

March  
1969

2/6  
monthly

*the*  
*Aquarist*  
*and Pondkeeper*



# the *Aquarist*

and Pondkeeper

Printed by

Buckley Press  
THE BUTTS . HALF ACRE  
BRENTFORD . MIDDLESEX.  
Telephone: 01-560 6221.

Subscription Rates

The *Aquarist* will be sent post free  
for one year to any address for  
£1 15s. 0d. Half-yearly 17s. 6d.

MSS. or prints unaccompanied by a  
stamped addressed envelope cannot be returned and no re-  
sponsibility is accepted for contributions submitted.



Founded 1924  
as 'The Amateur Aquarist'  
Vol. XXXIII No. 12, 1969.

## Contents

<b>OUR COVER</b>	The Celebes rainbow	712
Female common frog with newly-laid spawn	To set the scene	713
	It's all in the papers	714
	The <i>Dascyllus damselfish</i>	714
	<i>Danio devario</i>	716
	Water crowfoot	717
	The lump-sucker	718
	<i>Leporinus fasciatus</i>	719
	Nutrient solutions	719
	Breeding goldfish	720
	A geographical tank set up	721
	What is your opinion?	722
	Aid for society secretaries	724
	Book review	725
	Find the fish	725
	The <i>Aquarist</i> Fishkeeping Exhibition	725
	Junior aquarist	726
	Fish food review	728
	Extra tanks for the coldwater fishkeeper	728
	The Cichlids will get you if you don't watch out	730
	Quo Vadis?	731
	Our readers write	732
	Trader fights council ban on scorpion fish	734
	Our experts' answer your queries	735

The Editor accepts no responsibility for views expressed by  
contributors.

Editor: Laurence E. Perkins

March, 1969

711



# THE CELEBES RAINBOW

## *Telmatherina ladiges*

by D. H. Martin

"A beautiful fish, but very susceptible to changes of water." This fact is stated in most books when the author is describing this fish. Some authors even say that when transferring fish from one tank to another the water must be added gradually—one even advises by a cupful daily, but on this I beg to differ. I am certain on reading this, a great number of aquarists are put off purchasing a pair and putting them in their tanks at home as they fear they would die. This is not so—providing the water is not acid to the extent of pH 6.8, which one does not find in pure tap water. As to the hardness, I have kept and bred these fish in water which has a hardness from 8-14 deg.

In my opinion they are best kept in pure tap water with a little salt added. As for moving them from one tank to another, this I often do (before and after spawning) to any of the tanks in my fish house, causing no ill effect.

Sexing presents no problems as the dorsal and anal fins of the male grow long, and the females' are quite normal. When about 10-12 weeks old, the males are recognisable by the white dashes on the top and bottom of the tail fins.

Here in Norfolk the water from our taps has a hardness of 14 deg., one of the hardest in England, and the pH 7.2. On purchasing a pair of these fish I set up an aquarium 24 x 12 x 12 in. with pure tap water of 14 deg. hardness and pH 7.2. The temperature was then brought up to 80°F., and in one corner were placed four or five pieces of *Myriophyllum*, no compost being used.

The fish I had purchased were about three parts grown. They were kept under these conditions for approx. ten weeks. As they grew into really good specimens, I decided I would try to breed from them. Here is an account of the successful spawnings and a description of the methods used.

For my first spawning I set up a tank 36 x 18 x 12 in. and filled it with tap water, which is, as I have stated, 14 deg. of hardness and pH 7.2, to a depth of 6 in.

No compost was used but in one corner I placed seven or eight separate stalks of *Myriophyllum*. The temperature was then brought up to 80°F. and one tablespoon of cooking salt was added to each five gallons of water. I also used aeration fairly heavily.

The fish were placed in the tank the next day, both being in excellent condition, and they stayed so, even though they had been changed into water containing salt. Later I saw the female chasing the male and this continued for about four to five days. At no time did I see the male chasing the female. After a week no eggs could be seen, so I put into the tank twelve nylon mops, through which the fish chased each other all day long. No eggs were visible, but two weeks later I saw young fry swimming between the mops. I then took the parents out (another change from water with salt to fresh water) and placed them in two different community tanks with no ill effects.

To breed these fish I now use an 18 x 18 x 10 in. aquarium, filled with pure tap water to a depth of 6 in. to which is added water that has been passed through a water softener in order to bring the hardness of the water in the aquarium down to approx. 10 deg. 178 p.p.m. To this I add two tablespoons of cooking salt and bring the temperature up to 80°F. Ten to twelve nylon mops—which are only about 3 in. long—are placed in the tank and under these I put a small quantity of coconut fibre, as from experience I have found that some of the eggs fail to adhere to the mops. As a matter of interest I have actually seen a pair spawn on the top of the coconut fibre. Aeration is introduced on the far side of the mops.

The fish are placed in the tank the following morning (another change)

and left for seven days from the first day they start chasing—which is usually the second or third day. They are taken out after the seventh day (again another change) and put in separate community tanks. One word of warning! It is unwise to place two or more males that have been used for spawning together. In my experience I have found they will fight. Females can be placed together as they soon settle down.

The eggs are easily seen after three or four days, as they turn dark and are visible in the mops. A few of the eggs will turn white but these are infertile. As the eggs are fairly large the fry can be seen in the egg with the aid of a magnifying glass. I have found that the eggs take as long as twelve days to hatch in a temperature of 80°F. I do not remove the mops or the fibre until fourteen days after seeing the young fry as one could easily take some of the fry out with the fibre, they are so very small.

I have tried the method of removing the eggs from the mops and fibre and placing them in another container but this has not achieved the success of the method which I have described.

When the first fry appear I feed them on Liquify for the first five days and then brine shrimp and micro worm, but continuing the Liquify for another ten days using less and less. As the fish spawn over a period of seven days this will feed the young fish as they are born. They are very slow in growing and at three months are about 1 in. long.

The best results are obtained if the pair to be used for spawning are separated for about three weeks prior to being placed in the breeding tank. A good pair spawning will produce 80 to 100 fry.

Look for our  
colour supplement  
in April.

THE AQUARIST



# TO SET THE SCENE

by John Gates

THE ESSENTIAL BASIS of a happy, active fish community is a well laid out tank. Everyone has seen those poor miserable creatures so often offered as prizes at funfairs and fetes. Perhaps this is an extreme example to illustrate the point. But contrast the inmates of those wicked little glass bowls with the occupants of a nicely furnished aquarium, and the point is very clear indeed. Whether warm, cold, fresh or salty, tanks pay handsome dividends when carefully aquascaped for their inhabitants.

An aesthetically pleasing underwater world is simple to create if a little trouble is taken with preparation before the installation is started. The plain, flat bed of gravel with its few odd stones must become a thing of the past where community show tanks are concerned. The aim must be for more resplendent set-ups to maximise available space, colours, light and materials.

The foundation of such an aquarium is the gravel, and it should be available in sufficient quantities to work with, as a sculptor works with clay. If you intend to use loam as a source of food for plant nutriment, follow it with liberal amounts of gravel and build a depth of say, 6 in. at the rear of a 15 in. deep tank. Slope this steeply forward to approximately the same level as the angle-iron frame. It is important to remember that warm water rises and so to avoid a cold unheated layer which fish tend to avoid, it is a good idea to provide a recessed pocket to accommodate the heater. The heater must be as low as possible, and some aquarists prefer to use the flexible sub-gravel type to ensure even heating from the very lowest level. Under-gravel biological filters circulate water and will help to maintain a reasonably consistent temperature. This method of filtration is most efficient when used with sloping gravel, as uneaten food particles and mulm fall naturally to the front. Here it automatically offers itself to the aero-

bic and anaerobic actions of the filter, conveniently and unobtrusively placed along the front edge of the tank.

It must be understood that some kinds of sand, gravel and rocks are completely unsuitable for use in aquariums. If in any doubt, ask advice from a knowledgeable enthusiast or use only materials supplied by an aquarist's shop. Geologists will agree that the study of rocks is a complex one and there are no real basic rules to help in choosing for the tank. However, as a very general guide, avoid soft stone and spa rocks, which will slowly dissolve in water.

A 15 in. tank can be filled to a depth of 6 in. at any point along the back, and contoured to make small hills and valleys as it sweeps down to the front glass. There is no reason why a small area at the front of the tank should not be filled several inches above the frame, provided the mulm, etc., has a free fall to the sub-gravel filter, when this is used. The idea is to carry the eye into the sub-aqua world and to feature as much interesting design, together with an illusory sense of depth, as possible. It is this challenge which tempts the artist to surface in every true aquarist, the creative urge to fashion from sundry stones and gravel a living piscatorial picture of movement, colour and beauty. And the tools for this are the same as those used by the mason. Hammer and chisel. It is unlikely that the pile of rock collected will include pieces that can be used without trimming. Improvements can nearly always be made with a little judicious use of a large hammer. It is quite amazing how large solid rocks can be induced to split along your chosen line by tapping firmly and precisely. Often they open up to reveal beautiful layers of quartz which can be used with subtle effect. It is infinitely preferable to arrange rockwork with stratifications running approximately the same way. Of course, this isn't always true in nature because of

various pressures, but it does give an orderly appearance in the confined tank space.

Create caves where *corydoras* can hide, grottos for bashful *Botias* and open spaces where *Platys* can promenade. Tall mountains and pinnacles of stone can reach gracefully to the surface where hatchets and zebras can climb to school. Above all, discriminate. Be fussy and accept only stone and rock which fits your ideal design. The large pile of stone will probably be reduced to a heap of rubble by the time you are satisfied, but that elusive certain shape will doubtless also be yours.

Marine, some cold-water and tropical fish need obvious and more particular planning, especially where plants are concerned. Some cichlids, for example, think plants are provided purely as *hors d'oeuvre*, so other forms of tank dressing must be used. Excursions to clean, flowing streams in the countryside will often prove rewarding. You may find pieces of waterlogged wood suitable for decoration. These should be immersed in a solution of antiseptic (as used for sterilising babies' bottles) to kill any disease, fungus or unwanted water creatures, and then well washed. Failure to do this properly will result in fish fatalities but a good rinsing can be assured by placing in a bucket and hosing for as long as possible.

The choice of plants will surely either make or mar the most auspicious aquascape, for the one must certainly complement the other. Time must influence, to some degree, the choice of plants. If you have little time to spare on servicing, then slower-growing types should be selected. If, on the other hand, you are not restricted in this way, a far wider range of plants can be bought, subject only to availability. In any case, some good oxygenating plants should be used, such as *vallisneria* or *sagittaria*.

Continued on page 714



## IT'S ALL IN THE PAPERS

by T. G. Wall

MATTERS AQUATIC are being featured more frequently in the National "dailies". Over the last few months I have collected about a dozen "cuttings".

### Examples:

1. Sheffield City Council intend to install a 10-foot tank in a subway under a busy crossing with the hope that pedestrians will be lured underground, away from the traffic.

2. A special appeal has been made in Fiji to save the tame fish of Nanavi-Ra Island. Apparently 40 lb. cod have been trained to take food from the hand. Most have now been speared and eaten by fishermen from another island—jealousy? or just hunger?

3. A hospital matron recently delivered about 50 swordtails by caesarian operation after the mother had died. All doing well!

4. Two-year-old Elizabeth Neilson swallowed her goldfish alive—after 25 minutes she "brought up" the fish, which was still alive and well. (Both appeared on T.V. subsequently).

5. A Post Office T.V. investigator saw what he thought was an unlicensed set—until the "viewer" turned it on—tropical fish swam behind the screen. (A better programme than most).

## THE *Dascyllus* Damsel FISHES

by T. H. Legg

THE GENUS *DASCYLLUS* belongs to a large family of coral fish called "Pomacentridae", more commonly known as Damsel or Demoiselle fishes. These are mostly small, active, brightly coloured fish and are therefore highly desirable for the tropical marine aquarium.

In their natural habitat they usually live in and around coral reefs of the Indian and Pacific Oceans, although some species are more widely dispersed throughout the tropical oceans.

*Dascyllus* fish are possibly the ideal species for the beginner in keeping marine fish as feeding creates no problems—they eat just about any food, i.e. live tubifex, Daphnia, brine shrimp, white worms, small earth worms, freeze-dried and dried foods, chopped raw meat, live and fresh fish.

Like their cousins, the clown fish, they are strictly territorial and most of their day is spent defending their home against intruders. Many species of this genus have often spawned in captivity; as yet the fry have always perished before they were one month old. Perhaps something is still eluding us either in the water or the feeding habits of marine fish.

*Dascyllus trimaculatus*, the three-spot damsel or domino damsel, is a very strikingly attractive fish but

rather pugnacious by nature. Small specimens under 2 in. are suitable for the community tank. Juvenile domino's are black, with three white spots. As this fish matures the deep black becomes a brownish colour with black edges to the scales. A mature domino will be a sturdy 4 in. in length.

The three fish illustrated in figures 2, 4 and 6 are very similar in size and colour. *Dascyllus arcuatus* is easily distinguished by red edges to the second and third black bars. This is scarcely seen in marine dealers' tanks in this country.

*Dascyllus aruama* in figure 4 is widely distributed from the Red Sea throughout the tropical seas as far as the Hawaiian islands. This fish can be found under the name of black and white damsel in marine dealers' tanks. Adult size is about 3 in.

*Dascyllus melanurus*, the black-tailed damsel in figure 6, has a short stocky body with black and white stripes. The head is often mauve with an electric blue front edge to the pelvic fins.

Figure 3, *Dascyllus carneus*, the well known cloudy damsel is mostly black and grey, with a lighter tail and middle. White highlights pick out the edges of the large scales.

### TO SET THE SCENE—continued

If a high plateau is provided, make sure it has its own pocket of loam for the plants to feed upon. Some *Cryptocorynes* have a reddish hue on the underside of the leaf, e.g. *beckettii*, and look very exotic high up in the tank on a terrace or ledge. But resist the temptation to use too many different plants. Some of the best aquariums use just one or two dominant plants, with an abundance of

few other types in a supporting role.

The *Echinodorus* genus is certain to provide a suitable species for any aquarium, but these are heavy feeders and should be given a good supply of loam to draw upon.

Combine other plants to blend together to give a complete canvas within the rocky frame. Low clumps in the foreground and thickets at the sides. Make sure that all stones are

well bedded in the grave to give a natural, emerging effect and to ensure that they will not topple against the glass, with shattering consequences.

When your artistic work is finally complete, you will want to show it to best advantage, so use an efficient type of lighting. Fluorescent tubes mounted towards the front are very good because both fish and decoration in the foreground.

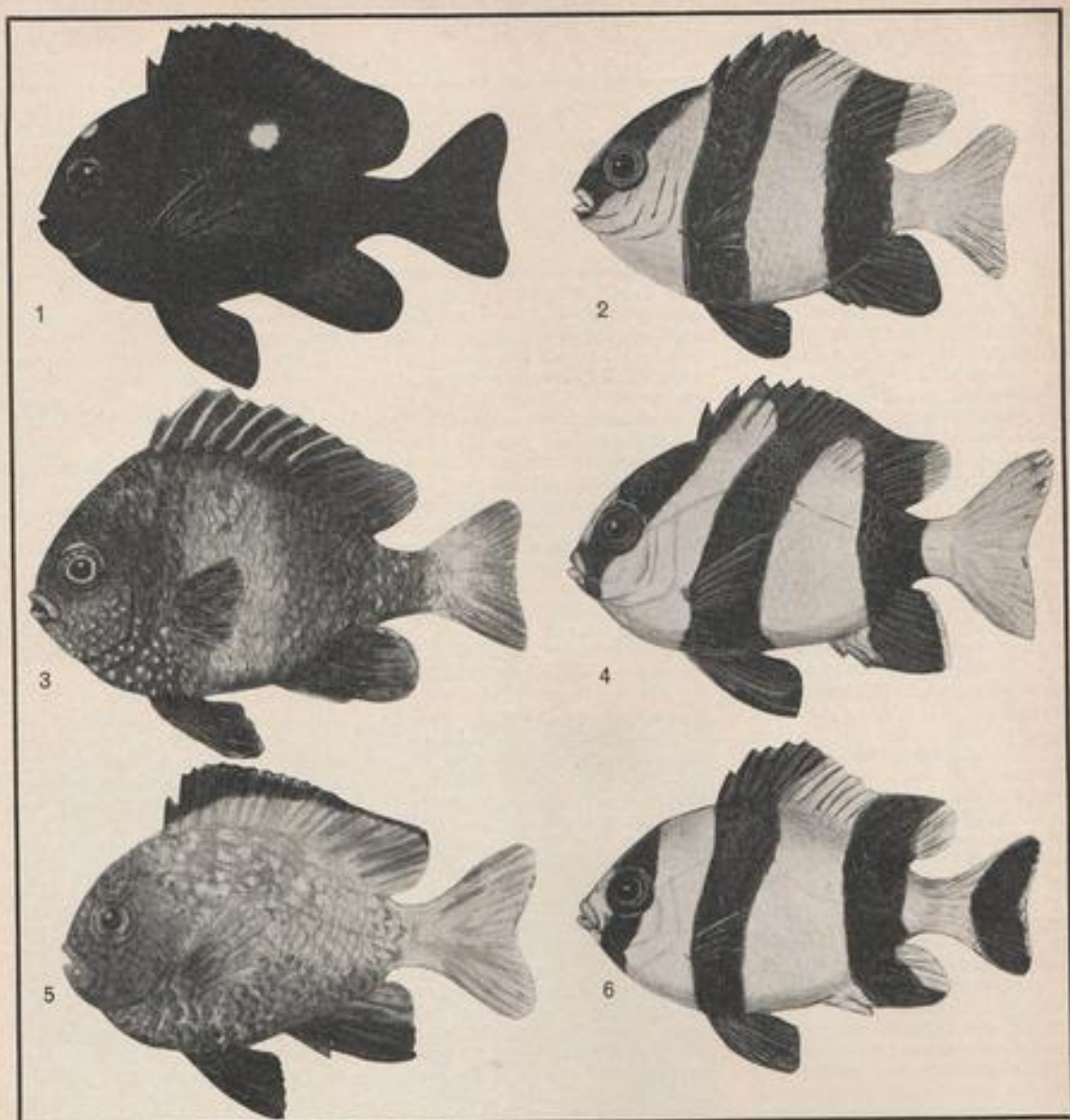


Figure 5 shows *Dascyllus reticulatus*, a handsome fish with a very light yellow body; the large scales are edged with dark brown. The top half of the dorsal fin is also brown with black pelvic and ventral fins. A robust 4 in. will be reached in maturity.

For your first venture into marine tropicals, one or more of these fish will make an ideal addition to a community tank.

1. *Dascyllus trimaculatus*
2. *Dascyllus arcuatus*
3. *Dascyllus carneus*

4. *Dascyllus aruanus*
5. *Dascyllus reticulatus*
6. *Dascyllus melanurus*



# Danio devario

by B. J. Abbott

THE *Danio devario* is not an uncommon fish but it does not seem to have achieved the popularity it deserves with the British hobbyist. In size it does not come quite up to that of the Giant Danio (*Danio malabaricus*), and in colour it is rather more attractive than the Pearl Danio (*Brachydanio albolineatus*) and one would think that with these qualities the fish would command a great following.

Be this as it may, I had personally never seen *Danio devario* before last year when a dealer, with whom I have very friendly relations, telephoned to let me know that he had got in some unusual fish. I purchased four of these which were only about one inch long and were quite unsexable, at least to my eyes and, indeed, to the more experienced ones of my dealer friend.

They were quarantined initially for four weeks in a tank which held aged tap-water kept at 78° Fahrenheit. The fish did so well that I decided to keep them isolated from other fish. Ten per-cent of the water was changed every other day, and the fish were lavishly fed with good quality flaked food, shredded earthworm, *daphnia* and whiteworm, and grew quite rapidly. After about six weeks of this regime they had almost doubled in size, and it became apparent that I had got one male and three females in my quartet.

At this stage the male was removed to another community tank of peaceful fish of various species and he continued to do well. The three females continued to be heavily fed and were found to have quite enormous appetites and would accept food almost continuously, if offered. This did, in fact, happen at weekends when I was home, but during the week they had three meals a day only, my wife agreeing to feed them once at mid-day. To say that the fish are omnivorous is an understatement as I found they

would take almost anything edible that they could get into their not inconsiderable sized mouths. Flesh, vegetable, grain—all went the same way, and I found that scraped meat and shredded worms were particularly acceptable.

The females were now about two and a half inches long overall and were deep-bodied, being very much more compressed and bream-shaped than most Danio species. When viewed head-on they bulged quite noticeably in the ventral region. The fish were very easy to sex at this stage from the body shape, as the male, whilst feeding well, remained very much more streamlined in profile and outline than the females. As far as I can see this is the only difference in the sexes as no discernible distinction in either coloration or finnage could be noted, and this led to the difficulty of attempting to sex the immature fish.

At this stage I decided to try to breed the fish and set up what I hoped were reasonably satisfactory conditions for this to occur. A perusal of the general run of books failed to give very much indication of their habits, but I assumed that conditions related to those of the Zebra or Pearl Danio would be all right.

A two-foot tank was then cleaned out and filled with two thirds tap water and one third rain water. I do not know what the P.H. or the hardness of this was, as I have never been very scientifically minded in this respect. However, tap water is notoriously hard in our area, and I would think either about neutral or slightly alkaline.

Expecting them to lay non-adhesive eggs like their close relatives the bottom of the tank was covered with a double layer of well washed pebbles and marbles in exactly the same way as is usually done for spawning zebras. Very dense vegetation was then introduced to the tank but this was

kept mainly floating and unrooted. The plants consisted mainly of *Cubomba* and *Najas*, with which at the time my fish house was very well-stocked. The temperature of the tank was then raised to exactly 80° F. This is something I am fussy about, almost to the point of superstition. It stems from when I bred Siamese Fighters and found that a temperature of exactly 80° F. was essential for success in my case. I realise, of course, that this may have been coincidental but I invariably breed all fish at this temperature now.

The plump female (there was not much to choose between them) was then introduced into the tank and in the very typical danio fashion rapidly explored it from end to end with great rapidity, then shortly after settled down to a slightly more leisurely inspection of her new surroundings. These fish are extremely active and are literally never still for a second. A Friday night was chosen to introduce the male into the breeding tank and this took place last thing at night before the fish-house lights were turned out. The sexes had been separated for quite some time now, and I had great hopes that the morning light would bring some action and I was not disappointed. I am not a particularly early riser at weekends, but on this Saturday I was up shortly after daylight commenced to see what luck I had. Spawning had already begun and, in fact, when I saw them it was obviously nearing its end. The female looked considerably thinner than when I had put her in and was also a little ragged around the ventral and anal fins. However, the male continued to drive his mate into the plants and they then, very briefly indeed, quivered together before dashing from end to end of the tank again.

After about another half-hour of this, which I watched closely, they appeared to be losing interest in the



proceedings and to peck at the plants and pebbles. Whilst I had not seen any eggs I assumed that the parents were feeding or attempting to feed on these, and promptly whipped the adult fish out to other quarters.

The eggs remained invisible (although I searched for them diligently) until the young hatched. This occurred some 48 hours later, and the babies were then seen as minute hair-

like creatures clinging to every pebble and to fronds of the plants and to the aquarium glass. There was a fantastic number of them and I wondered what I would do with such a quantity. Mortality in the early stages of their development, however, was quite heavy. Whether this was due to inadequate or too much feeding I was not able to ascertain. About 100 of the youngsters survived however, and after

about a week on "Liquifry" these graduated to newly hatched brine shrimp and dust-fine dry food.

I still have about fifty or so of the little chaps left; they are about an inch long now, and they seem to be putting on growth just as rapidly as their parents.

For a completely peaceful and decorative member of a tank I think the *Danio rerio* takes some beating.

## WATER CROWFOOT

by B. Fry

OUR NATIVE water buttercup or water crowfoot, sometimes grown in the coldwater aquarium but more at home in a garden pond, is very generous with its flowers—white, with yellow stamens—from May to September. It has two sorts of leaves: ones that float and ones that

stay submerged. Sometimes there are more of the former than of the latter. Or the other way around; for the depth and nature of the water (still or running) determines the type of foliage the plant is likely to produce.

The floating leaves are three-lobed with indented margins, the submerged leaves are divided into hair-like segments. The branching stems that carry the flowers and foliage may attain a length of several feet. The plant—botanically known under the name of *Ranunculus aquatilis*—is a fine oxygenator and affords an excellent spawning ground for fish and cover for their fry. Pieces of stem, anchored on the planting medium by the weight of a stone or lead band, quickly take root.

Water crowfoot is a rapid grower and pruning is needed periodically to keep it in check. Yet the fact that it is so vigorous has its compensations; for not only does its tangle of foliage help to keep the water free of sediment—stirred up by bottom-grubbing fish—but it inhibits the growth of free-swimming and of some other algae by cutting down excess light and leaving little in the way of spare food (nutritive salts) to sustain the green slimes or filaments or unicellular organisms.

The generic name of water crowfoot is derived from the Latin *rana*, a frog, with reference to the fact that most of the plants of this genus live in or not far from water. It makes a food plant for some ruminating animals. In this it differs from the general run of the *Ranunculaceae*, which are either poisonous or productive of mouth sores caused by the acrid juice.

Water Crowfoot  
(*Ranunculus aquatilis*)

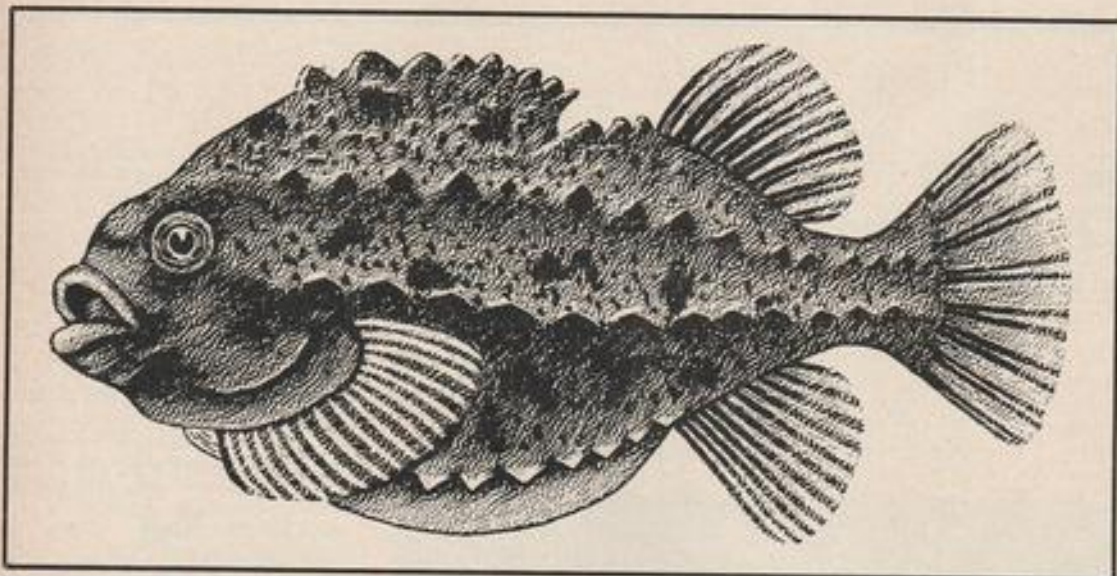


March, 1969



# THE LUMP-SUCKER

by Bill Simms



THE COLDWATER MARINE aquarist who "comes by" a small lump-sucker, *Cyclopterus lumpus*, should be careful about introducing it into a mixed community for it will eat anything that it can get into its mouth—during the winter months. Those last four words deserve some explanation, and indeed some research. In some text books it is stated firmly that in the summer months nothing but water—under some pressure—can be found in this fish's stomach, and that not until about November does it have crustaceans and small fishes in its stomach. I have opened up a few during the summer months and found that this is true of those fishes I caught. This implies that from April until November the lump-sucker starves. This is far too long a period. Perhaps there is some other answer.

During the winter and in fairly deep water, these lump-suckers feed.

In early spring they move into shallow water for the egg-laying which is carried out near the lower tide marks. A large female—who can weigh eleven pounds, and measure about two feet long—can lay up to 200,000 eggs and these are left in one very large mass on stones at the bottom. Because the eggs in the centre of this mass can become starved of oxygen the male (and rarely the female) fastens itself by its sucker to some convenient stone, and vigorously fans a stream of water over the eggs. The sucker is an adaptation of the ventral fins and is most efficient. This fanning of the eggs must go on for about two months, and during this time it is understandable that the fish should go without any food. But when the eggs hatch and the babies swim off, then the parent should revert to an out-of-breeding pattern and start to feed again. And yet all those fishes caught in shallow water from April

until November have only water in their stomachs.

I believe that the answer lies in the irregularity of the laying period. It seems probable that the female will not lay until escorted by a male at the beginning of his period of starvation—which could be brought on by the act of fertilising the eggs. So that after fanning the eggs for two months he would be free to depart to deeper water and there catch up on his eating—even if this was still only mid-summer. If this is so it would explain the vast differences between the hatching dates of some egg masses. Some are hatching as late as October, while others hatch in May. There is certainly a need for some research into this matter.

Another thing that might be found out in an aquarium is whether or not the lump-sucker will feed at all in such shallow water. It feeds on almost anything alive, and perhaps on



dead creatures also. I suspect that this fish will not (when adult) feed in shallow water at all, for on two occasions when I have attempted to keep mature specimens in captivity I have failed to get them to feed.

Immature lump-suckers, about 2 in. long, will feed in an aquarium so it seems probable that any serious researcher would have to grow one on

from this size. And then would come the question of whether or not it could mature in shallow water. Since the youngsters, after feeding in shallow water, always migrate into deeper water as they become larger, it seems likely that the extra pressure of water is needed to allow these fishes to mature. Another point related to this water pressure: when

a lump-sucker caught in shallow water has its stomach pierced the water gushes out with considerable force, indicating that it is contained under some pressure. This would naturally be the case in a fish living in deep water when brought near the surface, unless it had some means of releasing the water. And if it could not release this water the fish would find it impossible to eat anything.

## NUTRIENT SOLUTIONS

by Fred Loads

MY WIFE is the aquarist, but my own interest stemmed originally, not in the keeping of fish, but in the growing of water weeds, a loose description of aquatic plants which annoys my wife no end.

She runs, very efficiently, a pet shop with a useful bank of tanks of tropical fish and views my incursion into the fields of aquarism with amusement and amazement.

I am a trained gardener with an interest in nutrient solutions and foliar feeds and pioneered hydroponics as far back as 1934.

I felt that relying on organics and organic deposit was far too slow and a relatively inefficient method of growing healthy aquatic plants.

The main point was, could one grow vigorous plants and keep fish healthy and happy? Naturally, there was only one way to find out and that was to try it, so I was provided with a 10-gallon tank and invited to do my worst.

I set up my tank in the approved and conventional fashion and proceeded to stock it with all the odds and ends and broken bits of plants unfit and far too small for sale.

I used some matured water and gravel and inevitably brought with me a few snails.

I quickly found that these did not like the acidity of the water and they quickly climbed to the water level. They must have laid eggs for the second generation quickly adapted themselves to the salinity.

The first occupants were two pairs of ordinary guppies and at a temperature of 82°F. fairly wallowed in my tank water and bred amazingly quickly and well, producing some most gorgeous and interesting hybrids.

I was able to satisfy myself that so far as guppies were concerned at any rate, what suited plants suited the fish; if the solution was too strong for the plants then it was too strong for the fish and that foliage is no more liable to damage than the roots.

I used for my experiments a foliar feed by Murphy and had equal success with Phostrogen and Solufeed.

My strengths were made up in exactly the same way as for ordinary water culture, that is a stock solution of one part in fifty, well dissolved and a teaspoonful of the stock solution to every five gallons of water.

Since then I have introduced black and albino mollies, various sword tails, neons, a loach and from time to time virtually all currently available types.

The fact is that my tank is now a sort of sick bay and for bringing on weakly specimens.

Light and temperature being equal, a slight increase in the salinity seems to influence livebearers to part with their offsprings.

The tank has to be constantly culled, both for fish and plants but naturally it will take more than 18 months to prove my point.

As soon as I see the slightest sign of yellowing, for example, in cabomba I add a little more nitrogen and it corrects itself within a matter of days.

I must stress, however, that this is only an exercise in plant growing but from what I read in scientific journals and the breeding and harvesting of *Tilapia* in the paddyfields, there is a very close relationship between suitable fertilisers and plant and fish growth.

## *Leporinus fasciatus* a collector's item

by T. G. Wall

*Leporinus fasciatus*; an unusual member of the family Anostomidae, or, Headstanders, has recently made an appearance in dealers' tanks in various parts of the country. In general shape the fish is elongated and cylindrical, with a pointed head and a small mouth of unusual shape, from which it obtains its genus name (*Lepus*, the Hare). *fasciatus*, its specific classification, indicates the fact that this is a striped fish, in this case the stripes are solid black on an amber-yellow body colour. Running vertically in the form of rings around the body these "stripes" number 5 in young fish, and increase to 10 with age. The species is native to tropical South America, and reports on its maximum size appear to vary from 6 to 12 inches. It is not an easily obtained variety, as evidenced by its rare appearances in this country.

Having obtained one, or preferably two, its tank should be closely covered at all times, since it is reputed to be able to jump 7 feet from the water! Personal observation of this variety in two different locations seem to indicate that single specimens kept in community, even with much larger fish, become vicious, whereas two or more kept together are completely peaceful, and furthermore, make no effort to jump, even when their tank is left uncovered.

NOTE: These observations are restricted to two "sightings" of this variety, and should not be accepted as typical of its behaviour. Comments from readers on the habits of this attractive fish will be welcomed.



# BREEDING GOLDFISH

## PREPARATIONS FOR THE SEASON

by A. Boarder

THE PROSPECTIVE BREEDER of any variety of goldfish will be looking forward to the time when spawnings may be expected. It will now be necessary to make sure that all tanks for hatching and rearing are in good condition. As the weather gets more open it is probable that the fish in an outdoor pond will be getting more active. They can then be given some food. Do not give much dried food unless the fish appear hungry, but an occasional garden worm will usually be accepted. The use of mostly live food at this time of the year will mean that the fish are likely to be in better condition for spawning than if they were over-fed with dried foods.

If the fish which are to be used for breeding are kept in indoor tanks then their treatment can be very different to that of fish in the pond. The temperature of the water in such tanks will be higher and so the fish will be able to eat more food. Again it will be beneficial if the food given is mostly live. This will help to get the fish in first class breeding condition. If it is intended to spawn some of the fish in the tanks in which they have been kept all the winter, it will be important that the water is in a good condition. There are many conditions which may encourage fish to spawn and these are always open to discussion, but I feel certain that one factor which is absolutely vital is that the water must be pure and well oxygenated.

Bearing this in mind it is essential that the tanks must be cleaned out well before any chance of spawning should occur. I find that the tanks are better if there is no base compost at all in such tanks. It is then much easier to keep the tanks clean. A siphon tube can be run over the whole bottom of the tank and then the possible danger of pollution is eradicated. One may wonder about the necessary plant life for such tanks, but fortunately there is one plant which never makes any roots and so

is ideal for any tank without base compost. This plant is the Hornwort, *Ceratophyllum demersum*. Not only is it without roots but the very fine leaves are very good for the reception of fish eggs. A few bunches of the weed can be lightly tied and weighted with a stone so that much of the stem is below the surface. If any fine Algae in the form of soft blanket weed grows on the sides of the tank, this will be of value in providing plenty of cover for the eggs. I use concrete tanks for spawning and hatching when this is done under cover and find that some fine blanket weed not only holds plenty of eggs but it also gives off oxygen, which is so important in the hatching tank.

Goldfish which are to be used for breeding under cover can be kept in separate sexes but this does not appear to matter very much. If this is done it will ensure that there is no likelihood of any of the fish spawning before this is required. On the other hand if the males and females are kept together they will spawn at their own good time. One of the main advantages of this selective spawning over the procedure in a pond, is that it is possible to keep the spawning tanks free from many pests which could be found in the pond. My own hatching tanks are kept in a large garden frame with electric cable heating to keep out the frost and individual tanks can be heated and aerated as required.

The garden pond when it is intended to breed fish in a fairly uncontrolled manner may become rather dangerous to fry if not to older fish. So many pests and even diseases can occur that it is almost certain that the subsequent number of fry raised can be much smaller than that which could be expected in indoor tanks, that is, either in a fish-house or frame. It is possible to keep such a garden pond fairly free from pests as long as one is very careful not to introduce any fish or

plants from the wild. This is very easily done especially when feeding with live foods which live in water. Daphnia and tubifex are two of the live foods which could bring in trouble. Likely pests are types of flukes, such as *Dactylogyrus* and *Gyrodactylus*. Fish lice, *Argulus*, can also be introduced as the young progeny can swim about until they find a host, which could be one of the fry.

After having had bouts of trouble both with fish-lice and flukes years ago, I am now very particular to use none of the live foods which live in water. I therefore only use white worms (*Enchytraea*), which I cultivate myself and garden worms, and only the ordinary ones at that, and am careful not to use any of the manure worms which are rather small, darkish red with small yellowish bands. These can be dangerous, and so must not be fed to goldfish.

Even with great care it is possible to get some forms of trouble in the garden pond and I often wonder if frogs can bring in certain pests. I have no proof of this but when one considers that frogs have a wet body, it is possible for them to carry live flukes or other pests and so introduce them into a pond. However, I think it very unlikely that a frog would leave a pond to travel to another, once the breeding season begins. Frogs usually go to a pond to spawn in late February or early March. Toads have a very dry skin and so are less likely to carry pests which could affect goldfish in a pond. Some frogs remain in or near the pond in which they breed all the winter but many travel some distances for spawning. Newts also come to ponds for breeding, usually in early March, but again they do not live in water during the autumn and winter. They therefore enter the water fairly dry and so are not likely to carry water-borne pests.

The prospective fish breeder who



is using a pond for the purpose may like to have the frogs in the pond as their tadpoles can make a welcome change of live food for the fish. The toad tadpoles are not eaten once they are about half grown as their skins probably develop the type of poison which makes adult toads such a distasteful meal for many animals. The presence of frogs in the breeding pond can be a problem especially if any males are unattached. Such frogs are inclined to grab hold of anything live which comes within their reach and a female goldfish, filled with eggs and perhaps rather sluggish, could be gripped by a frog. If such a fish is attacked it would die unless released quickly.

I have, in the past, welcomed frogs to my pond as their tadpoles have added to the diet of the goldfish, but there are dangers even here. When the tadpoles of frogs are small they are eaten avidly by fish but once they start to grow their back legs and are about fully grown, they can swim so fast that it is probable that many will escape. They will eventually leave the pond when their front legs are developed and the tail

starts to shrink. Up to this time the tadpoles eat voraciously and are very good scavengers. However, again there may be a danger as I have known almost fully grown tadpoles eat the mucus from a goldfish and if this happens it is almost certain that the fish will die. I am now considering whether it is wise to allow the frogs to remain in the pond to breed. One can always remove the spawn to hatch elsewhere.

Newts, both smooth and warty, can come to a garden pond to breed. Whilst they are not likely to harm the fish in any way, they can eat under water and so any worms given as food for the fish can be eaten by the newts. Where a pondkeeper wants to breed goldfish in a pond and newts are present there can be trouble in store later on. Such a breeder will place nests of weed in the pond in which the goldfish will spawn. If this weed is used by the newts for laying their eggs in, it is possible that when a bunch of weed together with eggs is taken from the pond to place in a hatching tank, there may be many newt eggs present which will hatch out later. Although

the resultant tadpoles are very sluggish when first hatched they soon grow and can be in water for several days and eat them. How to remove the newts, if necessary, from a pond is another question. They cannot breathe under water and so have to come to the surface to do so. This is when they can be netted out, but it is a game of patience. I cannot recall a type of Minnow trap, but will use a long jar with a funnel opening at the top; a worm or two will be placed inside and the newts will not be able to find their way out when the point of the funnel is towards them.

Before the fish actually spawn the breeder must make sure that everything is in readiness and, when the eggs are to be hatched separately in tanks, it is important to have an aerator ready so that fresh oxygen can be pumped into the tank day and night. It is better to raise the temperature of the water to about 70°F, and so heaters must be provided. Get these in good time so that they can be tested to provide the necessary warmth. Warm water and plenty of aeration is one of the secrets of hatching.

## A Geographical tank set up

by Yvonne Bonifas

FOR SOME months now I have been thinking about how the great majority of ornamental (and some other) tanks usually consist of flora and fauna from widely differing parts of the globe. To me this seems unnatural and unphysiological. Surely, I thought, if the inmates and plants all came from the same geographical area the effect would be much more natural, and this is the aim of all aquarists.

To clarify my point, one often sees tanks containing *cryptocoryne* species from Thailand, nymphoides from Eastern North America, Amazon sword plants from South America, and many others.

While I am not condemning this entirely, as a very good arrangement can be seen like this, a scene like

this would not occur in the wild. It is the same with fishes; the average beginner buys some Guppies from S. America, Zebra fish (*Brachydanio rerio*) from Ceylon, White Cloud Mountain minnows from China, and other widely distributed species. Though these may live together peacefully, the community is essentially synthetic, and no river or lake would ever contain all these species in the normal run of events.

Now, my suggestion is that the tank be set up as a reproduction of a part of a river or lake in one geographical area.

For instance, a tank could be set up with soft, acid water, obtained with the help of peat or one of the many peat extracts now on the market. It could be planted with Amazon swords, and with a fish community of small shoals of neon tetras, glowlights, flames, and pretty tetras. This would resemble a tributary of the Amazon or other river in that area. Many fish do better and look more effective if a large shoal of them is given a tank on their own, e.g., angels, *Rasbora heteromorpha*, zebra fish and tiger

barbs. Almost all fish look more effective like this particularly neon tetras and other small, fast fish. (Notable exceptions to this rule are *Betta splendens*, and swordtails). When fish are kept in this manner it is possible to provide optimum conditions for the species in question.

### Decorative materials

Apart from fish and plants, incidental material will differ widely according to the type of terrain and water. It seems to be a spreading cult to place pieces of coral in freshwater tanks. Nothing could possibly look more glaringly false than this. But, of course, it is perfectly natural and decorative to put coral into tropical marine tanks. In conclusion I would say that I myself have tanks set up in this way and the effect is far more natural than the usual hotch-potch. You could make a replica of an African river, or a Thailandese paddy-field. Books telling the places of origin of fish and plants are invaluable; I found "*Aquarium Plants*" by Gerhard Brunne very helpful.



# WHAT IS YOUR OPINION?

by B. Whiteside

FROM LEIGH, IN LANCs., Mr. J. Boardman writes on the subject of large versus small aquaria. He says that a 4 ft. tank is by far easier to maintain than a small one. It is not as easy to overcrowd a large tank, due to the cost, and a better rock/plant layout can be carried out, which in turn leads to less chance of pollution. He cleans the inside glass of his tanks, on average, once every five weeks. The base of the tanks is cleaned when some of the water is being changed. For adult fish, Mr. Boardman changes a quarter of the water every two weeks, in large tanks and ponds. For breeding tanks, Mr. Boardman starts when the fish are one month old, and he changes half the volume of water every week (more if it is a large spawning). His tanks range from  $\times 14$  in.  $\times 8$  in.  $\times 8$  in., up to 5 ft.  $\times 15$  in.  $\times 15$  in., and his ponds are 6 ft.  $\times 2$  ft. and 3 ft.  $\times 2$  ft. Temperatures range from 68°F to 84°F, depending upon the species kept, and he thinks that a variation in temperature which is not too drastic, is beneficial to the fish. On the question of plants, Mr. Boardman finds that most aquarists do not get full benefit from them, due to their neglect, or lack of knowledge.

Mr. R. S. Holmes lives at Wittering, Peterborough, and he doubts whether the decline in coldwater fishkeeping is as great as was implied in a previous article. He says that there must be a demand for information on this side of the hobby since he cannot imagine the editor of *The Aquarist* publishing material which he suspects will not be read. If there is any decline, it is not the dealers' fault. Mr. Holmes goes on: "Our dealers, as they so often remind us, are not agents for a charitable organisation, and cannot afford to stock good coldwater fish unless somebody buys them. The same answer could apply as that given to tropical aquarists who complain that

their High Street pet shop stocks only the usual platies, neons, zebras, etc., with never a tank of blue discus in sight." Mr. Holmes goes on to say that he is a coldwater fancier, devoted to a hobby which requires more patience, effort, skill and luck, and which is, therefore, infinitely more rewarding than tropical fishkeeping. (I'm afraid I cannot agree). Illogically, though, Mr. Holmes is not a coldwater fishkeeper. The goldfish and its derivatives demand much more space than most tropicals, and this restricts them to people with gardens or plenty of room indoors. Ponds and large aquaria demand some degree of permanence. Since Mr. Holmes follows a "mobile" occupation and cannot base his choice of rented accommodation solely on its suitability for goldfish breeding, he consoles himself with a relatively portable tropical set-up (and looks forward to retirement). This situation must face many people who would otherwise swell the ranks of coldwater fishkeepers. One solution to the problem of how to revive interest in a declining hobby is publicity and education. Mr. Boardman and other writers in *The Aquarist* seem to have this well in hand. Coldwater fishkeepers could do much to revive interest by demanding recognition instead of mere tolerance. The public may soon be unaware of their existence. This is because many coldwater breeders are, quite justifiably, reluctant to bench fish at shows when goldfish, sunfish, tench, orandas, pike, etc., are expected to compete against each other as entrants in that dreadful "A.V. Coldwater" class.

Mr. Holmes thinks that plastic decorations are fine provided that they look like the real thing and do not create a Disneyland effect in the aquarium. Many of them produced now look even more natural than real rocks, roots and plants. He still prefers the real thing. He cannot either collect plastic rocks and roots, free, from beaches and riverbanks, or buy one or two expensive plastic plants and, with careful propagation, establish a luxuriant "jungle." Plastic ornaments, however, are revolting! Again one cannot blame the retailers since the demand for "junk" does exist. But they could, in gratitude for a good living, do the hobby and ultimately themselves, a great favour,



by gathering up all those repulsive little castles, galleons, mermaids, frogs, oysters, crocodiles, divers, waterwheels and FISH (no less!) and consigning them to the toy stall at a charity jumble sale.

Aquarium societies fulfil a need and should have a great future. Their downfall is usually the result of too few genuine enthusiasts yielding to despair after working very hard to please too many members who contribute nothing but criticism. He used to wonder how, if not as a club member, one could enjoy so many benefits for a few shillings a year, including social contacts, expert advice, money saving schemes, literature, competitions, outings, assistance and twelve or twenty-four evenings of entertainment. He still thinks that membership of a society offers excellent value for money, but he now wonders how keen a member must be to spend time, petrol, postage, patience, effort and sheer nervous energy, to receive complaints as his only remuneration.

Finally Mr. Holmes tells how his whiteworm cultures thrive in wooden boxes of peat on a stone floor, under the kitchen sink. This means that they sweat during the day when cooking is in progress, and shiver at night when the kitchen is unoccupied. They are fed upon whatever starchy food comes to hand when he opens the pantry door. He places the food on top of small perspex squares rather than press it into the medium under the cover, as is the usual practice. As a result, their peat stays fresh, and the worms obligingly crawl out of it onto the perspex squares to feed. At feeding time, he knocks as many clean worms as are required into a tank, returns the rest to the culture, and washes the perspex clean of stale food before replenishing the supply. This is much easier than trying to separate worms from compost with a cocktail stick.



Mr. J. A. Higham, from St. Helens, Lancs., says that it's surprising how many snags one can come up against when raising whiteworms. Having lost several cultures through mites, wrong type of compost, insufficient or too much moisture, etc., he has finally arrived at a method which seems satisfactory. In his wash-house he keeps an old marble-topped table which serves as a production line for several kinds of live-food. The whiteworm culture lives in a drawer where it remains dark and cool, while at the same time being easily accessible. He feeds them exclusively on breakfast cereals—usually plate scrapings, but now and again mixed specially with either water or milk. To collect the worms he finds that the easiest method is to take a plastic tea-strainer full of compost and place it over a jar of cold water with a table lamp poised over the top. In ten to fifteen minutes the heat and light will drive all the worms down through the strainer into the water where they are clean and ready for transfer to the fish, by means of a dip-tube, while the compost can be returned to the drawer. Personally he finds whiteworms just as good as tubifex and far less bother and expense.

Mr. Higham has no time for plastic ornaments. To his mind, a tank containing crude toys is no place for keeping fish. He is always surprised to see tanks decorated at reputable shows, such as the B.A.F., with such plastic ornaments. The same applies to complete stands at such functions, but it seems that many people must feel differently. Plastic plants could be a different matter; he can see a place for these if only they were of better quality. Considering the precise and delicate work which can be done with plastics today, it is strange that all the plants we see are so unnatural; after all it is only a very limited range of colours that is needed, and no complicated shapes or precise dimensions, etc. For a Cichlid tank, or some such set-up, a single, really good reproduction of a show plant such as the Madagascar lace plant would be very acceptable. Mr. Higham knows that such a plant is already available, but even in photographs it carries no conviction. Probably the risk involved in producing good copies, which would have to be sold at quite high prices compared with the present poor quality

stuff, is enough to deter the manufacturers until someone takes the plunge. Anyway, he for one will not buy a plastic plant until he has seen a lifelike one. Having no first-hand experience of aquarist societies, he cannot give the pros and cons of these, but he can imagine nothing but good arising from a well run one.

The last letter comes from Mr. N. C. Bird, of Malton, Yorks., and he wants to defend the coldwater fishkeeper. He has kept fish for nearly forty years, both coldwater and tropical, but his first love has always been coldwater fish. In his view, most tropical fishkeepers and breeders seem to look on the coldwater side of fishkeeping as being simple. He would like to defend this and say that it is far from simple. He thinks that a lot of tropical fish are bred a lot more easily than coldwater fish. This year he hatched six hundred Calico-fantail goldfish, but at the time of writing he has only six left and these are not good fish. He also thinks that there is as much colour and variety in coldwater fish as there is in tropical fish. Mr. Bird ends by asking to hear a lot more about the coldwater side of fishkeeping.

I have a few views on some of the above subjects. Having seen some lighted tanks in a dealer's recently, which contained Calico fantails and Black Moors, I would certainly say that they looked as good as many of the other tanks of tropical fish. Certainly coldwater fish are, generally, more difficult to breed and raise, than many of the commoner tropicals, and the breeding of fish is one of their main attractions to many hobbyists. I also saw a marine tank which housed a pair of the poisonous and expensive Scorpion fish and I must admit that they were an eye-catching sight, with their sharp spines and cruel look. However, a well planted and lighted tank of small tetras still holds a fatal fascination for me and I doubt if I could be wooed away from the freshwater tropicals to either the exotic coldwater, or coldwater or tropical marine fishes. Admittedly I, like many other beginners, started with wild coldwater fish in a bowl, and graduated to goldfish in an aquarium, and then to more exotic coldwater fish. I also kept some marine creatures in an aquarium. These I collected from a local beach, to study for A-level biology exams; but I did

not become hooked on either. Tropicals have held my attention for many years and, although I keep an open mind, it would take a fair amount of persuasion to get my attention switched fully to other than fresh water tropical fish and plants. I must admit that plants interest me just as much as fishes do, and I feel that in other than a tropical tank, the range and growth of plants would be very limited. Do any other readers have any views on coldwater fish? What about some of the marine enthusiasts telling us about the advantages of marine aquaria, either tropical or coldwater?

I must agree with the previous views expressed on plastic ornaments. I don't like them at all. I recently saw a variety which ranged in price from 3s. to 6s., but would prefer to spend my money on one or several real plants. Plastic plants I do not find too distressing. Some of them look reasonably convincing and I have seen them used effectively, mixed in with real plants but the fact that I saw that they were plastic surely defeats their purpose. If real plants will grow, why use plastic ones? Some plastic plants are completely unnatural and do not resemble in either shape, colour or texture, any known living plants. I must admit to being not very keen on these. Artificial flowers have the same effect on me, and nothing irritates me more than a garden with plastic (and obviously plastic) flowers, sticking upright out of the soil. I'm afraid that plastic daffodils in July appeal to me no more than plastic roses in February. However, one can buy plastic aquarium plants relatively cheaply, e.g., prices I have seen range from about 1s. 6d. to 6s., and as one dealer said, "You cannot blame the beginner for buying a plastic plant, which has a good clump of leaves, and which is sure to last, in preference to one or two single stems of real plants, which may only last a week or so, and cost as much as, or more than, a plastic one." Again the dealer has to make a living, and he will not stock items for which there is no demand. Certainly I would use convincing plastic plants if I were unable to get real ones to grow, or if, in a specific tank, the fish would not permit the plants to grow. However, they are only a substitute for the real thing and offer very few

continued on following page



## AID FOR SOCIETY SECRETARIES

by M. J. Parry, Secretary of Harlech Aquarists' Society

ONE OF THE greatest problems experienced by a society secretary is the planning of an attractive programme, and with some societies which meet more frequently than once per month, the difficulty is all the more difficult to overcome. Local speakers, more often than not, provide the answer, but there is obviously a limit to the amount of time that they can devote to the activities of societies, and it is therefore necessary for us to resort to film and slide shows, which are obtainable from several sources. Judging by letters, and various other appeals that appear in *The Aquarist* from time to time, the source from which such programme aids are obtainable would not appear to be widely known, and it is to be hoped that mention of them here might provide some assistance in this respect.

Dealing with film shows, the Government-sponsored Central Film Library offer several 16mm films for hire, although it is firstly necessary for the pairing society to register with the library. Registration is free, and applications should be made to any of the three Central Film Library offices in Great Britain: Government Buildings, Bromyard Avenue, Acton, London, W.3, 16-17 Woodside Terrace, Charing Cross, Glasgow, C.3, or 42 Park Place, Cardiff. Films of apparent major interest to aquatic societies are: "Malayan Seashore," "The Story of the Trout," "Coral

Wonderland," "The Salmon's Struggle for Survival," and "Full Fathom Five," the last being a record of underwater exploration 200 ft. beneath the Mediterranean, filmed by Captain Jacques Cousteau and his team of divers. Details of hiring charges, conditions of hire, length of programme, etc., together with approximately 800 other films covering all subjects are contained within a special catalogue issued by the library, price 6s., post free.

Other sources of films are the Rank Film Library, 1 Aintree Road, Perivale, Greenford, Middlesex, who have, amongst others, "River of Life," "You Can't Catch Much from a Fish," "Beneath the Seven Seas," and "In the Swim." The latter film is one from the "Look at Life" series regularly featured in cinema programmes, detailing the origins of tropical fish, how they get here, and the many places where tropical fish are displayed, both as a hobby and as an ornament.

Surprisingly enough, the British Rail Film Library contains one film of interest to aquatic societies entitled "Between the Tides," depicting marine life around the British coast. The film is in colour, lasts for 22 minutes, and may be borrowed for only a small handling charge. Application should be made to the Chief Officer (Films), British Rail Board, Melbury House, Melbury Terrace, London, N.W.1.

Turning to slide lectures, by far the main hirer of such programmes is the Horsforth Aquarium Society. All lectures come complete with a taped commentary, hiring charges being 23s., including postage. Subjects covered include "The British Aquarists' Festival," "The Story of the Killifish," "Chester Zoo Aquarium," "National Open Shows" and "The London Zoo Aquarium."

Further details and hiring applications are obtainable from Mr. R. E. Hampson, "The Headlands," Scotland Lane, Horsforth, Leeds, Yorks. It should be mentioned that the Horsforth society also hire out taped lectures by Mr. W. L. Whitern, F.Z.S., of Canada, at a cost of 11s. 6d. including postage, and 8mm films at a cost of 34s. 6d. including postage.

Coldwater enthusiasts will be pleased to learn that their speciality is also catered for in the form of a slide lecture entitled "The Construction and Stocking of Ornamental Garden Pools," which is obtainable, together with a typed script to be read as a running commentary, at a hiring cost of 15s. from Messrs. Highlands Water Gardens, Rickmansworth, Herts.

Other sources of supply are Mr. A. Robbins, 29 Cootehall Road, Crawfordsburn, Helen's Bay, Northern Ireland; Messrs. Brentwood Aquatics, 274 Warley Hill, Brentwood, Essex; The British Killifish Association, 217 Morland Road, Croydon, Surrey, and the Hendon Aquarists' Society, 10 Birchen Close, Kingsbury, London, N.W.9.

One of the services provided by the Federation of British Aquatic Societies for its constituent societies is the publication of a list of lecturers prepared to address societies on a wide range of subjects. Affiliation forms for membership of the F.B.A.S. are obtainable from Mr. R. A. Dove, 5 Farm Close, Crowthorne, Berks. Similarly, the International Marine Study Society have available a number of speakers, applications to be made to Mr. T. R. Hall, 49 Broadhurst Gardens, London, N.W.6.

It is fully realised that the information that I have provided on programme aids is by no means complete. Any additional information will be most gratefully received.

---

## WHAT IS YOUR OPINION? continued

of the benefits of real, growing plants. Perhaps the marine aquarium, where it is exceedingly difficult to get marine algae to grow, would be a suitable place for plastic plants although, again, I have not seen any plastic marine plants, and I'm sure that some of the marine purists would rather rely on

rocks, gravel and coral, to decorate their tanks.

Some subjects on which we would like your opinion: (1) What are the attractions of marine aquaria over freshwater ones? (2) Is there a place for brightly coloured gravel in the aquarium? (3) What breeding pro-

gramme do you follow to grow good quality guppies? (4) Do you have any recipes for home-produced dried foods? We should also like to have any further opinions on any questions posed in previous articles; or to have any questions which are suitable for posing in this feature in future editions.



# THE AQUARIST & PONDKEEPER FISHKEEPING EXHIBITION

10th to 13th  
July 1969

THIS YEAR *The Aquarist and Pondkeeper* will be holding a Fishkeeping Exhibition in London and we are proud to be associated with the Federation of British Aquatic Societies in presenting it.

This Exhibition will be held at Alexandra Palace, London, N.22—a famous and fitting location for an event of this importance—on the four days of 10th to 13th July, 1969. Sponsored and organised by this magazine in co-operation with the F.B.A.S. it is being planned to offer the utmost in displays and information, ranging over the interests of beginner, hobbyist, and professional alike.

The recruitment of new strength for the hobby will be aimed at,

primarily through special furnished aquaria classes. The schools furnished aquaria section will stimulate the junior interest and together with its effect on parents, should serve to swell the ranks of aquaria enthusiasts. Displays of furnished aquaria and the many trade exhibits will promote general interest and steer new members towards joining the Societies represented at the Exhibition.

For the established aquarist, there will be competitive classes for furnished aquaria covering individual and society entries and classes for pairs and plants. Beyond the competitions there will be a wide range of attractions for the more experienced aquarist amongst the top-level displays and exhibits.

Full particulars of classes and all details are given in the Show Schedule available from:

Mr. S. Mooney, Show Secretary,  
44 Coniston Road,  
Muswell Hill,  
London, N.10.

Bookings for trade space are now being accepted and details may be obtained from:

The Show Organiser,  
*The Aquarist and Pondkeeper*,  
The Butts, Half Acre,  
Brentford, Middlesex,  
Telephone: 01-560 6221.

Book the dates—10th to 13th July, and be sure to see and take part in *The Aquarist and Pondkeeper* Fishkeeping Exhibition.

---

## BOOK REVIEW

### The SeAquarium system

by G. F. Cox, C.Ed.;  
Price 5s.

IN THE author's own words, this book . . . "is an attempt to state what I consider to be the minimum acceptable standards for the life support system for a marine organism." This he succeeds in doing in a relatively small space—some sixteen pages—but in so doing he leaves very little ground uncovered, such is his ability to offer facts without frills. Foods, pH, filtration (mechanical and biochemical) systems are soundly dealt with and the fundamental causes of

and cures for diseases are covered sufficiently well to set the tiro on the right course. Ozonizers, protein skimmers, real versus synthetic sea water—these subjects are also given a good airing.

Very clearly laid out and written in a most readable fashion, this book can be recommended to all those aquarists who are hovering on the brink of marine-keeping and wondering what it all entails.

---

## FIND THE FISH

by Doreen Thiel

The first is in FAST but not in SLOW  
The second is in RAIN but not in SNOW  
The third is in ORANGE and also in PEAR  
The fourth is in OXYGEN but not in AIR  
The fifth is in MOON but not in SUN  
The sixth is in OUNCE and also in TON  
The seventh is in SQUARE and also in ROUND  
The eighth is in LOST but not in FOUND  
The last is in ELIZABETH and PHILIP

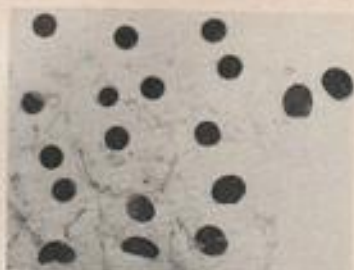
Answer page 734





## THE DEVELOPMENT OF THE COMMON FROG

by Sagittaria



1



2



3



4

ONE OF THE first indications that spring has really emerged from the murk of winter is when small boys equip-themselves with jam-jars and set forth towards the nearest pond in the fond hope of finding frog-spawn or tadpoles. Throughout adult years I have found it necessary to consult the calendar when planning a frogging expedition but boys appear to possess a built-in device which unerringly awakens their interest at the right time.

In order to secure adult frogs one has to be on the spot within fairly close limits as the span of four or five days can see the whole





5



6



8



9



7



10

operation of congregating, pairing, spawning and dispersal completed and huge, tapioca like masses of spawn alone will bear silent testimony to the recent get-together of hundreds of local frogs. The approximate date for this is during the second week of March and although weather conditions will not deter the frogs from congregating, severe icing-up will sometimes mar the love-in with tragic results and dead couples will be found still in a fond embrace after the subsequent thaw reveals their presence.

The newly-laid spawn fills the shallows in what appears to be one united mass but closer investigation will reveal that many tight clumps are contributing to the whole and one

such mass can be separated from its neighbours and lifted clear with a strong net. It is preferable to secure spawn as soon as possible after it has been laid because with the passage of hours it submerges and the gelatinous masses expand by taking up water. Although they again rise to the surface, the masses are so greatly extended that they are extremely difficult to handle and it usually becomes necessary to net far more than is required.

The complete metamorphosis from spawn to perfect froglet covers a

1. Spawn greatly magnified showing developing nuclei.
2. Tadpoles just emerged from egg capsules.
3. Young tadpoles a few days after hatching out.
4. Frog tadpole five weeks after leaving spawn.
5. Tadpole showing rear legs appearing at sixth week.
6. Underside of tadpole showing mouth and hind legs (seven weeks).
7. Hind legs fully developed (nine weeks).
8. Tadpole with all four legs at eleven weeks.
9. Diminishing tail at twelfth week.
10. Completely developed frog at thirteenth week.



period of only fourteen weeks and can be most easily observed taking place within the confines of a small aquarium of say, 12 in. x 10 in. x 10 in. This should be fairly well planted and given a flooring of gravel.

After the newly hatched tadpoles have consumed their jelloid capsules, they will turn their attention to algae but will soon require something more nutritious and portions of garden worms, pieces of meat (raw or cooked) should then be given them. It is best to introduce two or three portions of foodstuff so that more than

one "sitting" is catered for at a time with the greater likelihood of all getting a fair share. Further helpings should only be given when the previous helpings have been consumed.

When all four legs have made their appearance, the tail will begin to diminish in length and at any time the young froglet will attempt to leave the water and seek a terrestrial existence. It is at this stage that most losses occur where artificial conditions of rearing are concerned for if the tiny frogs aren't able to climb out of the water they very quickly drown.

The best way to prevent this occurring is to obtain a second vessel (it need not be an aquarium) which should be partially filled with water and well strewn with stones, floating pieces of wood, etc. If those specimens with four well developed legs are transferred from the main aquarium to the second vessel as soon as they are seen to be at this stage, they will quickly lose their tails and leave the water for the safety of the stones and floating wood and they can be removed daily, and subsequently liberated in the Garden.

## FISH FOOD REVIEW

IN THE JANUARY issue I reviewed several fish foods distributed by T. F. H. Publications (London) Ltd. Since then I have obtained several other foods distributed by this firm. The first is the flake food, "Split," which is made in Western Germany. It is sold by volume and comes in five sizes, ranging from 1/20th litre tins costing 1s. 11d., to 4 litre tins costing 85s. This food consists of 46 per cent protein and 4 per cent fat, and is reasonably priced. The food was greedily eaten by my fish, and would be especially suitable for larger fish as a fairly large proportion of the flakes are quite large. For smaller fish, the flakes can be easily squashed with the fingers. The name "Split" is not, perhaps, the most appropriate for a fish food, having in mind, in connection with fishkeeping, the association with split fins; however, the food is a good one, despite its name.

The other two foods, distributed by the same firm, which I am reviewing are: "Miracle Freeze Dried Fairy Shrimp," and "Miracle Freeze Dried Daphnia." The daphnia is in the form of small cubes or blocks of about 1/4 in. square, and these crumble easily to a fine powder. The cost is 4s. for a 3 gram plastic pack, making it the most expensive freeze dried food to date; however, when one considers the number of individual daphnia which go to make up 3 grams, it must be considerable. This food is 50 per cent protein and 3.5 per cent

fat, and can be fed to fish 2-3 times daily. Being so easily crushed into a fine powder, it is a useful food, especially for young fish, and those with small mouths.

"Fairy Shrimp" is not yet on the market as I write this review (in January) but should be available a month from now. The food comes in a plastic container containing 15 grams, but I do not know its retail price yet. No doubt it will be advertised in *The Aquarist* by the time this is being read. In contrast to the daphnia, the shrimps are loose, and appear as whole, smallish shrimps, about 1/4 in. in length. Individual shrimps can easily be seen, including their two black eyes, etc. An interesting experiment is to let some of the shrimps soak in water for a few hours, as suggested by T.F.H., when they will absorb water and expand to be easily recognisable as shrimps. Being relatively large, unlike the daphnia, these fairy shrimps would appear to be an excellent food for the larger fish which like a good mouthful, although smaller pieces were soon eaten by some of my smaller fish. Being quite firmly packed in their container, I found the food easier to use if half of the 15 gram pack was put into another empty, airtight container. By doing this, it was easier to shake out the amount of food required. This food is completely different from the "Miracle Freeze Dried Brine Shrimp" in which the food came in solid lumps of much smaller shrimps. The "Fairy Shrimp" I would recommend for larger fish, and the "Brine Shrimp" for any fish, especially smaller ones, or those with small mouths. B.W.

## Extra Tanks for the Coldwater Fishkeeper

by G. W. Wright

AS A REGULAR reader of this publication for many years, I have often noticed when reading articles by fishkeepers, both coldwater and tropical, how space always seems to be a problem. This is especially so with the coldwater enthusiast whose stock has to be spaced out much more than that of his tropical counterpart.

For many years I have bred the shubunkin types, both London and Bristol, and at spawning time and when rearing the young fish, all available tank space is needed. I obtained from a builder's yard and from a tip, three galvanised hot water tanks of the square type which are now obsolete and superseded by the much more efficient copper cylinders. These galvanised iron tanks are 24 inches by 24 inches by 12 inches deep, just the right size and depth, in my job it was easy to arrange for these to be cut by oxy-acetylene cutting gear, I cut off the large flat side which had the cleaning plate attached, the tank was then cleaned of rusty sludge and floated over at about 1/4 in. thickness with a mixture of sand and cement, 3 and 1 mixture. With the need to operate on a tight budget, I have finished up with three excellent, virtually everlasting, tanks capable of containing many of my young fish, and not too heavy to move if necessary. The total cost was about 30 shillings, ten shillings each, this was for the sand and cement of which I have enough left for another.



## The Cichlids will get you if you don't watch out by Matt Moor

"CAN I HAVE SOME tropical fish Dad?" my eldest asked one morning at breakfast. "Surely Michael, with a St. Bernard, a cat and three sickly sticklebacks in your Mother's plastic biscuit box, you've enough pets about the house. And once the craze wears off I shall be left with the job of feeding them. The answer is no!"

So on the following Saturday I bought a small tank, a heater, a thermostat, some gravel, a few plants, two Guppies, two Mollies, two Neons, two Platys and a Catfish. We set it up immediately on a south facing window sill to give the inmates plenty of healthy sunshine, got the temperature about right, and, not knowing anything about the toxic effects of chlorine, dropped in the fish.

It was a lovely hot summer. When the temperature went up to over ninety I adjusted the thermostat, forgetting it only switched off the heater, not the sunshine. The walls of the tank rapidly turned dark green. Mind you, we didn't overfeed. We had carefully studied the only literature we had on fishkeeping, the instructions on the fish food container.

After a week or so we got a bit fed up with not being able to see our pets through the murky green gloom and decided to clean the tank. We transferred the fish, all alive and healthy, into a saucepan of water at approximately the same temperature and washed out the gravel and scraped the glass. This time we took the precaution of buying a slim paperback on home aquariums. We were horrified to discover how ignorant we were.

Moved to a more sheltered spot in the living room with a lid and a light on it, the tank stayed clean. I found I was spending as much time watching the fish as my son. So was Mum. So were all the younger children.

Naturally we added a few more fish.

Visiting Uncle also took an interest. Every Saturday he would turn up with another pair of fish of one kind or another, and after about a month the tank was holding as many as the book said was advisable. So I lashed out on an undergravel filter and an air pump. We fed the fish twice a day and all prospered, Guppies, Neons, Mollies, Platys, Angels, Barbs and old Uncle Tom Catfish and all.

Then Uncle bought a pair of fish not listed in our paperback. "American Flags" he announced proudly as into the tank they went. Despite their superior size they behaved like perfect gentlemen. Or so it appeared.

A few days later we noticed that the Angels and Guppies were looking a bit ragged around the fins. Very soon the tank began to look like an underwater Skid Row. No fish were dying; but all, except for the barbs and flags, were looking decidedly down at heel. Yet, watch as closely as we might, we never saw a single instance of fin nipping.

"Dad," said Michael with a mouthful of cornflakes, "have you noticed how it's always first thing in the morning that another bit of fin has disappeared?" So I crept downstairs in the middle of the night and shone a torch into the tank. All was revealed. Whilst most of the inmates were trying to get a peaceful forty winks, the Flags were creeping slowly around taking a nifty nibble at every fin they came across. You live and learn!

"This won't do!" I announced next morning. "If we're going to keep fish, we'd better do it properly. Get me a copy of the Exchange & Mart." The following week-end we picked up a bargain lot of six tanks including two four footers, a piston

pump, some heaters and thermostats, and a couple of filters. The original tank was turned over to the Flags who were given another pair for company. A large bow fronted tank was set up for the remainder, complete with Gro-lux lighting. The other tanks were cleaned, rendered leak-proof, planted and made ready for any new unsociable fish that took our fancy.

All went well for a week or so as more fish including several kinds of Gouramis and a Red Tail Shark, were added to the community tank, which by now was seriously rivalling the tele as the focus of family viewing.

"Michael, has young Marty been putting chalk in the fish tank?" "I don't think so Dad, why?" "Well some of the fish seem to be covered with it." Indeed they were. Two of the Guppies in particular were collapsing under the weight of it and lying about on the gravel with their fins curled up. Our female Sword-tail, peppered in white specks, was entertaining the others with a Hula-hula dance at mid-depth. The audience however looked thoroughly miserable.

"Dad," announced Michael next day, brandishing a thick library book, "I think we've got white spot." He was right as usual. We'd got it bad. Fortunately the library book offered a cure as well as a diagnosis and seven days later all the spots had gone. Out of thirty seven fish we lost only two. But it was an anxious seven days.

"Dad," said Michael over a mouthful of marmalade, "they've two huge fish down at the shop. Come and have a look." So I did. "Now those are what I call fish, Dad. Pretty little Guppies and Platys are all right for Mum's decorations, but I like fish that look like fish." I realised then that so did I. So we bought them:



# QUO VADIS ?

by R. C. Mills

IN A RECENT ISSUE of the *Aquarist*\* the point was raised whether or not all the fun had been taken out of fishkeeping due to the continuing improvement in aquatic products. In short, is it becoming all too easy? Perhaps it would be interesting to consider some of the points in question, and what improvements have been made in the various departments of fishkeeping.

I think that the most improved items of equipment in recent years have been the filtration and aeration machinery. I can remember that when I first started keeping fish, it was an ambition of mine to have one of those air pumps with the pistons in visible working order. These were considered very superior to the small vibrator pumps which buzzed if worked flat out, and also had an annoying habit of walking off shelves. There was the other chore of replacing diaphragms periodically. I was fortunate enough a couple of years ago to get a piston pump, and it was my pride and joy; but regular oiling was required otherwise the pump would "knock" a little. To avoid oil entering the tank an oil trap had to be improvised, but of course the regular lubrication was often overlooked and

now I've returned to vibrator pumps again (admittedly at twice the price I would have wanted to pay earlier) for an easier life!

Again, in the early days of my experience, another landmark or milestone to aim for was an outside filter with a large turnover of water. This was achieved by an airstone in the airlift pipe, and was a much admired commodity. At that time motorised power filters were sheer luxuries, not many being found in the average aquarist's tanks. Nowadays there are many variants of the power filter on the market at reasonable prices, and the actual filters using airlift principles are most sophisticated in design and operation due, no doubt, to progress in the design and production of plastics and, of course, to the ingenuity of manufacturers in meeting the requirements of the aquarists. As for syphoning off the mulm from the compost, it used to be a stout tube, a hopeful suck and a well placed bucket! Today we have aquatic vacuum cleaners, both air and battery operated.

Nylon floss has replaced glass fibre for filtration purposes, and all kinds of extra media are available for treating water chemically and producing "nature's own". I must say that the glass wool always made my hands itch, and I suppose that there was a chance of tiny slivers of it getting into the tank and affecting the fishes' gills.

Tank decoration has not been forgotten either in the progress race, although most of these products depend upon the personal taste of the beholder for their effect. Some of the

backgrounds available made from natural materials are very realistic, as are the colourful plastic plants which surely will find a home in the marine tank. Although, looking around, it occurs to me that tropical fish could have more playthings in their tanks than budgerigars usually have in their cages!

Whilst we are on tank decorations, what of the tanks themselves? What progress! From goldfish bowls and battery-jars up to all-plastic pre-formed tanks, tanks with built in electric, and as for tanks with no putty either, well, what are things coming to? Nylon or plastic coated tanks, so that every whim can be indulged (freshwater this week, marine the next); but seriously, an excellent deterrent to tank top rust. The latest idea I've seen is do-it-yourself kits with wood tank surround, a good plan to blend in with the furniture and avoid the pet shop look of tanks on angle iron frames.

Lighting, too, has benefitted, although perhaps not to the same extent as in other aspects; after all, it's either daylight or electric, and of the latter, a choice of bulbs or tubes. What has been given more thought is the quality of the light as needed for plant propagation, although there are on the market coloured lights to suit the most exotic schemes and, no doubt, to accompany the multi-hued compost also available.

Heating and heat control although of a fundamental nature in themselves are now of more sophisticated design, the most revolutionary change being many years ago with the advent of electricity and the disappearance of

---

## The Cichlids will get you if you don't watch out—continued

two magnificent, fully grown Blue Acaras, a mated pair. Three weeks later we had over a hundred healthy babies swimming around contentedly with their parents in one of the four footers. The inside of the tank, once carefully landscaped and beautifully planted, now looked like a derelict bomb sight. But we did not care. We were well and truly hooked on the big Cichlids.

Now we have Oscars and Portis and Firemouths and Jewels, and Dempseys and Keyholes and many others.

We've learned the hard way. We've come through white spot and fungus and fights to near death between some of the wilder species. And, only twelve months or so after we bought that original tank, we can talk quite authoritatively on the care and breeding of the real tropicals.

We also have a few hundred Guppies and Tetra and Barbs and Scats and what have you, and a total gallonage in excess of three hundred, all indoors. We've even learned the trick of keeping our Cichlid breeding

tanks up to the respectable decorative standard insisted upon by Mum; and the secret of placing some of the delinquent species in carefully arranged communities where their behaviour is impeccable.

"Why not open our aquarium to the general public on Sundays at half a dollar a time, Dad? Bet we'd make a bomb!" said Michael this morning over Quaker Oats. He'll go places, that lad. He's got a clever head on his shoulders. Especially at breakfast time.



gas and oil lamps playing on slate based tanks. Of the modern day equipment, the most obvious advance is the combined heater and thermostat; personally, I have had no experience of these as yet, nor of the under-gravel heaters. In this department everything seems to be moving towards as foolproof a system as possible.

Meanwhile, what of the prime reason for all this technical improvement, the inmates of the aquarium? Due to modern transportation techniques and better understanding of the problems involved, a far larger percentage of the livestock survive the differing conditions and enormous journeys imposed on them before they reach us than would have been thought possible a few years ago. This means, of course, that aquarists have a larger choice than ever and also that, more important to all of us, the prices might fall! More fish are being discovered continually and new varieties are presented regularly by the patient and skilled aquatic geneticists; this is another instance where the personal likes and dislikes come into play. For myself, if I never see another albino variant of something or other it will be too soon; but it all adds to the knowledge of selecting and fixing strains, so who am I to complain?

I suppose, looking over what I've said so far, there is one omission I must rectify, and that is the advance made in foods for the fish. From the humble packets of ants "eggs" (staple diet at one time!), up through the pulverised biscuit meals, to the nutritious flakes and the freeze-dried commodities of today. I must say, some of those frozen adult brine shrimps smell good enough to eat on bread and butter, more than I can say for the jar of tubifex under the kitchen tap! This means, of course, that the fish can be fed with all the necessary foods without any chance of disease being introduced into the tank with live foods. Most people still give live food if and when they can but it is possible, with the range available, to feed exclusively dried foods and be sure of success.

Even the younger fish are catered for; no more cutting up potato peel, bruising lettuce leaves, cut flowers' water and pinches of yeast. There are pills to produce the once hoped for infusoria, liquid and dried fry food,

brine-shrimp eggs and apparatus for hatching them. I wonder if the fish get a better balanced diet than we do, or what they would choose if they had a say in things?

The black side of the hobby now looks a lighter shade of grey, thanks to advances in antibiotic and chemical fields. It is probably true to say that there is a cure available, in either pill or liquid form, to combat any, or every, malady which may occur in the fish tank. No more raising the temperature or water changing to cure White Spot; tablets to promote plant growth; to stop algae; chemicals to soften/harden water—and test kits to see if you've succeeded!

The coldwater enthusiast will be aware that his interests have not been neglected in favour of the more popular (?) tropicals and marines. Even my unqualified eye has noticed changes in that sphere. Surely many more people will have installed ponds in their gardens now that preformed pools, cascades and plastic sheeting have become standard items.

At least if you feel like packing it in all you need do is empty the pond, fold up the sheeting and fill in the hole. No empty concrete box let into the lawn left looking at you; I must hasten to add the hope that this ultimate step is never taken!

The varieties of coldwater fish, whilst much of a closed book to me, seem to have increased from what I've seen at Shows, and the recent introduction of Japanese Koi carp may increase interest in this side of the hobby.

The underwater vegetation, whilst not capable in itself of improvement, has certainly widened its horizon in as much as variety and choice are concerned. I can remember seeing trays of "water weed" for sale outside pet shops when I was first interested in fishkeeping. These were usually clumps of native *elodea* and willow moss with a strip of lead attached, gently drying in the open air; and these were supposed to enhance the beauty of the aquascape! Nowadays, there are excellent sources of plants to peruse, with the plants growing *in situ* so that it's your own fault if you pick out a wrong 'un. What variety too, miniature lilies, banana plants (how long do they take to ripen?), ivy leaf cryptocorynes, willow leaf *hygrophila* and even the *cabomba* these days seems to be a hardier strain.

On the marine side too, the beautiful living corals and sea anemones all add to the attraction of the aquarium.

Now, in the face of all this evidence of improvement in aquatic products, what conclusions can we come to? With all this wealth of equipment, foods and scientific backing up, us aquarists can hardly go wrong; or can we? I think the main reason for thinking that things could go wrong is that some people might feel that with all these aids it is a ready made hobby and all they need do is to look at it. There is a danger of cluttering up the tank with everything and hoping that a well directed pill or a dash of "Cure All" will clear up any trouble that occurs. However, if that is the attitude of novice aquarists, then "they deserves all they gets."

Present day techniques are certainly labour-saving and one can always do things the hard way if thought more noble; maybe a lot of fun has gone out of the hobby in the pioneering sense, but there is fun and fun (I remember I thought belonging to a scooter club was fun, until it poured with rain in the middle of nowhere miles from home). Surely there is still a lot of pioneering to be done and enjoyment to be had; after all, new species are being introduced quite often and has anyone anywhere bred all the others? There are people who keep fish purely for decorative purposes and aren't aware that they can be bred anyway!

Again, with all these aids, it is possible to reproduce the exact conditions that the fish require for their well being. A couple of examples: the neon tetra has been bred in some numbers in aquarists' tanks, and marines would not be enjoying the following they have today were it not for the development of synthetic sea salts. Not everyone is within easy reach of the briny, and even if they were then there would be local pollution or else the tide would be out (especially if it was me with my bucket!).

There is no need to feel discouraged and think that because things are easier now we ought not to enjoy what successes we have from time to time. Let's face it, most of us try things only when we're reasonably sure of success anyway. Fishkeeping to me seems to be one of those hobbies where the more you find out about it, the more you want to know and it can be a vicious spiral sometimes. There



gas and oil lamps playing on slate based tanks. Of the modern day equipment, the most obvious advance is the combined heater and thermostat; personally, I have had no experience of these as yet, nor of the under-gravel heaters. In this department everything seems to be moving towards as foolproof a system as possible.

Meanwhile, what of the prime reason for all this technical improvement, the inmates of the aquarium? Due to modern transportation techniques and better understanding of the problems involved, a far larger percentage of the livestock survive the differing conditions and enormous journeys imposed on them before they reach us than would have been thought possible a few years ago. This means, of course, that aquarists have a larger choice than ever and also that, more important to all of us, the prices might fall! More fish are being discovered continually and new varieties are presented regularly by the patient and skilled aquatic geneticists; this is another instance where the personal likes and dislikes come into play. For myself, if I never see another albino variant of something or other it will be too soon; but it all adds to the knowledge of selecting and fixing strains, so who am I to complain?

I suppose, looking over what I've said so far, there is one omission I must rectify, and that is the advance made in foods for the fish. From the humble packets of ants "eggs" (staple diet at one time!), up through the pulverised biscuit meals, to the nutritious flakes and the freeze-dried commodities of today. I must say, some of those frozen adult brine shrimps smell good enough to eat on bread and butter, more than I can say for the jar of tubifex under the kitchen tap! This means, of course, that the fish can be fed with all the necessary foods without any chance of disease being introduced into the tank with live foods. Most people still give live food if and when they can but it is possible, with the range available, to feed exclusively dried foods and be sure of success.

Even the younger fish are catered for; no more cutting up potato peel, bruising lettuce leaves, cut flowers' water and pinches of yeast. There are pills to produce the once hoped for infusoria, liquid and dried fry food,

brine-shrimp eggs and apparatus for hatching them. I wonder if the fish get a better balanced diet than we do, or what they would choose if they had a say in things?

The black side of the hobby now looks a lighter shade of grey, thanks to advances in antibiotic and chemical fields. It is probably true to say that there is a cure available, in either pill or liquid form, to combat any, or every, malady which may occur in the fish tank. No more raising the temperature or water changing to cure White Spot; tablets to promote plant growth; to stop algae; chemicals to soften/harden water—and test kits to see if you've succeeded!

The coldwater enthusiast will be aware that his interests have not been neglected in favour of the more popular (?) tropicals and marines. Even my unqualified eye has noticed changes in that sphere. Surely many more people will have installed ponds in their gardens now that preformed pools, cascades and plastic sheeting have become standard items.

At least if you feel like packing it in all you need do is empty the pond, fold up the sheeting and fill in the hole. No empty concrete box let into the lawn left looking at you; I must hasten to add the hope that this ultimate step is never taken!

The varieties of coldwater fish, whilst much of a closed book to me, seem to have increased from what I've seen at Shows, and the recent introduction of Japanese Koi carp may increase interest in this side of the hobby.

The underwater vegetation, whilst not capable in itself of improvement, has certainly widened its horizon in as much as variety and choice are concerned. I can remember seeing trays of "water weed" for sale outside pet shops when I was first interested in fishkeeping. These were usually clumps of native *elodea* and willow moss with a strip of lead attached, gently drying in the open air; and these were supposed to enhance the beauty of the aquascape! Nowadays, there are excellent sources of plants to peruse, with the plants growing *in situ* so that it's your own fault if you pick out a wrong 'un. What variety too, miniature lilies, banana plants (how long do they take to ripen?), ivy leaf cryptocorynes, willow leaf *hygrophila* and even the *cabomba* these days seems to be a hardier strain.

On the marine side too, the beautiful living corals and sea anemones all add to the attraction of the aquarium.

Now, in the face of all this evidence of improvement in aquatic products, what conclusions can we come to? With all this wealth of equipment, foods and scientific backing up, us aquarists can hardly go wrong; or can we? I think the main reason for thinking that things could go wrong is that some people might feel that with all these aids it is a ready made hobby and all they need do is to look at it. There is a danger of cluttering up the tank with everything and hoping that a well directed pill or a dash of "Cure All" will clear up any trouble that occurs. However, if that is the attitude of novice aquarists, then "they deserves all they gets."

Present day techniques are certainly labour-saving and one can always do things the hard way if thought more noble; maybe a lot of fun has gone out of the hobby in the pioneering sense, but there is fun and fun (I remember I thought belonging to a scooter club was fun, until it poured with rain in the middle of nowhere miles from home). Surely there is still a lot of pioneering to be done and enjoyment to be had; after all, new species are being introduced quite often and has anyone anywhere bred all the others? There are people who keep fish purely for decorative purposes and aren't aware that they can be bred anyway!

Again, with all these aids, it is possible to reproduce the exact conditions that the fish require for their well being. A couple of examples: the neon tetra has been bred in some numbers in aquarists' tanks, and marines would not be enjoying the following they have today were it not for the development of synthetic sea salts. Not everyone is within easy reach of the briny, and even if they were then there would be local pollution or else the tide would be out (especially if it was me with my bucket!).

There is no need to feel discouraged and think that because things are easier now we ought not to enjoy what successes we have from time to time. Let's face it, most of us try things only when we're reasonably sure of success anyway. Fishkeeping to me seems to be one of those hobbies where the more you find out about it, the more you want to know and it can be a vicious spiral sometimes. There



## QUO VADIS?

continued

is usually something new you can try, or would try if only—well you know the feeling and no matter what you attempt there is always a challenge of some sort awaiting.

What of the future then? It is hard to visualise what advances will be made, but one or two things are fairly sure bets; the marine side of things will continue to flourish, and perhaps the more expensive species of freshwater fish may fall in price, so that more people can try their hand with these delicate beauties. One reason for the latter, of course, may not necessarily be due to technical advances at all, but to that large body of aquarists who persevere to keep and breed the difficult species. So what it really boils down to is that we can all help to help ourselves by maintaining the quality and interest in the hobby despite having it so easy! We must not forget, either, that new people are taking up the hobby everyday; it would be sad if they abandoned it because of a few initial setbacks so let's not begrudge them any aids (new fangled or otherwise) to help them in their new interest even if it was harder in the "good old days".

In the really distant future, perhaps, we shall have fully automated aquariums. These will be plumbed into the water and electricity mains, the fish fed automatically, water partially changed in the same way and lights switched on and off at preselected times. Also a mechanical netting arrangement which gives a subsonic signal to attract the fish of your choice, electronic eyes to "see" the clarity of the water and turn on the appropriate filter; dials to give temperature, DH and pH readings, ultra-violet lamps and ozonisers to purify everything and, finally, a whole host of alarm bells to ring out when the dreaded White Spots appear!

As the title says, "Whither goest thou?"

\*T. G. Wall. Tropical Fishkeeping: Has it a future? (*The Aquarist*, May 1968).

## OUR READERS WRITE



### Tank Lighting and Algae

I read with interest Stanley Fox's article on Lighting, brown algae and plants dying off. (January issue.)

If higher intensity lighting were advocated then surely the duration should have been shorter.

I have found that a low intensity light is fine for tanks up to 12 in. or possibly 15 in. in depth but anything above that, e.g. 18 in. or 24 in. deep, either the lighting is increased or certain plants are excluded from the tank. In many cases I have found that some plants do not mix with others whether under artificial light or natural light.

I have some 18 in. and 24 in. deep tanks and have found that with 3 x 40 watt or even 3 x 60 watt pearl bulbs used for about 8 hrs per day the large, thick plants grow extremely well. I have not used fluorescent tubes and therefore will not comment on their effects. Amazon Swords, Giant Hygrophyla, Wistaria, Malayan Sword and the large Cryptocorynes all grow very well, but Vallis., Sagittaria, Cabomba and Ludwigia stood no chance in the same tank. Incidentally when using artificial lighting I always place pieces of glass between the hood and the tank which prevents condensation reaching the bulbs and electrical fittings.

In my greenhouse, with no tank lighting, I have found that, still with 18 in. and 24 in. deep tanks, Vallis., Sag., Cabomba and the like grow profusely and have to be thinned regularly. Introduce Giant Hygrophyla, Wistaria or the large Cryptos into these tanks and they just 'give up the ghost'. The only large plant

which seems to grow well with these Vallis. types under these conditions is the Amazon Sword, possibly because of its large root system? Pygmy Chain Sword does well with these plants particularly Ambulia but prefers 12 in. or 15 in. deep tanks.

With regards to algae growth I have come across four distinct types. Two occur under both artificial and natural light and two under natural light only. The two which occur under both conditions and are probably the most often found amongst hobbyists are very tough and will take hold on almost any old-established tank if care is not taken. One of these occurs on the glass and rocks (if any) and will grow on the plants as well if not cleared quickly. This type takes the form of a long, tough, dark green hair-like growth which stems from a small green 'root' and is difficult to eradicate without completely stripping the tank. The 'root' may be removed from the glass fairly easily with a razor blade but rocks and gravel must be boiled and sterilised to ensure the removal and death of this plant. I have found that York Stone is an excellent breeding ground for the stuff.

The second of these types seems to occur on the glass only and again may be removed with a razor blade. There are no 'hairs' on this type but when viewed from a distance the tank water looks green even though if viewed from above the water is clear. I am inclined to believe that this latter type is an early stage of the former but have noticed that if the growth is allowed to progress to the 'hairy' stage the glass becomes clear again except where the 'roots' occur.

The 'brown algae' which hobbyists talk about is, I think, the early stage which has died due to a decrease in the light source or the introduction of an algae killing agent such as Potassium Permanganate. This can be extremely dangerous especially if the water was green as well and may result in the loss of the complete tank of fish. I have found that normally, however, if the water is



green there is none of this type of algae visible.

Under strong natural light the most common form to occur is the green 'slime' which forms on the glass and plants during the summer months. This is easily removed with a net or the fingers, peeling away in large masses. The best preventive I have found is Water Lettuce floating on the surface. Indian Fern or Riccia soon get covered with the 'slime' but Water Lettuce stayed clean.

The fourth type is the most uncommon I have encountered and is something similar to the first described with the following differences. The hair-like growth is lighter in colour, thinner and very brittle. It occurs in bunches and when touched it breaks apart making removal very difficult. It has no visible roots and I have found it necessary to strip the tank to clear it properly. I have only encountered this type when using a sand and gravel mixture for the plants and when in a soft water area.

One interesting point I have noticed is that I have never had more than one type of algae occur in the same tank at the same time and the last type described in a tank over 12 in. deep.

I should be most interested to hear from other aquarists who have found other types of algae in their tanks and under what conditions.

Yours faithfully,  
NOEL GRAY.

The Editor regrets the omission of the names of the authors responsible for the article on Ivy Leaf *Cryptocoryne* in our issue of October 1968. They were Mr. V. Breeze and Mr. J. Kail.

#### Swordtail Hybrids

A few months ago I crossed a male red swordtail with a green female swordtail, the young fry are a mixture of both red and green, three have red bodies and green heads and fins, five are green with red fins and tails. A friend who saw them said they were sword varieties, but so far I have been unable to find out anything about these fish.

I would be very grateful if you or your readers could give me any information about these fish.

C. CLARK,  
28 Wildwood Lane,  
Stevenage, Herts.

#### A Discus Society?

I beg to write and express my thanks to the authors of the two part article in the "Aquarist" on Discus to say how much I enjoyed reading it.

I myself, in a very small way am a lover of Discus and have two small brown Discus.

The most important thing that struck me about the authors article is his comment on the lack of informative literature about these fish and as there appears to be more and more aquarists beginning to keep what I think is a beautiful if demanding fish, I have no hesitation in endorsing most wholeheartedly his cry for Discus Keepers to band together and form their own Society devoted to this species and by so doing, perhaps we who do not know as much as some, can learn more and at the same time do something to foster the interest in a truly fascinating fish.

I do not know very much about this species but since purchasing my two, fish-keeping has for me taken on a fascination I have never before realised.

I should be pleased to be put into contact with the author and I hope, as he does, that his article will bring together many aquarists who wish to learn all they can about the Discus.

E. B. TATTERSALL.

ED. So many letters in this vein have been received, and all asking for Mr. R. M. Winters' address, that we print it hereunder for other readers' reference. 24, New Town Road, Northampton, NNNI 5 LB.

#### Success with *Pelmatochromis guentheri*

I was wondering if you would be interested in hearing that I have successfully bred a pair of *Pelmatochromis guentheri*. The young are now over a week old and are about  $\frac{1}{2}$  in. long; there are about thirty of them.

They are eating very well; in fact I have two brine shrimp hatching going all the time for them.

They look a very fine colour for fishes this size.

The reason for my writing is because in Herbert R. Axelrod's book, African Cichlids he states, the original breeding stock brought to Europe and America by the author has been lost and no successful breeding has taken place.

Hoping this may be of some interest to other breeders.

K. WINSLADE.

#### Daphnia Fish

Many thanks for your answer to my enquiry about the worm infestation of some of my fish I was experiencing.

I would like to relate an experience I had during my fishkeeping out here.

The sources of supply for my daphnia are rather dubious, and the need to examine and weed out any pests before feeding to the fish is a must.

During examining one bag of daphnia I notices some eggs floating on the surface; these I promptly removed with an eye dropper and placed in the small glass tank I used for incubating Cichlid eggs, and placed an air-stone in.

After twelve hours I was sure the eggs were fertile and could hope for a hatch, of what I didn't know!

Within 36 hours I was rewarded with two small fry, knowing that I hadn't acquired, as I first thought,



the eggs of some water insect, I was full of determination to raise the fry until at least I could find out what they were.

When the fry were free swimming at four days I fed with infusoria and a couple of days later brine shrimp was readily taken and growth seemed to be very rapid.

After the fry were about two weeks they appeared to be just like anabantid fry, and when they started the familiar darting to the surface I was certain that they were, but of what type I couldn't as yet determine.

The fry continued well and soon passed the critical period of labyrinth development. After this period one of the fry seemed to stop growing and was soon dwarfed by the other and eight weeks later during one exceptionally hot day, the smaller one died.

Left now with one still unidentified anabantid, I was more determined to reach my goal.

When the "daphnia fish" as I had now called it, reached two inches in length I felt confident and put it in my community tank and watched closely in the following days, but it settled down, well hidden most of the time, but becoming master of the tank at feeding time, ensuring that no other fish got a look in with the tubifex until it had had its fill.

A few months passed and after many fruitless searches the "daphnia fish" was still unnamed, and now nearly five inches long, and very drab in colours, mostly dirty green and brown, and with a very pugnacious look.

It was at this time that I noticed my shoal of small neons and glow-lights were beginning to vanish without trace. Needless to say, after a couple of days of observation the culprit was caught in the act and the "daphnia fish" was soon extracted and banished to a tank with two large Oscars, which wasn't taken too well. The next morning I looked in the tank to find the daphnia fish gone. I looked around but no fish in sight, and the Oscars hungry! I eventually found it lying in the far corner of the room quite a distance away. I said to myself that it must have walked! That seemed to be the key I needed to identify the fish. I acquired a book containing information about the climbing perch (as a long shot!) and on seeing a picture of the climbing perch (*Anabas testudineus*) the problem was solved—there was my daphnia fish!

A friend of mine acquired one a while ago from one of the local fish shops and it proved itself by crossing

well-wetted concrete with no effort at all.

Hoping that you find this of some interest.

K. COLLINGWOOD,  
Singapore

#### Sex change for the better

I thought you might be interested to hear of my "Prizefish". As a very new keeper of tropicals I started off with the usual pair of Guppies. However, when I got these fish home I found also in the bag was a baby Guppy only a few days old. This fish grew to about one and a half inches and by this time it was obviously a female; we were rather disappointed to find she failed to get pregnant. Then to our great interest she began to show signs of colour, now a year has passed it has turned into a lovely male with a huge black tail with a green and red body.

Although an amateur in fishkeeping I am quite well-read on the subject and know that with most livebearers sex changes are quite common, in Guppies it is very rare, we are on the lookout for a virgin female to mate him with, hoping that his most unusual colouring can be continued. Perhaps there are some records of the percentage of Guppies that are like mine; if so, I would be very interested.

R. DE SILVA (Mrs.).

## Trader fights Council ban on scorpion fish

*Extract from Beckenham Journal, Kent*  
A BECKENHAM trader whose livelihood has been threatened through a decision by Bromley Council to ban the sale of scorpion fish heard this week that the matter is to be reconsidered by the Health and Welfare Committee later this month.

Mr. J. Attenborough, who with his sister, Miss H. Attenborough, runs Kingfisheries Aquarium, in Croydon Road, Beckenham, told the *Journal* that following protests, he had been informed that the Council are suspending the issue of licences under

the Pet Trade Act until the matter has been clarified.

Up to now, the licences have covered the sale of scorpion fish—which come from the coral seas—but the ban was imposed because the Council's health officials considered the painful sting the fish can give could be dangerous to children and elderly people.

Mr. Attenborough, who claims the ban is not only an interference with individual rights, but that it was made through misinterpretation of the Act, had already sought a personal hearing at the committee before he heard about the temporary reprieve.

#### Specialised

"Keeping tropical marine fish is a highly specialised business. They have to be kept in synthetic sea water and it takes at least a month to get them up to sale condition," he said. He stressed that buyers of these fish,

which cost between £5 and £6, were informed clearly about the danger.

"We are selective in whom we sell these fish to, in view of the special facilities required to keep them," Mr. Attenborough declared.

Mr. Attenborough has been keeping fish for some 20 years, and has been in business with his sister for the past 12. He said the ban put him in an unfair position so far as competitors were concerned.

He was not prepared to give up the sale of scorpion fish. "My view is that the Council interpreted the Act to cover what should be sold as opposed to how they should be kept."

Answer to  
Find the Fish  
Firemouth



# OUR EXPERTS' ANSWERS TO YOUR QUERIES

## TROPICAL QUERIES

**I have recently acquired a pair of prettily marked fish called *Rivulus mileyi*. What conditions suit this species best and how does it breed?**

Although *R. mileyi* is a peaceful species it is a fish that flourishes best on its own. A tank about 16 in. long will suffice for a pair. Matured tapwater and a temperature in the neighbourhood of 75°F (24°C) is suitable. The fish breeds quite freely and the fry are easy to grow on because they will take tiny live and dried food without any trouble from the start. The eggs of *R. mileyi* are deposited in tangles of plant life and may take up to three weeks and more to hatch out. If the parent fish are well fed they will take little or no interest in the eggs or newly-hatched fry.

**What is the most satisfactory way of acidifying water naturally: with peat placed in an external filter, or with peat placed under the planting medium?**

The least troublesome way, though it may take a week or more before any change in the pH value is noted, is to fill the filter with moist sedge peat. A layer of nylon wool on top of the peat will keep it free from sludge. And do not forget to renew the peat every now and again.

**Is it true that some cichlids are called earth-eaters (*Geophagus* spp.) because they feed on mud?**

The earth-eaters are so-called because they have the habit, shared by several unrelated species, of sifting mud for crustaceans, molluscs, and the like, which they include in their natural diet. But they will not waste much time doing this if other food is more readily available.

**In an aquarium magazine I read about cured driftwood being used to add charm to a decorative fish tank. What is cured driftwood?**

Cured driftwood is driftwood rendered non-toxic to fishes by scrubbing and repeated soaking in clean water. But if you intend to introduce driftwood into your aquarium make certain that the wood is of a suitable kind and not rotting away.

**A newspaper report has it that a tropical sunfish bit a stout stick in two. What sort of sunfish is this that has a bite equal to that of a piranha?**

We imagine the newspaper report referred to the marine sunfish (*Mola mola*), that is sometimes carried to Britain on the Gulf Stream. This fish may attain a length of some 8 ft. and has strong teeth set in muscular jaws.

**Is there a cryptocoryne in cultivation that I could use to carpet the foreground of a large tropical aquarium? I should like a plant growing to about 2 in. high.**

We believe you would find the dwarf form of *C. nevilli* ideally suited to your needs. This tiny species from Ceylon is obtainable from the specialist growers.

**The rear half of one of my opaline gouramis has become blue-black. Please can you give me the reason for this change of coloration? The fish is swimming and taking food quite normally.**

The males of the opaline and ordinary blue gourami darken to an inky blue when they are in breeding condition, and especially when they are in the presence of a roe-filled female. We do not think you have anything to worry about.

**What can you tell me about a fish called the black-nosed dace?**

The black-nosed dace is a small and

lively cyprinid from the eastern states of the U.S.A. It is known to science as *Rhinichthys astronotus*. It is peaceful and has a temperature tolerance of some thirty degrees (°F). That is to say from the low sixties to the upper eighties, but the best temperature for normal maintenance is about 72°F (22°C). It feeds on any small live food or dried food.

**I should appreciate some information on the care and general maintenance of *Alestes longipinnis*.**

This species demands plenty of swimming space in soft, acid water. Live food or a suitable substitute is called for. Also, a temperature of about 75°F (24°C), and the company of its own kind or peaceful, non-boisterous fishes.

**I should be interested to know something about the care of the arowana in the tropical aquarium.**

First and foremost, the arowana will attain about 18 in. in length and therefore demands a large aquarium kept well-aerated. Young (small) specimens will feed on water fleas, gnat larvae, tubifex, and the like, but well-grown fish should have livebearer fry, earthworms, and strips of raw meat or uncooked white fish. A temperature in the neighbourhood of 75°F (24°C) is about right. Perhaps it should not be necessary to mention that the arowana is not a fish for the community tank.

**I have bought a 36 in. by 15 in. by 12 in. tank to fit into a dark alcove in my sitting room. Would two 40 watt clear glass lamps in a hood-type reflector provide sufficient illumination for the plants and fishes?**

No, you will need two 60 watt lamps or three 40 watt lamps kept switched on for at least eight hours a day. Better still, buy a 3 ft. fluorescent fitting to take a 40 watt warm white tube.



## OUR EXPERTS' ANSWERS TO YOUR QUERIES

continued

I have a *Monstera delicosa* houseplant growing well in a pot of peaty soil placed on top of my tropical aquarium. Would it harm the fish if I allowed the aerial roots of this plant to grow down into the water in order to create a sort of mangrove swamp effect?

The short answer is no. But we must warn you that after some months the water and dissolved nitrates taken up by the roots will result in a plant of phenomenal size.

I have just purchased a small terrapin which my dealer told me belongs to the genus *Kinosternon*. Will this little terrapin do all right in my tropical aquarium?

Species of the genus *Kinosternon* are popularly called mud turtles. In general they do not grow more than about 4 in. in length and will flourish in a tropical aquarium. They like to move about on the bottom and do not need an island. A small specimen will not do any harm to lively fishes, but a well-grown one might possibly snap at and devour small fishes. But see that you have plenty of some inexpensive fast-growing plant such as *Elodea densa* or warmwater grown hornwort (*Ceratophyllum*) in the tank to provide shelter for the fishes and a retiring place for the terrapin.

What sort of treatment is necessary to keep a pipe fish in good health?

In general pipe fish like some sea-salt added to their aquarium water in the proportion of about one teaspoonful to every gallon. A temperature of about 75°F (24°C) is called for, and live food such as large brine shrimps, *Daphnia*, gnat larvae, newly-born livebearers, and the like. Pipe fishes are not suited to the community tank.

## COLDWATER QUERIES

by A. Boarder

Can I keep some goldfish in a carboy?

This is possible providing that it is thoroughly cleaned out as it may have held chemicals. Do not fill the carboy but let the water level reach the largest diameter of the container. If you fill it there is not likely to be enough surface area of water for fishes to keep healthy therein.

Could you please inform me what thickness of glass to use for a tank, 6 ft. by 15 in. by 15 in.?

The recommended thickness for glass to glaze a tank the size proposed is half inch toughened plate. The ends could be quarter plate as they will not have to take such a strain as the sides and base. As the tank is large the weight of water it contains will be considerable and it may be as well to have an extra strengthening piece of angle iron across the top in the centre of the tank and base. You must also make sure that the position where the tank will stand is sufficiently firm as the water will weigh over 600 lb. in it when filled.

I have a small pond of about 14 in. depth. Do you know of any way to keep fish alive through a hard winter, other than using under-water heating?

The pond is very shallow and as I often advise such a pond is always much harder to maintain in good order than a larger one. If you do not wish to use a small heater there is little you can do. Usually there is a small amount of water at the bottom of a pond which does not entirely freeze up when the surface freezes over. One idea you can try is to make a stout wooden box about a foot square. This is weighted and

sunk in the pond, perhaps on bricks so that about six inches protrudes above the surface of the water. Make a strong lid and place the box in the water when severe frost is expected. The water inside the box will take longer to freeze than that outside and so this enables the water to rise in the box a little and keeps one part of the pond open allowing bad gasses to escape and fresh oxygen to enter.

Is there any record of the Bowfin being kept in an aquarium? Can you let me have any information about this fish and do you know if it is readily available in this country?

The Bowfin (*Amia calva*) is found in the Great Lakes of North America and is also to be found in sluggish waters from Minnesota to Texas. It is known by several names according to the locality; among them being: Dogfish, Mudfish, Marshfish, Lawyer and Grindle. These local names are very confusing and should be ignored as Americans are very fond of such names but the same name is so often given to different fishes in varying parts of the country. The Sun Bass in various parts is known by at least a dozen names but the same name is given to different species and so it only causes confusion. The fish in question is not often kept in tanks outside public aquariums, as it not only grows to about 24 in., in length, but it is carnivorous and even cannibalistic. It is shaped something like a pike and when small is quite attractive and can be kept in a tank by itself. It has not been bred in captivity as far as I know. It is a quick grower and a yearling can be 10 inches long. It feeds on fishes, frogs, crustaceans and worms, etc. I do not know if any dealers in this country stock it but you could make enquiries at any of the leading dealers in case one is available.





## from AQUARISTS' SOCIETIES

Monthly reports from Secretaries of aquarists' societies for inclusion on this page should reach the Editor by the 5th of the month preceding the month of publication.

THE Manchester section of the **Fancy Guppy Association** held their annual general meeting recently. F. Campbell was elected Secretary, replacing R. Beeston who through domestic and business pressure had been forced to resign. However, he nevertheless accepted the position of Assistant Secretary to help Mr. Campbell in an advisory capacity, should his services be required. Also, to show the section's appreciation for the hard work and the manner in which he had served the association as a whole, he was presented with an electric clock for services rendered. J. Grindley and J. Hesketh were elected Show and Assistant Show Secretary and the auditors were elected for the ensuing year.

After being presented with a healthy balance sheet, the business was soon concluded and it was the committee's intention to follow this with a film show. Unfortunately, due to the postal dispute, the films though posted several days beforehand had not arrived and so J. Kelly stood in as usual with a discussion on aquatic research which proved quite interesting. The monthly table show was held and over a hundred guppies were on show from which P. Duffy took best in show with a beautiful Red Delta and won for himself a gold medal. The section meetings are held on the first Sunday in the month in the Drill Hall, 3 Stretford Road, Manchester. The entrance is in Upper Cambridge Street, where there are excellent parking facilities. Anyone interested in breeding and showing guppies will always be welcome at these meetings.

THE officers elected at the annual general meeting of the **Priory A.S.**, Tynemouth, were as follows: Chairman, S. Potts; Vice-Chairman, L. Hunter; Treasurer, J. Wilson; Secretary, D. Johnson; Assistant Treasurer and Secretary, M. Atkinson. At the meeting some of the club's rules were altered, and a new pointing system was agreed on for jar shows. The club will welcome any new members to their meetings held fortnightly from Monday, the 17th February, in the Percy Arms, Front Street, Tynemouth. Anyone interested in joining should contact D. Johnson, 41 Beresford Road, Tynemouth, Northumberland.

THE **Alfreton and District A.S.** entertained **Hucknall and Bulwell A.S.** for an Inter-Society show, at their new headquarters, when over 60 members and visitors were present. There was a very good turnout, and 100 fish were on view. The judge for the evening was Mr. Bower of Worksop A.S. and the results were as follows—Livebearers: 1, Mr. Power (Hucknall); 2, Mr. Hartington (Hucknall); 3, J. Wright (Alfreton). Barbs: 1, J. Wright (Alfreton); 2, Mr. and Mrs. Lindley (Alfreton); 3, B. Hickling (Alfreton). Characins: 1, Mr. and Mrs. Lindley (Alfreton); 2 and 3, S. Hill

(Alfreton). Minnows and Danios: 1, B. Hickling (Alfreton); 2, J. Wright (Alfreton); 3, M. Allsop (Alfreton). Rasbora: 1, J. Wright (Alfreton); 2, S. Hill (Alfreton); 3, J. Wright (Alfreton). Cichlids: 1, Mr. Pugh (Alfreton); 2, A. J. Garrat (Hucknall); 3, M. Allsop (Alfreton). Anabantids: 1, A. J. Garrat (Hucknall); 2, S. Dooley (Alfreton); 3, M. Pugh (Alfreton). Catfish: 1, A. Reid (Hucknall); 2, S. Hill (Alfreton); 3, D. Lemons (Alfreton). Pairs (Livebearers): 1 and 2, D. Lemons (Alfreton); 3, Mr. McGinty (Alfreton). Breeders (Highly bred): 1, Mr. and Mrs. Lindley (Alfreton); 2, D. Wragg (Alfreton); 3, J. Wright (Alfreton).

THE January meeting of the **Bristol Tropical Fish Club** was both entertaining and informative. Former club member Mr. John Wheeler gave a talk on fish shows from the point of view of both exhibitor and judge. This provoked many questions from members eager to ensure that their fish will show to good advantage and left a clear picture of the difficulties connected with judging. Prospective members and club secretaries please note that the new address of Hon. Secretary, Mr. W. E. Holland, is 47 Woodland Road, Nailsea, Bristol BS19 1HX.

MEMBERS of **Swillington A.S.** held a social evening recently to which members of **Halton and Selby Aquarist Societies** were invited. The entertainment was a darts quiz based on the recent T.V. quiz game, the winners being **Selby Aquarist Society**.

The fourth annual dinner and dance was attended by forty members and friends. Entertainment at the second January meeting was a quiz provided by Mr. and Mrs. Rinks and Mr. and Mrs. Flint.

Mr. P. D. Flint is now the Secretary of **Swillington A.S.** and all correspondence should be sent to him at 19 Carr Manor Drive, Leeds 17.

THE annual general meeting of the **Glossop A.S.** was held in January when the following officials were elected: Secretary, D. R. Chambers, 86 Old Road, Hyde, Cheshire; Treasurer, C. D. Macdonald, Hyde, Cheshire; R. Tomlinson. The Chairman, John Ingram, was unable to attend owing to business commitments, which have forced him to retire. R. Lee has now been elected Chairman. Further details about the Society and its calendar can be obtained from D. R. Chambers, 86 Old Road, Hyde, Cheshire.

THE annual general meeting of the **Worksop A. & Z.S.** was held in January when the following Officers were elected: Chairman, K. Rowles; Secretary, Mr. Booker, 20 Rufford Street, Manton, Worksop, Notts.; Treasurer, B. Waplington; Show Secretary, A. Mawson, 56 Waverley Place, Manton, Worksop, Notts.

A NEW Society has been formed or rather an old one reorganized. This Society will be known as the **Dukeries A.S.** and although its headquarters are in Worksop it is entirely independent from the W. A. & Z. Society.

Mr. J. Hutchinson, a well-known aquarist's dealer in Sheffield, has consented to become the

Society's first President. Mrs. H. Deenie, 89 Sparken Hill, Worksop, Notts., part of the husband and wife team who this year won "the Champion of Champions" award at the B.A.F. is the Secretary.

Although only formed in January the Society has already arranged for its first Open Show. This is being held on 4 May at the Winifred Poetland Technical Grammar School, a modern school on the Sparken Hill Campus. There is ample parking facilities in the College grounds also good refreshment facilities, and schedules will be ready shortly.

THE Chairman, K. Rigby, of the **Liverpool Section of the Fancy Guppy Association** reviewed a successful year. The standard at club shows has been good and a number of keen new members were recruited. It was decided, however, that this year would be a "Publicity and Recruitment Year." Members felt that many potential recruits were lost because the activities of the section were not widely known. Steps will be taken this year to remedy this by posters in retailers' shops and places where aquarists gather. A wide range of subjects for discussion, lectures, slide shows, etc., have been planned for this year, and anyone interested is welcome to come along to club meetings which are held at Norris Green Boys' Club, Townsend Avenue, Liverpool, on the third Sunday of each month. The meeting ended with a table show and a number of very good fish were benched. Best fish in Show was a Silver Star winning bottom sword owned by Messrs. E. & T. Jeremy.

THE Officers elected at the annual general meeting of the **Dewsbury and District A.S.** were: President, R. Ellis; Vice-President, J. Thompson; Hon. Secretary, C. Timewell; Show Secretary, J. Thompson; Social Secretary, G. Scholes; Librarian, S. Brown; Auditors, D. M. Crowther and I. C. Thorning; Liaison Officer, M. Pugh; A.V.A.S. Delegates, H. Hall and M. Woodcock; F.N.A.S. Delegates, A. Bradley and G. W. Cook.

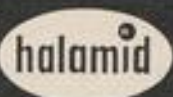
THE first meeting of the **New Year of the Basingstoke and District A.S.** saw the Society at its new headquarters at the White Hart, London Road. This meeting set a new attendance record, nearly fifty members and friends being present to hear a talk given by Mr. J. V. Morris of the **Hendon A.S.** on "Furnished Aquaria." The first half of his talk was devoted to the description of the fish house of a London veterinary surgeon and the second half to constructive criticism of furnished aquaria belonging to members of the **Hendon Society**. The talk was illustrated with colour slides and emphasis was placed on the siting of an aquarium in a room to give the maximum decorative effect. Members were given many useful tips during the course of the evening.

The table show subject was miniature furnished aquaria and also the new novice class was held for the first time. This will be a regular feature from now on to encourage the many members we have who are new to the hobby. Results were: **Furnished Aquaria**: 1, F. Lange; 2, D. Walls; 3, Master S. Box. **A.V. Fish**: 1, R. Ridley; 2, A. Blake; 3, Master S. Box. **Novice**: 1, Master A. Clark; 2, G. Elliot; 3, N. Sead.

Bad weather was the cause of a smaller attendance for the meeting on the 17th January but nevertheless thirty members braved the elements to hear a talk by the Society's Secretary on "Water and the Aquarist." After a short introduction to the chemistry of water, methods for the determination of pH and hardness were described and water sources and hardness discussed. During the evening pH hardness determinations were carried out on members' samples by two junior members, Peter and Martin Gough. Results of the table show for the evening were: **Livebearers**: 1, R. Ridley; 2, I. Lamb; 3, A. Blake. **A.V. Fish**: 1 and 3, A. Blake; 2, K. Winstade. **Novice**: 1, K. Winstade; 2, I. Lamb; 3, N. Sead.

Forthcoming events are: 14th March: "Toothcarn." Speaker, R. Armstrong. 26th March: Three Counties League Match—

BE SAFE  
BE SURE



Hillside Aquatics London N12



Reading. 28th March: Visit by Barnborough A.S. Inter-club competition. Six fish in each class. 11th April: "Movie Time," film on various fishy topics. 25th April: "Breeder's Log Results," Speaker, J. Mitchell. An attempt at spawning will be made.

RECENTLY the Alceburgh and District A.S. members had a lecture from C. Thompson, one of their own members. The subject was fish house electrics and was followed by a slide show of member's tanks entered in the home furnished aquaria. Forty-one members attended and the monthly table show results were: Rasboras, Danio and Minnows: Advanced: R. Lister; 2 and 3, Mr. and Mrs. I. Robinson. Novice: 1, 2 and 3, J. Kay; Junior: 1 and 2, A. Fletcher. Fish of the month: R. Lister.

THE elected officers at the annual general meeting of the Rotherham and District A.S. held recently, the following officers were elected: Chairman: J. Needham; Vice-Chairman: A. Ward; Treasurer: B. Harrison; Show Secretary: Master D. Ward; Secretary: Mrs. C. Raybould, 52 Dovercourt Road, Mashby, N. Rotherham. The meetings are fortnightly on Tuesday evenings at 7.30 p.m. at the Bridge Inn. A table show will be held monthly and members are assured of a warm welcome.

AT the January meeting of the Horsforth A.S. the members joined in a Quiz slide show, which was put on by the chairman Ray Hampson also a commentary by the Vice-Chairman, W. Audley on the best tanks in the Belle-Vue show last year. The quiz was won by A. Jebbings, A.O.V.: 1, Mrs. J. Dickinson, 2 and 3, D. Coen. J.A.O.V.: 1, 2 and 3, D. Shaw.

THE Ealing and District A.S. held its first closed show recently and it was well attended by the public. Messrs. H. Towell and D. Ellis judged over one hundred entries and gave Best Fish of the Show award to E. Tagg for his Grass Cutter Catfish. The results were as follows: Characins: 1, A. Ankin; 2, G. Burgin; 3, J. Irvine. Barbs: 1, J. Healey; 2, 3 and 4, R. Savage. Livebearers: 1, C. Ankin; 2, D. Church; 3, R. Sellers; 4, J. Irvine. Guppies: 1, D. Church; 2, C. Ankin. Cichlids: 1 and 2, E. Tagg; 3, A. Ankin; 4, P. Dodd. Labyrinths: 1, P. Heat; 2, R. Barratt; 3, J. Burbridge; 4, J. Healey. Rasboras: 1, R. Savage; 2, R. Sellers. Catfish and Loach: 1, E. Tagg; 2, C. Rainbow; 3, E. Tagg; 4, D. Church. Killifish: 1, R. Sellers. A.O.S.: 1, E. Tagg; 2, R. Sellers; 3, J. Burbridge. Pairs: 1, A. Ankin; 2, R. Mills; 3, R. Sellers. Furnished Aquaria: 1, Mrs. Burbridge; 2, L. Sandfield; 3, D. Church.

THE results of the furnished aquaria competition of the New Forest A.S. held at members' homes during January and judged by C. Knapp were as follows: Coldwater: 1, A. Williamson; 2, L. Menhennet; 3, D. Harding; 4, D. Letts. Tropical: 1, A. Williamson; 2, J. Jeffrey; 3, D. Haze; 4, D. Harding.

The speaker for the evening was Mr. Jeffrey who gave a talk and demonstration on "Water and Water Conditions". Members heard various methods of obtaining the best water conditions for their fish and also learned how to test for pH and hardness of the water. This was followed by a discussion of the requirements and tolerance of our favourite fish for different water conditions. The table show results were as follows: A.V. Danio: 1 and 3, A. Williamson; 2 and 4, R. Moseley. Labyrinths: 1, A. Williamson; 2 and 3, K. Newton; 4, R. Travers. Special: D. Harding.

THE following officers were elected at the annual general meeting of the Stretford and District A.S. President, W. Hornby; Chairman, R. Wilde; Vice-Chairman, T. Roocroft; Secretary, R. D. Hunt, 8, George Street,



# 1969

## BRITISH AQUARISTS' FESTIVAL

18th and 19th October  
at Belle Vue, Manchester

Urmston, Manchester; Treasurer: A. Bebbington; Show Secretary: J. Jackson, 30 Darnford Avenue, Urmston, Manchester. Asst. Show Secretary: A. Stear; Club Members: E. Whittaker, G. Cannon. Show Committee Members: A. Wilkie, T. Roocroft, B. Hilton. New members are welcome on every second Thursday at 8.15 p.m., A.E.I. Club, Moss Road, Stretford.

CHANGES in the officers of the Walthamstow and District A.S. which were made at the annual general meeting were as follows: Chairman: D. Goodbody; Vice-Chairman: H. Evans; Treasurer: D. Goldsworthy; Secretary: A. Chandler; Show Secretary: B. Mather; Committee Members: W. Patrick and R. Taylor.

The Committee is at present preparing a programme for the current year to include table shows and lectures covering all aspects of the hobby both coldwater and tropical.

The Society meets at 8 p.m. on the 1st Friday and the 3rd Wednesday of each month at Wivens Avenue School, E.17 (near Lloyds Park).

THE following officials were elected at the Blackwater A.S. annual general meeting. Chairman: E. N. Gee; Vice-Chairman: G. F. Yallop; Treasurer: B. Mills; Secretary: R. Warren; Committee members: M. Cable, C. A. Denall, D. R. Bird, P. Clayton, M. Polley.

In the table show, which was A. V. Livebearer, the results were as follows: 1 and 2, R. Warren; 3, Mr. and Mrs. Gee. The overall winner of the table shows held throughout the year, was G. F. Yallop who was presented with the trophy by Mr. Gee.

MEMBERS and friends of the Warrington A.S. were entertained at the January meeting by Mr. R. Tench, who organised a Party Night in the form of a Fish Drive and Fish Bingo the names of fish being used instead of numbers. A very enjoyable evening was had and a vote of thanks was accorded to R. Tench for his fine effort.

The Fish of the month competition results for Characins up to 2 in. are: 1 and 2, K. Reedy; 3, J. Alcock. Characins over 2 in.: 1, M. Baker; 2, J. Alcock; 3, R. Tench. A.O.V. Marine: A. Addison. Meetings are held every fourth Tuesday at the Midland Hotel. Interested persons made welcome. Further information and details from A. Addison, 5 Hewitt Street, Latchford, Warrington.

THE Keighley A.S. recently held its annual general meeting when the following officials were elected. President: Mr. Asquith; Vice-President: N. French; Secretary: A. B. White, 1 Moss Carr Road, Long Lee, Keighley, Yorkshire; Treasurer: H. M. Smith; Show Stewards: Messrs. Eddison; Webber and Bickle. Newsletter Editor: A. B. White;

Newsletter Sub-Editor: T. Cummins; Committee: Messrs. J. French, P. Dearnley and Crossley.

The secretary reported that a very full programme had been arranged for the year with lectures, inter-society competitions and slide shows. The treasurer reported that the society funds had been considerably strengthened last year.

The January Society meeting, when thirty-eight attended, included a slide show and quiz by Mr. Hampson of the Horsforth Society.

The meeting closed with the presentation of prize cards for Livebearers: 1, Mr. Lidde-more; 2, Master Bracewell; 3, Mr. Cummins; 4, Mr. Bickle. A.O.V.: 1 and 2, Mr. Dearnley; 3, Mr. Cummins; 4, Mr. Bickle. Novice A.O.V.: 1 and 3, Mr. Crossley; 2, Mr. Place. Junior A.O.V.: 1 and 3, Master Taylor; 2, Master White; 4, Master Bracewell.

THE first meeting of Castleford and District A.S. was a great success with forty local aquarists attending. After a short discussion on plans for the new society, members were given a slide-lecture on British open shows by R. E. Hampson of Horsforth. The first table-show results were: Barbs: 1, R. J. Hunt; 2, J. Goodall; 3, G. Thickbroom. A.V. Coldwater: 1, S. Horsley; 2, F. Gates; 3, A. Town. A.V. Tropical: 1, F. Gates; 2, J. Goodall; 3, A. Town.

THE results of a judging competition held by Ashton-under-Lyne and District A.S. was as follows: 1, J. V. Hill; 2, D. Trace; 3, B. Phillips. The new secretary is C. Britton, 28 South Street, Ashton-under-Lyne, Lancs.

INCLUDED in the recent meetings of the Hastings and Bexhill A.S. has been a film show which was hired from the Horsforth A.S. Two films were shown, the first of which was on tropical fish and various types of reptiles. The second film was directed by the famous American aquarist Iraz Walker and showed many different and unusual fish that can be kept in an aquarium.

The table show for the meeting was for livebearers (ex guppies): 1, T. McCormick; 2, J. Graham; 3, G. Chalcraft. A most interesting lecture has also been given to the Society by Mr. Barry Funnell who explained about the history of fishkeeping and how it started from the ancient Romans to the present

**THE SAFE CURE FOR WHITE SPOT IS**



**Hillside Aquatics London N12**



day. The table show for miniature aquaria was judged by R. Brook, 1, J. Watson; 2, G. Chalcraft; 3, A. Martin.

THE officials appointed at the annual general meeting of the **Loyne A.S.** were President: E. Smart; Vice-President (a new post this year): D. Jones. He was again voted to the position of Chairman, and R. Holmes, of 6 Kempton Road, Newlands, Lancaster, was re-elected as Secretary. The posts of Vice-Chairman and Treasurer were accepted by Messrs. D. Cumpsty and J. Sallis.

The Chairman reported upon a successful year, in which the Society had seen a substantial increase in active members, and the number of Junior members had increased dramatically. Members had been able to take part in a wide range of activities which included inter-club competitions, fortnightly table shows, and a wider variety of lectures than the Society had had in the past. Mr. James presented the prizes for the year which were as follows: Home Aquarium Competition: 1, T. Whalley; 2, D. Cumpsty; 3, A. Tennant. Table Show Competition: 1, Mr. and Mrs. Derek Standen; 2, D. Cumpsty; 3, R. Holmes. Fish of the Year Show: 1, 2, and 3, Mr. and Mrs. D. Standen. The Eric Smart Trophy: Ian Hodgkinson, Lancaster (presented by Mr. Smart to the recipient).

The Chairman thanked Mr. Smart, on behalf of the Society, for the generous donation of the new trophy, which is to be competed for by Junior Members during the whole year with points based on a range of activities. He also paid tribute to Mr. and Mrs. Standen upon their successes at open shows throughout the North of England in 1968, a year which was crowned by winning the Leeds Rose Bowl at the British Aquarists Federation Festival at Manchester.

THE new committee members of the **Kingston & District A.S.** are: Chairman: B. Pawley; Secretary: Mrs. H. I. Fairhurst, 37 Woodstock Avenue, Sutton, Surrey, telephone: 01-644 8063; Treasurer: Mrs. R. D. Greenhalf; Show Secretary: G. E. Greenhalf.

THE **Barnsley A.S.** annual general meeting was well attended. The new officials elected were: Chairman: B. Duncan; Secretary: Mrs. J. Howard; Treasurer: R. Abson; Show Secretary: K. Scothorn; Committee: Mrs. Kaia, Messrs. Buxton, Healey, Simpson, Cockburn, Twiddy. The results of table show for Barbs were: 1, B. Duncan; 2, A. Simpson; 3, R. Abson.

THREE new members joined the **Tonbridge and District A.S.** which had a very successful January meeting. The fish identification results were: 1, A. Peckham; 2, G. Regan; 3, R. Taylor; 4, G. Humphrey. Table show results: Pencil and Headstanders: 1, I. Mathieson; 2, R. Taylor; 3, T. Amos. Guppies: 1, R. Taylor; 2, Mrs. I. Hellingham; 3, I. Mathieson.

THE **Bournemouth Aquarist Club** held their annual general meeting recently. Amongst those present were members of the **Salisbury and District A.S.**, who had been invited to the meeting.

The Chairman, B. Coombes, spoke in his report of the Committees untiring and unselfish efforts throughout the past year, and thanked all members for their support.

**halomid** Proved  
for twelve Years  
Hillside Aquatics London N12

The Secretary, I. Andrews spoke of well-attended meetings: "It is a pleasure," he said, "to see the attendance figures creeping steadily upwards." The Club had also been represented at various F.B.A.S. meetings, and also A.S.A.S. meetings. The Treasurer, Mr. L. James, reported a successful year both socially and financially. Membership had increased by over 20 per cent, thus swelling the Club's financial resources.

After the Officers reports, the election of officers took place, with the following results: President: J. Scott-Morgan; Chairman: B. Coombes; Hon. Secretary: I. Andrews; Treasurer: L. James; Committee: R. Matley; J. V. Jeffery, H. Earl, Mr. Diggins, Miss P. Blackwood. During the interval, the Table Show of the Month was judged by Jack Jeffery, with the following results: Platys: 1 and 3, B. Poole; 2, R. Travers. A.V. (Lady members): 1 and 2, Mrs. MacFarlane. The second half of the meeting was given to Gerald Jennings, director of the L.M.S.S., who gave an interesting talk illustrated with coloured slides on keeping marine fishes.

THE annual general meeting of the **Witham and District A.S.** was held in January when the following officers were elected: President: D. Malton; Chairman: D. Willett; Vice-Chairman: A. Gail; Secretary: M. Claydon, 165 Barnard Road, Galleywood, Chelmsford, Essex; Treasurer: R. Nobbs; Committee: Misses M. Brown, D. Brown, Mr. Brown, M. Brett, M. Shelley. The meetings are held at the Albert, Witham, Essex, opposite the railway station, on the second Wednesday of each month. All new members can be assured of a warm welcome and those interested should contact the Secretary.

THE officers for the **Bradford & District A.S.** that were elected at the annual general meeting are: President: A. Firth; Vice-President: A. Taylor; Secretary: A. R. S. Carruthers; Treasurer: A. Daugherty; Social and Publicity Officer: K. Carrol.

#### CHANGES OF ADDRESS

**Barnsley A.S.:** Mrs. J. Howard, 67 Woolley Colliery, Darton, Barnsley (Secretary). K. Scothorn, 35 Osmond Drive, Wortborough.

SINCE the 20th January, the **Independent A.S.** headquarters has been Holloway Institute, Barnsbury Secondary School, Eden Grove, Holloway, London, N.7.

#### SECRETARY CHANGES

**Ashton-under-Lyne and District A.S.:** C. Britton, 28, South Street, Ashton-under-Lyne, Lancs.

**Leamington and District A.S.:** Mrs. C. Beard, 26 Westles Road, Leamington Spa.

**Rotherham and District A.S.:** Mrs. C. Raybould, 52 Dovercourt Road, Mansbro, Rotherham.

**Clapham A.S.:** P. Saunders, 142 Victoria Rise, London, S.W.4.

**Sheffield and District A.S.:** Mrs. J. Mitchell, 1 Nelson Road, Stannington nr. Sheffield.

**Keighley and District A.S.:** A. B. White, 1 Mess Carr Road, Long Lee, Keighley, Yorks.

**Dewsbury and District A.S.:** C. J. Timewell, Spring Place House, 118 Shillbank Lane, Mirfield, Yorks.

**Riverside A.S.:** F. G. Sanders, 19 Wilton Avenue, Chirwick, London, W.4. 01-748 3297.

**Swillington A.S.:** P. D. Flint, 19 Carr Manor Drive, Leeds, 17.

# THE AQUARIST & PONDKEEPER FISHKEEPING EXHIBITION

10th, 11th, 12th & 13th July 1969

at Alexandra Palace,  
Wood Green, London, N.22

Details given on Page 725



## NEW SOCIETIES

**THE Harrow A.S.** has recently been formed and persons wishing to join should contact the Secretary, Mrs. P. Young, 6 Grove Hill Road, Harrow. The meetings are held at the Institute Hall, 86 Uxbridge Road, Harrow Weald, on the second and fourth Tuesday in each month at 8 p.m.

A NEW tropical fish club has been formed in Cwmbran and would like to hear from anyone who can supply leaflets, pamphlets, slide shows or questionnaires which would be of aid to the Club. Anyone in the Cwmbran area wishing to join is invited to contact K. Giggill, 25 Brangwyn Avenue, Court Farm, Cwmbran, Mon.

## AQUARIST CALENDAR

**2nd March:** Association of Manchester and District Aquarist Societies. Open Show at the Sealy Centre, Werneth Park, Oldham, Lancs. Open to all societies. Schedules from Show Secretary, M. Jones, 9, Bedford Street, Chesham, Bury, Lancs.

**2nd March:** Keighley A.S. Second Open Show, Victoria Hall, Victoria Park, Bradford Road, Keighley. Schedules from Mr. A. Asquith, 46, Daleside Road, Riddlesden, Keighley, Yorks.

**2nd March:** Federation of Scottish Aquarium Societies' March Convention, The McLellan Galleries, Sauchiehall Street, Glasgow. Entries from 10 a.m. until 1 p.m. Host society, Scottish Aquarium Society.

**2nd March:** A.M.D.A.S. Open Show, Werneth Park, Oldham. Open to all societies. Show Secretary, M. Jones, 9, Bedford Street, Chesham, Bury, Lancs.

**9th March:** Huddersfield Tropical Fish Society. Open Show at the Devil Hall, St. Paul's Street, Huddersfield. Show schedules from E. Kaye, 38, Cliffe Road, Holmfirth, Huddersfield.

**30th March:** Stockbridge and District A.S. Second Open Show will be held in the Victory Club, Manchester Road, Stockbridge, Nr. Sheffield.

**30th March:** Valley A.S. Annual Open Show at Civic Hall, Ramabotom. Schedules are obtainable from G. Thomson, Secretary, 88, Summersat Lane, Holcombe Brook, Ramabotom, via Bury, Lancs.

**4th April:** Nelson A.S. Annual Open Show at Nelson Civic Hall 2 p.m. President B. Tate, Bingley 2963.

**12th April:** East Dulwich A.S. First Open Show at St. Barnabas Parish Hall, Dulwich Village, London, S.E.21. Schedules and entry forms are now available from D. Sutton, 231 Friern Road, London, S.E.22. Tel: 01-693 5397.

**19th April:** Reading and District A.S. Annual Open Show, Beock Barracks, Oxford Road, Reading. Full particulars from Show Secretary, B. Grant, 20, Dover Street, Reading, Berks.

**20th April:** Sheffield and District A.S. Open Show, Meebrook Vestry Hall, Sheffield. Show Secretary, B. White, 54 Flockton Road, Sheffield. Tel: Woodhouse 4412.

**20th April:** Gorton and Openshaw Fifth Annual Open Show, East Manchester Boys' Club, Meira Street, off Ashton Old Road, Nr. Openshaw, Manchester, 11. Further enquiries to Show Secretaries, Mr. and Mrs. G. Hodgkinson, 126 Gorton Road, Reddish, Stockport. An A.M.D.A.S. Show.

**20th April:** Thurrock Open Show at Gypsy Lane, Grays, Essex. Show Schedules now available from Show Secretary, D. H. M. Durrant, 22 Kingman Road, Stanford-le-Hope, Essex.

**26th-27th April:** Stockton-on-Tees A.S. Fourth Annual Show, St. Peter and Paul's School Hall, Durham Road (A177) near Mile House Hotel. Schedules may be obtained from T. Walls, 11 Wylam Road, Norton, Stockton-on-Tees.

**27th April:** York and District A.S. Open Show. Show Secretary, P. Carey, 29 Yearsley Grove, York.

**27th April:** Sunnybrow A.S. First Open Show in the Festival Hall, Peel Street, Denton, nr. Manchester.

**27th April:** Bury and District A.S. Annual Open Show at the Trinity School, Trinity Street, Bury.

**1st and 3rd May:** Southend, Leigh and District A.S. Open Show, Municipal College, Victoria Circus, Southend-on-Sea (close Southend (Victoria) Station). Full details from Show Secretary, R. Pastmore, 39, Grafton Road, Canvey Island, Essex.

**3rd May:** Trowbridge and District A. and P.K.S. Open Show, Trowbridge Nelson Haden Girls' School. Show Schedules can be obtained from C. Penny, 122 Trowbridge Road, Bradford-on-Avon, Wilts.

**4th May:** Leigh A.S.

**4th May:** Dukeriet A.S. First Open Show at the Winsford Portland Technical Grammar School, Sparken Hill, Workop. Schedules available shortly.

**4th May:** Derby Regent A.S. Open Show at the Railway Institute, Siddals Road, Derby.

**10th May:** Bridgend and District A.S. Second Annual Open Show, Y.M.C.A., Bridgend.

**11th May:** Workop A. and Z.S. Open Show at North Notts College of Further Education, Blyth Road, Workop.

**18th May:** Coventry Pool and Aquarium Society, Midland Aquarist League, Table Show, Foleshill Community Centre, Foleshill Road, Coventry.

**18th May:** Merryvillside A.S. Open Table Show at the Montrose Social Club.

**18th May:** Rainworth and District A.S. Open Show at the Showrooms of E. Taylor and Sons, West End Garage, West Gate, Southwell, Notts.

**18th May:** Hull A.S. Second Open Show at the Railway Institute, Anlaby Road, Hull. Details from P. M. Stephenson, 11 Beech Grove, Beverley Road, Hull.

**24th May:** Taunton and District A.S. First Open Show at Priory Secondary Modern School, Cranmer Road, Taunton. Schedules available from Show Secretary, D. J. Rumsey, 52, Parklands Road, Wellington, Somerset.

**25th May:** Warrington A.S. Open Show. Show Secretary, J. Higham, Telephone Warr. 36939. Further details to be announced later.

**31st May:** Harlech A.S. First Annual Open Show at Gwalfra Junior School, Colwill Road, Cardiff. Details from Mr. P. B. Garner, 71a Moorland Road, Cardiff.

**31st May:** Catford A.S. Open Show, Catford School, Stainton Road, Catford, London, S.E.60. Details from K. Owen, 196 Langley Way, West Wickham, Kent.

**31st May:** Kingston and District A.S. Annual Open Show at St. Luke's Social Centre, Elm Road, Kingston. Schedules from G. E. Greenhalgh, 39, Garth Close, Morden Surrey.

**1st June:** (Provisional Date) Nuneaton A.S. Second Annual Open Show. Particulars from Show Secretary, G. Cox, 36, Manor Court Road, Nuneaton.

**1st June:** Bournemouth A.C. Annual Open Show at Kinson Community Centre, Pelhams Park, Kinson, Bournemouth. Show schedules and entry forms available after 1st April from Show Secretary, J. V. Jeffery, 30, Braemar Avenue, Southbourne, Bournemouth, BH16 4JF.

**6th June:** Streteford and District A.S. Open Show, A.E.I. Club, Moss Road, Streteford.

**8th June:** Glossop A.S., The Adult Education Centre, Talbot Road, Glossop, Derbyshire. Schedules, etc. from, The Secretary, D. R. Chambers, 88 Old Road, Hyde, Cheshire.

**8th June:** Loughborough and District A.S. Second National Open Show, Town Hall, Market Square, Loughborough. Schedules will be available later from the Show Secretary, J. Purdy, 61 Poplar Road, Loughborough, or from the Secretary, Fred Hopewell, 61 Morley Street, Loughborough, Leicestershire.

**14th June:** Southampton and District A.S. Open Show at St. Denny's Church Hall, Southampton. Details from Show Secretary, C. McCann, 7, Waterhouse Way, Southampton, SO1 3PA.

**14th June:** Llanrwit Major A.S. Annual Open Show in the Llanrwit Major Town Hall.

**15th June:** Swillington A.S. Open Show.

**15th June:** Brighton and Southern A.S. Open Show (provisional date).

**21st June:** Bracknell A.S. Annual Open Show, at the Priestwood Community Centre, Priestwood Court Road, Bracknell. Show Secretary, Mr. Len Little, 126 Shepherds Lane, Bracknell.

**22nd June:** Alfreton and District A.S. Annual Open Show, at the new Adult Education Centre, Alfreton Hall. Details from Show Secretary, Mr. S. Hill, 35 South Street, Riddings, Derbyshire.

**22nd June:** Open Show Coventry Pool and Aquarium Society, at Foleshill Community Centre, Foleshill Road, Coventry. Schedules from C. J. Grant, 26 Cecily Road, Coventry.

**26th-28th June:** Bristol Tropical Fish Club. Open Show. Details from E. Newman (show secretary), 71, Somerdale Avenue, Knowle, Bristol 4.

**29th June:** Medway A.S. Further details to follow.

**6th July:** Leamington and District A.S. 4th Annual Open Show.

**6th July:** Lytham A.S. Annual Open Show, Lowther Pavilion, Lowther Gardens, Lytham, Lancs.

**6th July:** High Wycombe A.S. Open Show at Bovingdon Green Hall, Nr. Marlow, Bucks. Schedules available shortly from Show Secretary, Mrs. S. Thomas, Finsmore Wood Camp Lane End, Nr. High Wycombe, Bucks. Tel: Lane End 659.

**10th-13th July:** Aquarist and Pondkeeper Open Show, Alexandra Palace, London, N.22.

**12th July:** Basingstoke Open Show incorporating the Three Counties and Three Counties Section F.G.B.S. Shows, to be held at the Carnival Hall, Basingstoke. Details from Show Secretary, A. Blake, 50 Bounty Road, Basingstoke.

**12th July:** Newport A.S. Open Show at St. Johns Parish Hall, Victoria Avenue, Maidenlee, Newport, Mon. Full details available from I. G. Phillips, Show Secretary, 34, Brangwyn Crescent, Newport, Mon. NPT.7 QY.

**12th, 13th July:** Romford and Braconree A.S. Dagenham Town Show. Enquiries to Mr. P. P. P. Show Secretary, 3, Ashvale Drive, Cranham, Upminster, Essex. Tel: Upminster 28435. Schedules available shortly.

**20th July:** Gosport and District A.S. Third Annual Open Show.

**2nd August:** Strood and District A.S. Open Show, Archway School, Paganhill, Strood.

**2nd August:** Hull Show. Aquarist Open Show at East Park, Holderness Road, Hull. Details from P. M. Shepherdson, 11 Beech Grove, Beverley Road, Hull.

**9th-16th August:** Portsmouth A.S. Open Show, Portsmouth Community Centre, Twyford Avenue, Portsmouth. Open to the public from 11th August. Show schedules and information obtainable from Mr. J. Stillwell, Show Secretary, 34 Salcombe Avenue, Copnor, Portsmouth.

**24th August:** Oram A.S. Open Table Show, Recreation Hall, Refuge Street, Shaw, Oldham.

**6th, 7th September:** Mid-Herts A.S. Open Show. Show Secretary Charles S. A. Withers, 15, Charmouth Road, St. Albans, Herts.

**14th September:** Oldham and District A.S. Open Show, Werneth Park, Oldham.

**18th, 19th October:** British Aquarist's Festival, Belle Vue, Manchester.



**THE Hounslow and District A.S.** is now organizing its social and competitive events for this year. Enormous efforts are being made to ensure that the next Open Show is the best organised that the Club has ever run. The election of a show manager to ease the work of the Show Secretary is a move towards this objective.

Membership at the end of last year was approximately 80 and it is hoped to reach the century this year. Activities at the fortnightly meetings are being well arranged and very well attended. The Club Shows, even in these winter months, are being very well supported. Results of recent shows are:—Labyrinths: 1, D. Woodward; 2, H. Pratt; 3, B. Abbott-Charcous; 1, S. Moore; 2, E. Sheppard; 3, T. Sands. Cichlids: 1, S. Moore; 2, E. Sheppard; 3, R. Buckwell. A.O.V.: 1, C. Burns; 2, D. Woodward; 3, D. Grimby. Corydoras Catfish: 1, B. Crosby; 2, Mrs. R. Brewer; 3, S. Moore. A.O.V. Cats and Loach: 1, H. Shuttleworth; 2 and 3, Mrs. R. Brewer. Livebearers: 1, J. Hesley; 2, B. Love; 3, N. Dale.

AN attendance of sixty-seven was recorded at the January meeting of the **Harlech A.S.**, when the guest speaker was Mr. R. I. Millchamp, Fisheries Officer of the Lark River Authority. Dealing with the subject "Salmon and its life cycle" in an easily understandable manner, Mr. Millchamp displayed his considerable knowledge of the species, and provoked many questions during the discussion period that followed. In addition, the guest speaker brought along the 16mm. film entitled "Salmon River," produced by Anglia Television and its contribution to National Nature Week held in 1963.

The evening's table show for Barbs was judged by A. Deboton of the Barry A.S., results being as follows:—1, P. Garner; 2, R. Wilkie; 3, Master Martin Wilkie; 4, W. Gorwill. Meetings of the Society are held on the third Tuesday of each month at the Gabaia Junior School, Colwell Road, Cardiff, commencing at 7.30 p.m. Visitors and prospective new members are most welcome to attend.

THE January meeting of the **Newport A.S.** took the form of a Forum with panel members J. Burgess, B. Kelly and L. Bromham. I. G. Phillip acted as Chairman and question master. Questions and answers were of an exceptional standard and covered many aspects of the hobby. A question on the dangers of Cryptocoryne Haereticiana brought a request for a specimen to be shown at the next meeting so that it could be identified by those not familiar with it. The table show results judged by Colin Lewis were as follows:—Corydoras Catfish: 1 and 3, T. Wall; 2, L. Bromham. Guppies (male): 1, H. Walker; 2, Master S. Rees; 3, Master J. Walker. Guppies (female): 1, H. Walker; 2, Master J. Walker; 3, Master S. Rees.

The annual general meeting of the **Hereford and District A.S.** was held in January and although a comparatively small number of people attended it was a lively affair.

A table show in two classes was held, the result of the Livebearers was: 1 and 2, G. Agate; 3, A. Agate; 4, C. Townsend. The result of the decorated jar competition was: 1, Mrs. Lowther; 2, A. Agate. New officers for 1969 were elected, these being as follows: Chairman, C. Coombes; Secretary, T. Malins; Treasurer, G. Agate; Show Secretary, C. Townsend; Coldwater Representative, Mr. Moran; Junior Representative, Mr. Huband. Meetings will be held still on the second Tuesday in the month at St. Paul's Primary School, Hampton Dene Road, Hereford. New members always welcome.

THE annual dinner of the **Burton and District A.S.** was held recently when the trophies were presented for the previous year's competitions to the following winners: Points Cup: J. Hunt; Best Fish: J. Hunt; Best Tropical Fish: J. Hunt; Best Coldwater Fish: J. Hunt; Tropical Furnished Aquarium: G. Robinson; Coldwater Furnished Aquarium: T. Cotton; Junior Aquarist of the Year: G. Freeman.

The January meeting saw the largest attendance for many years, and underlines the progressive trend which is sweeping through the Society. The programme consisted of a slide show and tape lecture entitled "The American Scene." The results of the table show for Catfish and Loaches were as follows:—1, Armour plated catfish: B. Poinson; 2, Giant Kuhle Loach: J. Quinn; 3, Striped Catfish: J. Thompson; 4, Giant Kuhle Loach: B. Poinson.

Meetings are held on the second Thursday of each month at the Fox and Goose, Bridge Street, Burton-on-Trent.

A CHANGE of meeting place has been notified by **Shaftesbury A.S.** The new venue is Christy's School, Shaftesbury, Dorset, on the first Friday in the month at 7.45 p.m. The Society welcome enquiries and full details of membership can be obtained from Mr. Ken Forward, 7 Pill Meadow, Kingston Magna, Gillingham, Dorset.

THE **High Wycombe A.S.** held their annual general meeting recently when the following Officers were elected: Chairman, C. Clave; Vice-Chairman, R. Rayman; Hon. Treasurer, A. Wilkinson; Hon. Secretary, R. Thomas (Tinnamore Wood Camp, Lane End, Nr. High Wycombe, Bucks., telephone no. Lane End 659); Show Manager, C. Pike; Show Secretary, Mrs. S. Thomas (address and telephone no.—see Hon. Sec.); Publicity Officer, Mrs. A. Seed; Librarian, C. Beavis; Equipment Officer, R. Thomas and Committee Members, Mrs. V. Pike, R. Cox, B. Cooke. Meetings of the Club are held fortnightly on Thursdays at The Angel, Pauls Row, High Wycombe. Some very interesting talks, discussions, table shows, etc., have been arranged for 1969 in both the Goldfish and Tropical Fish diversities of the Society, and the Club is looking forward to a successful year. Any person interested in joining the Society will be assured of a warm welcome.

Because of difficulties experienced by exhibitors at the last Annual Open Show it has been decided that this year's show will not be held on The Rye. Instead preparations are well in hand to hold the show on Sunday, 6th July, at the Bevington Green Hall, Nr. Marlow, Bucks., when it is hoped to renew the acquaintances of all friends, old and new.

THE progress of the **Merseyside A.S.** over the past twelve months have been very gratifying. The membership has increased steadily throughout the year and attendance at meetings has been good. The annual show in May and the exhibition at the Liverpool Show were both successful and, since the entries for the shows grows steadily, the Society can look forward to more of the newer members competing with the "old hands" in the coming season. The Officials elected at the annual general meeting were: Chairman, F. Mulla; Vice-Chairman, W. Kelly; Secretary, R. Moorcroft, 24 Frankly Road, Liverpool, 4; Treasurer, F. Parker; Show Secretary, W. Smith, 1, Sunningdale Road, Liverpool, 15; News Editor, Mrs. V. Parker; Librarian, Mr. Derbyshire; Two extra Committee Members, B. Hall and Mr. McDermott.

THE January Table Show of the **Wellingborough and District A.S.** was for Corgs and Minnows. The show was judged by R. Jeffers, Vice-Chairman of the S.A.O.K.A.S. who complimented all entries on the fact that they had no damaged fins. The results were as follows: 1, Harlequin, Mrs. P. Flint; 2, White Cloud Mountain Minnow, Mrs. P. Flint; 3, Chequer Barb, Mrs. H. Skerritt. A very close fourth, complimented by the judge was R. Bestley's Schuberti.

OVER thirty members and guests attended the February meeting of the **Bournemouth Aquarists Club.**

In his opening remarks, the Chairman, Mr. Coombes, reported that in the Inter-club quiz competition, currently being held, the Bournemouth Club still held the lead, having

recently defeated the New Forest Aquarists' Society by 84 points to 79. After apologising for the absence of the Secretary, Mr. Coombes introduced Mr. B. Legge, who entertained the members with a talk and slide show, entitled, "Building a Garden Pond." Mr. Legge, a former member, made a welcome return to the Club after an absence of several years, having taken a position away from the town. In the second half of the evening's programme, he showed some slides illustrating various aspects of his work, and answered a number of questions put to him.

The results of the Table Show were as follows: A.V. Swordtails: 1, Mr. Foale; 2, Mr. Pink; 3, Mr. Ryan. Owner-bred Pairs: 1, Mr. Diggins; 2, Mr. Watkins; 3, Mr. Earl. During the remaining few minutes of the evening, J. Jeffery, who judged the Show, spoke briefly about the fish entered, and congratulated Mr. Diggins for having bred the Neon Tetra, a fish bred only twice before by members of the Club.



## The Aquarists' Badge

PRODUCED in response to numerous requests from readers, this attractive silver, red and blue substantial metal emblem for the aquarist can now be obtained by all readers of *The Aquarist*. The design is pictured here (actual size). Two forms of the badge, one fitting the lapel button-hole and the other having a brooch-type fastening, are available.

To obtain your badge send a postal order for 3s. 6d. to *The Aquarist*, The Butts, Half Acre, Brentford, Middlesex, and please specify which type of fitting you require.

The **Torbay A.S.** held their Annual General Meeting recently and seventy six members attended. The Chairman in his report thanked the officers and committee for their work during the past year which has seen a tremendous increase in the membership of the Society. The Secretary J. Haynes said in his report that the continued interest in the club could only be achieved by having a new Secretary as new ideas were always necessary and as most of these had to be acted upon by the Secretary he felt that he should not stand for re-election. The Show Secretary said that as this was the first year that active table shows had been staged by the Society he was very pleased with the response given by members and it was hoped that this interest will continue during the next twelve months.

The Chairman G. Thompson was re-elected to serve another twelve months in office. The new Hon. Secretary is L. Doubleday of 69a, Newton Road, Torquay.

At the First Annual Dinner held by the Society there were fifty members and guests. One of the members E. Perkes gave a half hour of magic cabaret, as apart from being a keen aquarist Mr. Perkes is also an associate member of the Inner Magic Circle.