whilst I did not contract dermatitis, the sharp sand, coupled with the burning qualities of the cement began to play havoc with my hands so that I was eventually forced to don gloves.

When the stones have "gone off" but are still "green", i.e. not later than the morning after they were made, they should be rubbed down with a piece of carborundum so that glove or trowel marks are completely removed. Care must be taken with this for the rendering will still be very weak and will easily break if too much pressure is applied.

It is advisable to have at least an inch all-round covering of cement and sand and, if many pieces of ornaments have been used for the skeleton, to "tie" these together by including pieces of chicken wire, old metal stair-rods or bits of iron piping. The positioning of the various stones must, of course, conform to the plan but, regardless of this, they should lie in a natural manner to appear as outcrops of a strata and not project in all directions as if shot from a lorry.

As these artificial rocks harden and dry out they will, of course, become very white and, whilst this may be satisfactory if Westmorland stone has been imitated, they may require toning down if meant to resemble other formations. I found the best way in which to achieve this was to dye the rocks blue with a spirit-soluble dye and then, when this had penetrated and dried out leaving the stones a bright blue, to apply a very strong solution of potassium permanganate which, on drying, produced a dull brown streaked with grey.

When making crazy paving of sand and cement the usual method is to make the slabs of about 1 in. thick in trays and to mark these whilst "green" so that they may be broken into

the desired shapes and then laid on a path that has been well rolled. I did not use this method, however, for no matter how well the stones are bedded they always have a tendency to tilt and to avoid this I made a complete path of sand and cement (proportions of 3:1) and then, on the following morning, removed 1 in. grooves right through to the soil following a predetermined pattern. Of course, a certain amount of waste occurred but the stones had found a true bed while the material was wet and pliable and the 1 in. space between stones will allow small creeping plants and moss to grow, thereby enhancing the appearance.

The ponds, which by now had collected a certain amount of rain water, were scrubbed out and sponged down with cheap vinegar, this being allowed to dry in. The following day they were filled and, because the stock of fish I possessed was rather crowded in aquariums, the majority were released in the top pool. They included Velltails, Celestials, Lionheads and Moors and these soon made themselves at home though the absence of adequate aquatic plants soon resulted in a rapid thickening of the water until it was too green to discern the fish. Such few plants as had been obtained were so covered with algae, in the form of a green dust, that they were prevented from making normal growth.

#### Process of Maturing

These are the usual teething problems of a new pool and the conditions will change, the water gradually clearing, provided that fresh water is not continually added and that the number of fish is not excessive. Normally a new pond should be allowed to mature before any thought of fish is entertained but circumstances alter cases and, since the types of fish that I have mentioned can very soon be adversely affected if the temperature rises whilst they are at all crowded, I considered it better to release them in the pond rather than to continue maintaining them in aquaria.

However, after about a fortnight I noticed that all fish in the pool were showing signs of gaseous embolism and had difficulty in leaving the surface because of the gas bubbles entrapped in their tail fins. The only cure for this is a change of water but since this would rapidly become the same again there was no point in cleansing the pool. The fish were therefore removed, some being placed in the lower pool (which did not receive quite such direct sunlight) and the remainder in aquaria which, as they were standing in the open, were covered with brown paper to exclude excessive light. Gradually, with the addition of more plants, the water in the top pool cleared and the fish were returned although the number was kept down since the CO<sub>2</sub> given off by the

fish is, to a great extent, responsible for the thickening of the water.

Even with established pools it is quite normal for the water to become very green during the early summer but this should not occasion concern for it will clear if left alone; constant addition of fresh water will, however, prolong the condition.

#### Shade Provided by Lilies

The presence of Water-lilies does much to check this tendency in mid-summer since the large floating leaves shield a considerable area of the water from direct sunlight. I therefore obtained specimens suitable for the various depths and planted them in pots so that their positions could be altered later if required.

I selected types which I had not hitherto grown, these being *Sisya*, a deep rose-red variety suitable for 2 to 3 ft. of water, *Martiacca curvata*, a huge flesh-pink type (really more suited to very large ponds or lakes) and *Androsart pubescens*, a small-leaved variety with small red blossoms for shallow water not exceeding 18 in.

Other plants for the pondside obtained at the same time included Pickerel Weed (*Pontederia cordata*), a really handsome marginal with fine dark glossy foliage and pale blue spikes of bloom. Although rather a vigorous grower this species is definitely worth a place even if it has to be constantly cut back. Remaining plants included *Typha minima* (a dwarf variety of what is commonly but erroneously known as the Bulrush), the Marsh Marigold (*Caltha palustris*), Box Arum (*Calla palustris*), Japanese Arrowhead (*Sagittaria japonica*), Blue Mimulus (*Mimulus ringens*), Great Spearwort (*Ranunculus lingua*) (not a good type as it is too straggly and coarse growing, producing much foliage with a few small buttercup flowers) and a fair quantity of *Elodea crispis*, this last to augment the somewhat sparse underwater vegetation.

Care must be exercised with some of the marginals mentioned or they will not only exceed their allotted space but some, such as *Typha* (especially if the larger type, *T. latifolia*, is used), can cause breaks in the concrete rendering of the pool if the surface is sufficiently uneven for their roots to obtain a purchase.

## DO THEY CROAK ?



G. J. M. Timmerman photograph

**H**AVING been intrigued for some considerable time by the fish known as Dwarf Croaking Gourami, I decided to obtain some specimens, with the main purpose of studying the "croak", which they were said to emit.

Eventually I acquired four young *Trichopsis pumilus* which were of an average body size of just under 1 in. On arrival the fish were placed in a quarantine tank and, after allowing a few

days for them to settle down, note was made of their general appearance. The body shape was slender and tapering, in comparison with the deep bodies of the larger Gouramis.

These *T. pumilus* did not appear to possess any outstanding colour markings but, in certain angles of light, a pleasing array of iridescent sparkles sparkled against the overall brownish-olive green of the body.

A broken sequence of blue-black, irregularly shaped dots formed the lateral line. The

Experiences Vary  
with the  
Dwarf Croaking  
Gourami  
(*Trichopsis pumilus*)

by R. W. ANDREWS

dorsal, anal and caudal fins were pale yellow sprinkled with tiny red dots. The pupil of the eye glowed red, like a miniature ruby, depending on the angle of light.

After the two-week period of quarantine had passed without sign of trouble, they were transferred to a well matured *Cryptocoryne*-planted 30x12x12 in. tank, the water level having been lowered to about 9 in. Observations showed them to be of a quiet, peaceful disposition, all their movements being made in a most leisurely fashion.

They were not shy of displaying themselves in the open water towards the front glass and there were no signs of any particular fish guarding any area of the tank as its own.

Though the fish displayed a friendly attitude towards each other, they did not give any indication of pairing up and, in fact, constantly conducted themselves as individualists. It was therefore a complete surprise when one day I chanced to notice two of the fish close together and obviously busy underneath a wide *Cryptocoryne griffithii* leaf, which lay horizontally about 2 in. beneath the water surface.

#### Spawning Observed

Closer inspection disclosed that spawning was taking place. The fish were, at this time, just over 1 in. in body length. From the moment that I realised what was happening I listened for any type of noise that might be attributed to either of the fish but, though I listened intently until the spawning ended, not the slightest sound did I hear.

It was interesting to note that, throughout the actual spawning period, both fish remained quite calm and displayed a complete union of movements. The spawning appeared to be a small one, the bubble-nest being a very poor affair, comprising a scattered single layer of bubbles which rested close against the underside of the leaf itself.

As the two non-spawning *T. pumilus* had not shown undue interest in the bubble-nest area which, incidentally, the male parent was obviously prepared to guard, they and the breeding female were not removed from the tank. The male continued to care for the bubble-nest and eggs and then the resulting fry until they developed to the free-swimming stage.

This was believed to have been reached on the sixth day after spawning, at which time the male was once again roaming about the tank. Though a careful scrutiny failed to show a single young fish, a little dust-like material was sprinkled on the surface each day following but, as the tank was a well matured one, no infusoria were given.

It was not until two weeks had elapsed from

the initial day of the fry's disappearance, that signs of them were seen. This happening whilst I was disturbing the floating surface plants and several youngsters darted out from the thick coverage. It was by now believed that the adult fish in the tank comprised one male and three females, so my main daily attention was devoted to keeping a close observation on the male fish.

This proved a sound policy when one afternoon the male was seen to be showing exceptional interest in the underside of the same *Cryptocoryne* leaf as used in the previous spawning and, shortly afterwards, he blew tiny bubbles which appeared to just lodge against the leaf, although at times they were seen to move or roll about distantly.

After blowing a few bubbles, the male rested beneath his work for fairly long intervals before resuming building operations; this behaviour continued spasmodically the rest of that day and also the entire following day. At the end of this time the nest appeared to consist only of a dozen or so loose bubbles. It had been noticed that most of the bubbles, almost immediately after being blown, just "popped".

Another point observed was that, during the whole period of the nest building activity, none of the females showed any interest in the male or vice versa. On the morning of the third day one of the female fish, by remaining in close proximity to the nesting site, suggested that a spawning was imminent.

However, it was not until late afternoon that the male showed signs of interest in the female by swimming slow circles around her and then back to the nest to blow a few more bubbles. This courtship behaviour phase lasted for over an hour before the female swam of her own accord to the waiting male and almost immediately the pair commenced to spawn.

The second spawning provided the opportunity for me to study the breeding behaviour of my pair of *T. pumilus* from start to finish and, of course, listen at greater length for that intriguing "croak", but the fish were completely mute.

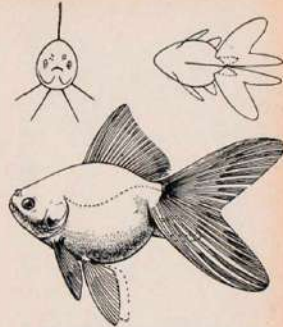
However, it was interesting that the entire breeding procedure was carried out in a most leisurely manner with none of the wild excitement and vigorous chasing so characteristic of a *Betta* spawning. A third breeding of the same *T. pumilus* pair was achieved and without my being able to record a single "croak" or noise of any description.

In conclusion I should say that Gene Wolfshenker (U.S.A.) has informed me that he personally has heard a male *T. pumilus* give forth what he described as a "tiny bleat", but only during the courtship phase, never whilst actually spawning.

## METALLIC FANTAILS

### Selecting Fish of a Hardy Goldfish Variety

by MARK WELCH



The latest (slightly reduced) ideal for the Fantail variety of Goldfish published by the Federation of British Aquatic Societies. Minimum body length, minus tail fin, is 2 in. Caudal fin is fully divided.

THE Metallic (Scaled) Fantail may be described as a utility fish suitable for either aquarium or pond. As an aquarium fish it makes an admirable subject, with its rich red colour and well spread fins offering contrast to a background of flourishing plants, whilst its movements are slow and regal enough to make a 30 in. long tank appear ample space for it.

In an outdoor pond adult Fantails are hardy enough to withstand the rigours of an English winter without suffering serious after-effects such as swim bladder trouble, provided the pond is reasonably clean, free from dead leaves and decaying vegetation. I believe that life in the pond is very beneficial to them, as sunlight and a plentiful supply of natural food, including algae, improves the size and colour as well as condition for breeding but, left to their own devices during the breeding season and ignoring the natural hazards to which eggs and fry would be subject, I doubt if any specimen would be reared which would justify the show breed.

As the title implies, the characteristic of this variety is the tail or caudal fin, which should be well spread and fanlike. The old Federation of British Aquatic Societies' standard provided for the caudal fin to be divided, but united at the base for a quarter of the length of the fish. The idea was to ensure high carriage of the tail, as distinct from that of the Veiltail, where the fin droops away from the fish's body.

placing them in a white bowl of water, a dozen at a time, then, by using a large magnifying glass, looking for the ones with divided tails as viewed from above. These are put back into the tank, whilst the rest with single and malformed tails are to be disposed of as they are worthless and a potential danger to the variety if allowed to get in wrong hands.

In this initial sort-out approximately half the brood is then divided into two groups, the divided tail fishes the room they need. A fortnight later the small ones which were not ready should be culled in the same way as the larger ones. Then, after the eighth week, the remaining fish can be sorted out for paired anal fins. This again is another major operation and the paired anal fin is genetically connected with the divided caudal fin. It is a necessary qualification of show fish, as laid down by the standard, and there is nearly as much wastage on this issue as on caudal faults, for there are a lots of fish with single anal fins, some with one longer than the other, some with one anal fin protruding sideways and some with the pair of anals so close together as to appear as a single fin.

The fish to look for are those with even-sized paired anals which seem spread almost at the same angle as the caudal fins when viewed from the rear. I usually do this sorting by placing the fish singly in a small all-glass tank where it is possible to view the fish from the front, side, rear and underneath.

The choicest ones get preferential treatment at this stage, which includes being kept in tanks on the top tier to get warmth and sunlight and where the water goes green quickest. The object is to promote fast growth and early

colour change; the temperature normally ranging between 75 deg. and 85 deg.F.

Although at three months what fishes have been retained should have divided caudals and paired anals it is advisable to go over them again when it will be found that many of those which appeared to have divided caudals are only partly divided now they are more developed. These should be discarded. By the time there are only about 10 per cent of the original number left and sorting out for the finer points can only be done as the fishes grow and faults become apparent; also when the colour has changed to orange. Look for the fish with ovoid body shape with even curvature on both dorsal and ventral contours, without depression where the head joins the body.

The dorsal fin should be erect with strong front rays to support it in that position, but not overdeveloped. In fact none of the finnage needs to be as long, compared with body length, as required by the standard, whilst the fish is under 12 months old, otherwise the fish will become overfanned when it is fully grown, causing it to have a drooping caudal instead of carrying it horizontally with the tip of the upper lobe above the highest point of the back of the fish.

The age at which the Metallic Fantails change colour varies from three months to 18 months. Those which take longer than this are undesirable. If the youngsters are given too high a temperature to force the colour, though they are usually a pale and limpid brick red instead of bright red. A spell of a few months in the pond works wonders with the colour.

FULLNESS of body in a female egg-layer is a well-known indication that the fish is ready to spawn. While a certain degree of plumpness is a good sign, an unusually bloated female indicates an egg-bound fish. Many novices are easily taken in by the distended appearance and imagine that the fish is full of eggs and are perplexed when they fail to obtain a spawning.

The accompanying photograph shows an egg-bound female Rosy Barb. When all attempts to spawn her had failed the fish was killed and dissected. The ovaries were distended by a large number of dead chalky white eggs. A Zebra Fish, similarly affected, showed fluid-filled cysts in the ovary on dissection.

The exact cause of these conditions is not known but it is feasible that it is produced by some obstruction in the oviduct (the tube which leads eggs from the ovary to the exterior). In such a fish, eggs would be retained for too long a period and would ultimately become anovular (dead).

#### Egg-binding

Another possible sequence of events is that a female fish which has been kept away from the male for too long a period retains her eggs which ultimately die and the fish becomes egg-bound. The dead eggs may liquify and ultimately produce a cyst. However, it must be noted that many females (e.g. Fighters) will drop their eggs even in the absence of the male, and two females may go through a mock spawning (e.g. Angels).

It appears to me that it is not a good practice to keep the sexes separated for long periods of time. It is, of course, a good idea to separate the sexes for a week or two prior to spawning, but at the end of this period they should be brought together in the breeding tank.

If facilities for spawning are not available, or if you change your mind and decide not to breed with them, then do not keep the fish



by DR. F. N. GHADIALY

separated for months on end, bring them together and separate them at a later date when you again decide to breed from them. I breed many species of fishes every year and it sometimes happens that I may separate a pair but find that at the end of the fortnight no spawning tank is available as they are all occupied with other fishes.

If, at the end of a month, I find that I still cannot give them room I bring them together in the conditioning tanks and lose the spawning rather than risk the female becoming egg-bound. I have also observed that fishes that have been separated for two or three months, when brought together, deliver a large number of useless eggs that never hatch out. This is why I have now made a rule not to keep the sexes separate for more than a month at the most.

When a fish suffers from Dropsy it may lead the uninitiated to imagine that it is filling up with eggs. However, as the disease advances and the scales begin to stand out, the condition can be diagnosed quite easily. Dropsy implies the collection of fluid in the peritoneal cavity and is only a sign of some other disease, often a serious one, of the heart, liver or kidney.

Fluid collects, not only in the peritoneal cavity, but also in other parts as the disease advances. It is this collection of fluid (often termed oedema) in the cutaneous tissues (skin) which makes the scales stand out, and not the distension of the abdomen by the fluid collecting in the peritoneal cavity.

That distension of the abdominal wall by itself is not sufficient to cause scale protrusion is obvious when we consider that abdominal distension due to other causes, such as filling up with eggs or young, does not cause the scales to protrude.

The lesson to be learnt then is quite plain; do not be deceived by a plump female fish, the number of eggs she may lay at the next spawning will not necessarily be proportional to her

## Cardinal Tetra gets its name

ALMOST simultaneously, early in 1956, two scientific names were given to the new Cardinal Tetra. They were *Chirodon axelrodi* Schultz and *Hypheosbrycon cardinalis* Myers. The species had yet to be seen in Britain and, in fact, it did not make its appearance until almost a year later, but there seemed little doubt that it would rapidly become popular as an aquarium fish when introduced. This has proved to be the case.

The question of which name should have priority was referred to the International Commission on Zoological Nomenclature by this journal in May 1956, and correspondence relating to it appeared in the Bulletin of

Zoological Nomenclature for August 1956 (Vol. 2, Part 6).

Voting has now taken place in the International Commission on which name should have priority\* and it has been decided that the name of *Chirodon axelrodi* was published first and should stand in preference to *H. cardinalis*.

Accordingly the beautiful Cardinal Tetra has the scientific name of *Chirodon axelrodi* which will be used in future in FISHKEEPING AND WATER LIFE.

\*"Opinions and Declarations Rendered by the International Commission on Zoological Nomenclature," Volume 17, Part 7, pp. 87-104. Opinion 485.



The author's photograph of an egg-bound Rosy Barb, a condition which could be easily misinterpreted.

size. There are other things which can cause fullness in fish besides eggs.

#### Transferring Young Fishes

Moving young fry is an operation that involves a certain amount of risk. The smaller the fry and the more inexperienced the aquarist, the greater the risk involved. However, this is a risk that has to be taken for, as the fry grow larger, they require more space which usually means transference of part of the brood to another tank or the transfer of the whole brood to a considerably larger aquarium. The other alternative of breeding in a very big tank from the beginning is not a particularly practical proposition for most aquarists nor is it without its own drawbacks.

The best course to adopt, if possible, is to employ a reasonably large tank and not a very small one so that for a given type of fish and the expected size of spawning, a move will not become necessary before the fry have grown to at least  $\frac{1}{2}$  to  $\frac{1}{4}$  in. in size.

However, the best laid plans can go astray and there have been times when I have had to move fish considerably smaller than that. If sufficient care is taken, the results should be quite satisfactory.

The first and most important thing to note is that the temperature of the water to which the fry are about to be transferred is the same or at least a degree or two warmer, but not cooler, than the water from which they are to be moved. Both temperatures must be taken on the same thermometer as there may be an error in the instruments employed.

Needless to say, the new water must be mature and as similar as possible in its chemistry to the water in the other tank. pH, hardness, salt content etc. must be as near identical as is feasible. Special care is needed when the water in the spawning tank has been treated with acids, alkalines, salts, distilled water, rain water or other such substances to alter its chemistry.

The actual method of transfer is also important. It is best to employ a method where the fry are not dragged out of the water into the cold air at any stage of the proceedings. Perhaps the most popular way is to use a fairly large net to sweep the tank gradually from one end to the other, chasing the fry before it.

The net is then carefully advanced, rotated and raised (but not out of the water) so that the fry are caught and left swimming in the hollow of the net in a small quantity of water. The net is held in this position or rested on the frame of the aquarium.

The bottom is left sloping in the water while the fry are ladled out of the water into the new tank using an eggcup or similar container. The technique is quite speedy and efficient.

## \*\*\*\*\* Fish Philately

### \*\*\*\*\*



### Adriatic Dory

WITH the fish shown in natural colours against a background of deep blue, this 100-dinar stamp manages to combine accurate representation with excellence of design. It is one of the delightful set issued in 1956 by Yugoslavia, depicting various aspects of the marine life of the country's rocky Adriatic coast line.

The Adriatic Dory (*Zeus pumilio*) is a member of the Family *Zelidae*, which have well-developed spiny dorsal fins and either naked or thinly scaled bodies. *Zeus*, from the shore waters of Asia and Europe, is the best-known genus; it includes the common John Dory (*Zeus faber*), which also occurs in Adriatic waters.

The swiftness, voracity and appearance of the Dory have, in the past, earned it a place among ancient deities, as its Generic name implies. It has an enormous appetite, with a mouth and stomach to match.

The black spot on its side is responsible for an interesting legend about the Dory. St Peter is supposed to have picked it from the water and, in so doing, left his thumb print on the body of the fish. Dark spots on other species are, however, associated with similar beliefs. The Adriatic Dory reaches some 20 in. in length; the John Dory rather more.

JOHN WAKEFIELD

### \*\*\*\*\*

Fishkeeping

## AQUARIUM PRESENTATION

Contrasting styles  
give  
character  
to a room

Photographs by  
FISHKEEPING & WATER LIFE



A wide variety of ways for presenting an aquarium in a room is wide. Three contrasting styles are shown here and were planned and set up by Mr. A. Rous in the reception room for the enlarged premises of (Barnsborough Fisheries at Shepherds Bush in West London.

#### Modern Appearance

Wrought iron plays its part in the first design for a 4 ft. bow-fronted aquarium. It gives an air of contemporary spaciousness without any suggestion of bareness.

Another design is that of an aquarium (1 ft. x 22 in.) set behind a red brick fascia. The actual viewing area is smaller than the



Fishkeeping



tank dimensions and there is the incentive to "look round the corner" to see if there are fishes hiding. This suggestion could well be tried in a paneled room.

For the do-it-yourself aspirant may be the third idea is the most interesting. Grained-effect wallpaper is used on a recess in which fits an aquarium of 30 in. x 18 in. The wooden border to conceal the angle iron frame of the tank has beading running along either side and in between, to give an unusual sanded effect, is ordinary aquarium gravel thrown on to wet paint-work.

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## POPULAR AQUARIUM BARBS



Pair of Rosy Barbs (male to the right), a very good fish for the novice to breed. Photograph, L. E. Day.

PETER HEWITT gives answers to questions on these fishes

**QUESTION.** Although Barbs are easy to keep, what conditions do you consider ideal in order to see them at their best?

**ANSWER.** Barbs, being very active fish, are at their most attractive in medium and larger sizes of tanks and appreciate a reasonable depth of water. For the average Barb species, tanks of 24 x 12 x 15 in. or 36 x 15 x 15 in. dimensions are ideal. In order to obtain the most attractive picture from an aquarium of Barbs at least four fish of each species should be kept as they are at their most active when in a small shoal.

Clean water and tank conditions are essential and I find that the finest tonic for Barbs is to siphon off about one quarter of the water in the tank and run in some fresh, cool water from the tap. They are hardy fish and the drop in temperature does not worry them at all. Livefoods are preferred, but the fishes can be maintained quite satisfactorily on a diet of one of the prepared dried foods.

**Q.** Could you give a selection of the smaller Barbs that would make a good community collection?

**A.** The Cherry Barb (*Barbus titteya*) always adds a touch of colour to any community, the males being a deep cherry colour when in condition and the rather more drab brownish colour of the females serves to accentuate this. They are extremely active fish and the males will spend much of their time in showing their colour and mock fighting around the females.

The Checker Barb (*Barbus oligolepis*) is another very attractive little fish; again the main colours are on the male which, with its orange and black checkered body and brilliant orange dorsal fin edged with black, will fit into any community. This is a hardy and peaceful fish and, although inclined to be a

little on the shy side, is well worth a place in any community tank.

*Barbus cuningii* I include because of its silver colour surmounted by a brilliant red and black dorsal fin in the male. It is one of the smallest of the silver coloured Barbs and is extremely active. It provides a lovely contrast to the darker colours of the other small Barbs.

The Nigger or Purple-headed Barb (*Barbus nigrofasciatus*) can hardly be left out of the community collection. The male, when in condition, is almost certainly one of the most beautiful of the whole group and the deep purple coloration of its head merging into the black of the body has to be seen to be appreciated.

The Schuberti Barb should be included because its pure golden colour forms a contrast to the other fishes and the greens and reds of the plants. It is very lively and, although rather larger than any of the preceding species, is quite peaceful.

**Q.** Are there any of the commoner species that cannot be trusted in a mixed collection of fishes?

**A.** Tiger Barbs, despite being one of the most strikingly beautiful Barbs, are inclined to be a rather spiteful fish in a mixed community. They do not usually cause the death of other fish but tend to worry their tank mates and are very adept at fin nipping.

Another fish which produces the odd rogue is the Rosy Barb. Occasional male fishes may turn into bullies and have to be removed from the community, although others may remain quite peaceful.

**Q.** Is it a good idea to start breeding the tropical eyebarbs by trying with a Barb species? If so, which would you suggest?

**A.** The Barbs do, indeed, offer some of the most suitable fishes for the beginner to breed. Two species come to mind as particularly good for this purpose; the Rosy Barb (*B. conchomitus*) and the Nigger Barb (*B. nigrofasciatus*).

**Q.** What size aquarium and planting and what type of water is satisfactory for breeding Barbs?

**A.** The size, naturally, will vary according to the species, but for the smaller and medium-sized fishes a tank 18 x 10 x 10 in. is quite satisfactory. Either natural or artificial spawning media may be employed. For natural media, fine leaved plants such as



Rusky coloured Nigger Barbs make ideal fishes for the community aquarium. Photograph, L. E. Perkins.

*Myriophyllum* or *Limnophila* (*Anubias*) should be planted thickly in one half of the tank, whilst the other half is left bare.

Suitable artificial media are willow root, moss-out fibre or nylon, and a mass of these should replace the plants in one half of the tank. The water used should be clean tap water which has been allowed to stand for about seven days.

**Q.** How can one sex the majority of species?

**A.** The male fish are considerably more highly coloured than the females in the majority of species and, when in breeding condition, the females are the far more heavily-bodied fish.

**Q.** Could you give some idea of the best age of fish to use for breeding?

**A.** The first and second broods appear to contain the strongest young and it is better to wait until the parents are of a reasonable size to provide plenty of eggs. On the other hand, young males are far more active than older fishes and are, therefore, better equipped for the spawning process. I consider that fish between 9 and 12 months of age offer the best compromise and give the most satisfactory results.

**Q.** Information on conditioning the parent fishes, introducing them to the breeding tank



Checker Barbs are less popular than some species but have a distinctive colour pattern, more obvious in males. Photograph, G. J. M. Timmerman.

and method of spawning would be appreciated.

**A.** The parent fish should be conditioned in separate tanks and during this period should be fed mainly on livefoods. I have found chopped Earthworms, White Worms and *Daphnia* form an excellent and varied diet during this period. After from 7-21 days the male will become noticeably more lively and have a heightened colour, whilst the female will be nice and plump. This conditioning process should take place at 70-75 deg. F.

When the fish are in condition the temperature of the breeding tank should be maintained at between 75-80 deg. F. and the female should be introduced first, followed by the male after a period of a few hours. If this is carried out during the evening the spawning will usually take place early the following morning.

The male displays in front of the female, generally in the clear portion of the tank, and then chases her into the plants or artificial spawning medium. The eggs, which are adhesive, will be scattered and adhere to the plants or other spawning medium. The process will continue for about two hours, during which period 100-500 eggs will be laid according to which species is being bred and the age of the parents.

**Q.** Do the parent fishes have to be taken out after the eggs have been laid?

**A.** It is essential that both parents be removed from the breeding tank as soon as possible after spawning. There is no meal more favoured by the Barbs than their own eggs and the fish, if not removed, will soon succeed in devouring most of them.

**Q.** How soon do the eggs hatch and what would be the feeding programme for the young fishes?

**A.** The eggs will hatch in about 36-48 hours and no attempt should be made to feed

81

80

Fishkeeping

Fishkeeping









- Thirty-four members and guests of Lutetia Major A.S. enjoyed the club's first annual dinner in October. Each guest was presented with a large badge and enrolled as an honorary member. Mr. R. S. Watt, the secretary, received the Member of the Year Cup.
- Mr. A. W. Hewitt, Hollybank Chorley, Alderley Edge, Manchester, is the new secretary of Lutetia A.C. (Widnesham). Members of Ashton-under-Lyne, Northenden and Salford clubs participated in the November 8 meeting which included a talk by Mr. Macdonald, a table show and two sound films.
- The Henny A.S. held its annual dinner on November 23. The club put a big open show for September 3-6, 1958.
- Annual social evening of the Guppy Federation's Eastern Counties Section will be held at the Rising Sun, Forest Gate, on December 12. Starting time is 8 p.m.
- The annual show of Leeds A.S. was very successful and attracted entries from Derby, Stoke and Barnley.

### E. London's Silver Anniversary Show

THE silver anniversary show of E. London A. & P.A. had a good entry and was judged by Messrs. C. W. G. Crowl, C. Looker, S. Moore and C. J. Saunders, B.Sc.

Best fish in show was Mr. H. Law's well conditioned *Apteronotus* (mottled). Mr. J. Wylie won first in the breeders' category with a team of *Neon*, followed by Mr. W. W. Wainwright's *Neon* and Mr. A. Leitcher, B.Sc., put on a non-competitive display of *Neon* and *Apteronotus* which attracted considerable attention.

Club (top, left): 1 & 2, Walthamstow A.S. Club (top, right): 1, W. Hylton; 2, H. Law. Individual (top, left): 1, F. Pettis. Open breeders' (top, right): 1, F. Dodds; 2, H. Law. Open breeders' (middle, left): 1, G. Hower; 2, J. Bryden. Open breeders' (middle, right): 1, F. Pettis. Guppies: 1 & 2, Miss J. Pettis. Plants: 1 & 2, D. Green. Cichlids: 1, H. Law; 2, J. Bryden. A.O.S. egg-layers: 1, F. Arnold; 2, S. Moore. Fishes: 1, H. Law; 2, J. Bryden. Gouramis: 1, H. Law; 2, D. Mayles.

Common Goldfish: 1, W. Hylton; 2, H. Law. Shus: 1 & 2, J. King. Funnels: 1, F. Pettis; 2, J. King. Moors and Veils: 1, F. Pettis; 2, W. Corby. Foreign cichlids: 1 & 2, J. King. Large plants: 1 & 2, F. Arnold. A.O.S. plants: 1 & 2, H. Law.

### Coverly's Annual Exhibition

A SUCCESSFUL result for the fifth annual exhibition of Coverly P. & A.S. is reported. It was a three-day event judged by Mr. C. D. Rice and opened by the Lord Mayor of Coventry.

Best inter-society coldwater aquarium was shown by Noreston A.S., while Mr. G. Glover took the award for best members' coldwater furnished aquarium. An attractive show catalogue was issued.

### Common Goldfish Best at Cambridge

MANY varieties of tropical fish were on view at the members' show of the Cambridge & District Aquarists' Society which was held recently, but the Simpson Cup for the best fish in show went to a large Common Goldfish, owned by Mr. H. C. Fryman.

Among the tropical entries were six Nigger Barbs which won the Broad Cup for Mr. C. P. Gibson. Mr. Gibson was also successful in taking the Pairs Cup with *Tetraodon* with the Fryer Cup with a *Corydoras* and an *Amia*.

Mr. Chapman was the judge of furnished aquaria and Mr. Stone, the individual classes.

- Newly-acquired classrooms in Belmont Street, Aberdeen, were inspected by members of North of Scotland A.S. after their November 14 meeting, at which Mr. G. Steele gave a film show.
- On October 26 Walthamstow A.S. held its annual show prize presentation. Exhibitors and friends attended and the programme included the film, "Coral Wonderland".
- A successful year was reported at the A.G.M. of Henshaw A.S. Officers elected were chairman, Mr. L. E. Balfour; treasurer, Mr. C. H. Billington; vice secretary, Mr. L. Claver and secretary, Mr. W. Woods, 302 Elmwood Road, Henshaw, Middx. Points winner for 1957 was Mr. G. Woods.
- Mr. A. H. Gale, secretary of Friends A.S., has recently changed his address to 18 Chertsey Road, London, S.E.22.

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