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# the Aquarist

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*Geophagus brasiliensis*

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The Editor accepts no responsibility for views expressed by  
contributors.

Editor: Laurence E. Perkins

November, 1970

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## FISH PHOTOGRAPHY IN THE COMMUNITY AQUARIUM

BY J. DUNBAR

BEING a relative newcomer to the hobby of tropical fish-keeping, and also a very keen amateur photographer, I decided to try my hand at photographing my tank and its inmates.

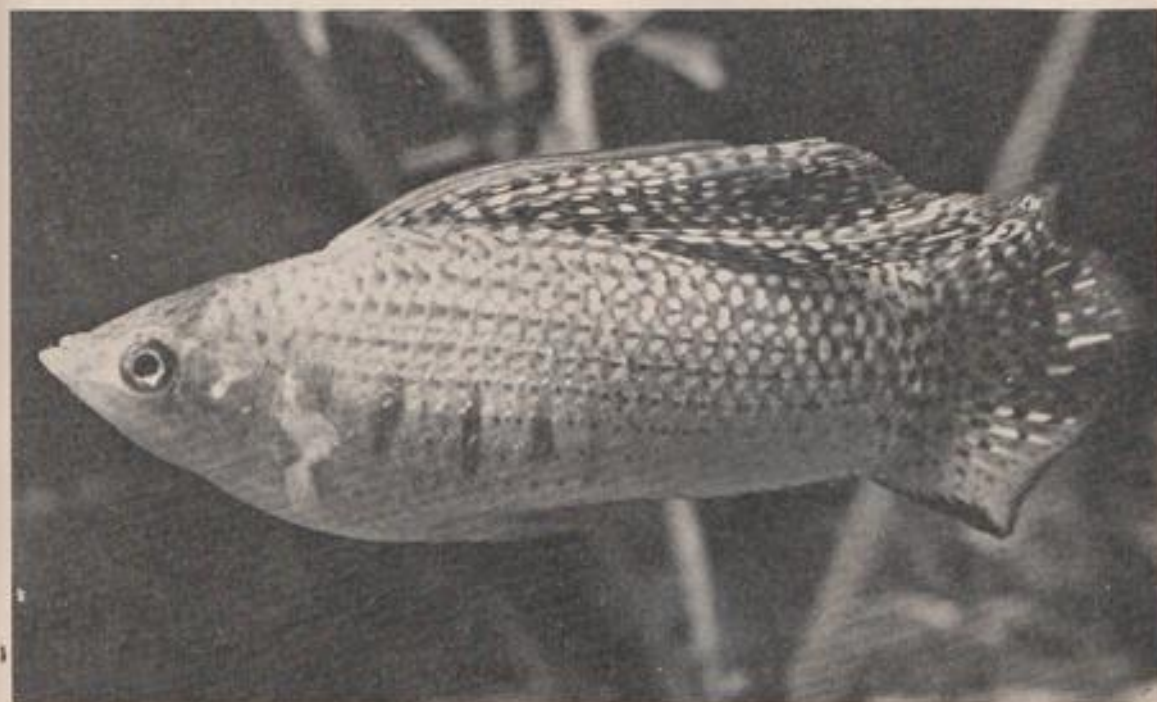
The most successful type of camera to use is, without doubt, a single lens reflex or a twin lens reflex. I started with a 35mm Praktica single-lens reflex which is not too expensive for this type of camera. With a reflex type camera you see exactly in the viewfinder what will be on your colour-slide or black and white negative. The majority of single-lens reflexes have interchangeable lenses; that is, you can screw the lens from the camera body and this allows you to insert an extension tube between the lens and body. An extension tube permits you to focus closer than the standard lens. When you buy a set of tubes there are usually three tubes which will permit you to focus on the subject at different distances, the closest being about three inches which is ideal for small fishes such as neons, cardinals, harlequins, etc. There will also be a chart which will tell you what increase to give to your exposure for each tube.

For those that have a camera with a fixed lens it will be more difficult to obtain photos of individual fish. Reasonable results will be obtained by fitting a close-up lens over the camera lens and such lenses cost only a few shillings. Firstly, place the close-up lens on the camera which should be on a tripod; carefully measure the distance from close-up lens to the front of the aquarium, stick a piece of freeze-dried *tubifex* to inside of aquarium glass and wait for the fish to come and feed. In this way you will get half-a-dozen or so fish feeding. You should have the *tubifex* centrally placed in the viewfinder, you then raise the camera the distance between the centre of lens to centre of viewfinder to allow for what is called parallax. When the fish come to feed on the *tubifex*, you press the shutter. With the close-up lens you won't have to make any increase in exposure as in the case of extension tubes.



The next factor is the source of light. This can consist of either photo-floods, ordinary bulb-type flash, or electronic flash. Personally, I prefer electronic flash. With photo-floods you have to be very careful about reflections and they also get very hot. I decided to put my flash-gun inside the hood because, after all, the normal lights for the tank caused no reflections on the front glass.

Some people say this form of lighting causes heavy shadows in the tummy area of the fish but I have found that the gravel acts as a fill-in light source; that is the gravel reflects light back into the fishes' tummy. If you wish to photograph the whole of your tank you can use the same lighting. This is very natural as if the sun were shining through the top. Exposure is worked from the flash to subject distance. I mostly use the No. 2 tube.



Every aquarium will have its own set of rules regarding what exposure will be needed, these being depth of tank, background and planting. I use Agfa CT18 for colour-slides and Ilford FP4 for black-and-white prints. With my tank being fifteen inches deep and using colour film and the fish being an inch or two from the bottom, the exposure is F5.6 and in the middle layers of the water it is F8. With black and-white film the exposure was F8 and F11. The way I found out my exposures was to buy a twenty

exposure film and take three shots at F2.8, three at F4 three at F5.6 and so on taking a note of the fish in question on each slide. When the slides were returned, I was able to compare them with my notes and pick out the perfect exposure. This was then noted for future slides.

I have found that if you have patience you will not have to put sheets of glass a few inches from the front glass. In a planted aquarium the glass will cut your plants and will also stir up the gravel. It also means catching the fish and placing each one between the glass causing them to become excited and lose their colour. The catching of the fish also disturbs the mulm on the bottom making the water dirty. When I am going to have a photographic session I usually clean the inside front glass the night before and this gives the tank a full day to settle down.

With the camera hung around my neck and an extension lead to the flash gun (an extension lead gives you plenty of room for movement), I can follow the fish until it is in the right position, then press the shutter release and the photograph is taken.

I hope this article will encourage other aquarists who have cameras to get them out and have a go and, like me, look forward to the finished slides or photographs.

## PREPARING FOR WINTER

# BREEDING GOLDFISH

By Arthur Boarder

THE treatment necessary for the goldfish pond for the winter depends on several factors. Unless the water in the pond remains in good condition it is not likely that the fishes will be able to go through the winter in good health. It cannot be emphasised too strongly that it is not the cold which kills goldfish during a severe spell but the state of the water. If a large amount of decaying vegetation and uneaten food remains in the pond in late autumn it is certain to pollute the water. This causes foul gases to form and normally they can disperse in the air when oxygen can take their place. However, it is quite obvious that if the pond is covered with a layer of ice, this interchange of gases cannot take place. The consequence is that foul gases build up to a dangerous level when fishes can be killed.

Any experienced pondkeeper will be able to tell at a glance if the water in the pond is pure. No bad smell should be noticed and the colour should not be murky at all. Any garden pond which had been functioning for a year or two is almost certain to have accumulated a fair amount of detritus at the bottom. This can be from droppings from the fishes, decaying plant life and normal dust from the atmosphere. If a pond is allowed to go on for many years without being cleaned out it is probable that the detritus will gradually build up so that the depth of the water in the pond is reduced considerably.

Any fairly small pond does not present much difficulty if cleaning out but a large pond can be quite a problem. However, it is a fact that the larger the pond the longer can it go without a cleaning out. Another factor is the way the pond has been treated. If too much dried foods have been given or the pond is over-stocked with fishes, then it is certain that too much detritus will be found in the pond. The truth of this statement can be proved by any pondkeeper who empties his pond at the beginning of the winter. It is almost certain that he will find bucket-fulls of black mud or mulm at the bottom which will smell dreadfully. It does not require much imagination to realise what the effect of all this could be to the state of the water once the pond freezes over.

Any normal sized pond, say up to twelve by twelve feet in area, can be emptied and cleaned out without too much hard work. If the pond is at a higher level than other parts of the garden a hose can be used to siphon out much of the water. To start the flow of water in such a case, raise one end of the hose away from the pond and pour water into the other end near the pond. By dipping this end in the pond quickly and then lowering the other end the water will start to flow. If a small powered electric pump is available, this can be started to empty the pond in the early morning and so the pond will be ready for cleaning out during the rest of the day. Once the water level has been lowered it will be possible to catch the fishes. This task must be done with care or the mud will be stirred up so that no fish will be seen. If there are water plants, such as lilies, in baskets or other containers, these can be dragged out on the side of the pond as the level of the water makes this possible. It is quite probable that the last of the water will have to be emptied out with a bucket. This is when the amount of muck will be a surprise to many pondkeepers.

During the time the pond is being cleaned out it is necessary to keep the fishes out of the sun in a large enough container. To crowd a number of fishes into a bath or similar container is dangerous and constant inspection is necessary to make sure that the fishes have sufficient oxygen. Change the water for fresh immediately if any fishes are seen mouthing at the surface. Once the mud has been removed from the pond it can have a flushing with water from a hose. Once cleaned out it is almost certain to remain in good order throughout the winter as long as the fishes are not over-fed from then on.

The water lilies may need some attention before they are returned to the pond. Any dying leaves must be removed as well as dead flowers. Large masses of other water plants such as oxygenating ones can be reduced in size if required and some of the mulm washed from them before they are returned. The fishes can be returned to the pond a few hours after it has been refilled with tap water. It is probable

that the temperature of the pond water will be lower than that of the container where the fishes have been while the pond was being attended to, and they should not be suddenly emptied into much cooler water. After a short time the water in the pond will have warmed up a little or the container can be left in the pond before the fishes are put in.

So much has been written about the keeping of the pond surface free from ice that it may seem unnecessary to refer to it once more. Unfortunately, much of what has been written and said on radio and television does not bear much resemblance to reality. The oft repeated idea that if a pond is made with sloping sides the ice will slide up as it forms and so reduce the risk of cracks of concrete is utter nonsense as once a little ice forms at the sides of a concrete pond, nothing on earth will cause the ice on the surface to slide up or even move a fraction of an inch. Then we have the suggestions of placing a rubber ball or log of wood in the pond to prevent cracking of the concrete by expansion. Just imagine that a ball or log has been placed in the water. Once the surface starts to freeze, ice will surround the object and once formed cannot have any influence at all on ice a few inches away from it and so the risk of expansion of the rest of the ice is just as great.

I favour making a small hole in the pond each day to allow any bad gases to escape and to let oxygen in. This can be done by using one of the water heaters now on the market. An ordinary tank-heater of 100 watts can also be used. If this type is immersed in the pond it may be found that it will float up to the surface. A small piece of lead strip above the heater will keep it lower down. If no heater is used then a small hole can be made by placing a water can of boiling water on the ice when a hole will be formed without the risk of hitting the ice which could stun the fish.

Mention of the strange ideas prevalent which one often comes across is the one about water snails. Many articles proclaim that these are necessary in the pond to keep the water clear. All experienced pond-keepers know that this is a nice thought but never likely to have any good results. Water snails never yet kept a pond nor a tank clean or the water clear. Snails can eat the fish food, water plants, fish eggs and then pollute the water with their copious droppings. I have seen it written that once fry have hatched from the eggs in a hatching tank, some water snails should be introduced to eat up the infertile eggs. What a hope; all they will do is that once you start to feed the fry with powdered foods they will float on the surface upside down and with a vacuum type of action with their mouths they will suck up most of the fry food before the fry have a chance to eat. Our old "Friend," *Limnaea stagnalis* is a good one for doing just this.

Another myth which needs killing is that fresh water mussels should be placed in the garden pond when it is set up as they keep the water clear. These mussels just could not live in a newly constructed concrete pond as they must have a large quantity of mud or muck on the bottom in which to move around and feed. Without this substance on the bottom they would soon die and pollute the water considerably. It is strange that one comes across many of the old fallacies in books which have been repeated down the ages and one which always crops up is the rule of an inch of fish to a gallon of water being the capacity of a tank. This is all right providing the tank is of a reasonable depth. A tank 24 in. by 12 in. by 12 in., would hold about 12 gallons of water and with this depth this would hold 12 in. of fish. However, if the same amount of water was in a container 24 in. deep and a reduced surface area then it would only hold 6 in. of fish. Alternatively if the container was 6 in. deep and had a larger surface with the same amount of water then it could hold 24 in. of fish. The much safer rule is therefore an inch of fish to each 24 square inches of surface area.

Another statement which one has come across concerns aquarists with indoor tanks. It has often been written that, when giving the tanks their weekly servicing, any water removed should be strained and returned to the tank. This is silly and should never be done. The water in any tank, after a week, will contain plenty of unwanted liquid matter in the form of excretions from the fishes. Straining of this water will not purify it at all. It is much better to throw away any water from the tank which is removed whilst servicing and replace it with fresh. Any experienced aquarist can soon tell when some of the water in a tank needs changing. If the fishes appear more sluggish than usual and do not come to the surface immediately for food, then the water must be suspect. A partial change should soon improve matters and the fishes will soon be swimming around normally and taking their food. I consider that about a third of the water in any tank can be replaced with fresh once a week. If the temperature varies greatly from that thrown away, the fresh can be brought up to near that in the tank by adding a little warm water.

One would hardly imagine that after all that has been written on the subject, many fishkeepers insist on buying ants' eggs for feeding their fishes. They are actually the dried pupae of ants and as such have little food value, and the tough skins are often rejected by the fishes with the result that the water can soon become polluted. Still, there are many aquarists of years standing who feed their fishes with *daphnia* and *tubifex* which they have taken from a farm pond. That they can get away with this dangerous practice

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# WHAT IS YOUR OPINION?

By B. Whiteside



I HAVE JUST returned from a visit to London, where I had a most interesting—if tiring—holiday, an account of which may appear, or have appeared, in *The Aquarist*. On my return I was pleased, as usual, to find a selection of your letters for this feature.

The first letter comes from 18 years old Mr. R. H. Birchall, who lives at Llandudno, in Caernarvonshire. In the February, 1970, issue, Mr. Birchall suggested that he would like to see aquarium books based on a tabular form. He has composed a list of questions which he would like to have answered concerning specific species of fish. I have been considering his idea and think it to be a useful one giving, as it does, quick answers to most of the questions which one would like to have answered, when one meets a fish with which one is not familiar. I wonder what other readers of *The Aquarist* think of Mr. Birchall's idea? I've decided to print his given list of questions, and would be pleased to have your comments on them. Perhaps there are some questions which you think should be included, modified, or omitted. Check over the list, and let me have your views on the idea for the next issue. Lack of space prevents me from typing the material in list form, but I hope that you'll get the general idea. The facets of the list are as follows:—Order; Family; Genus; Species; Sub-species; Common names; Location; Brief description; Discovery attributed to; Sex distinguishing characteristics; Maximum size of male—(a) Wild, (b) Aquarium; Maximum size of female—(a) Wild, (b) Aquarium; Carnivore/Vegetarian/Omnivore; Feeding peculiarities; Conditioning food; Longevity (a) Male, (b) Female; Best company; Shy/Pugnacious/Good community fish; Does it shoal?; Territorial?; Peculiarities; Swimming zone; Susceptibility to diseases; How often do they reproduce?; Best breeding age—(a) Male, (b) Female; Earliest breeding age; Oviparous/Viviparous; Bubble nest/Mouthbreeder; Size of breeding tank; Best depth of water; Intensity of normal lighting; Intensity of light for breeding; Necessary additions to water; Water conditions—p.H. and D.H. and salinity; Normal temperature; Breeding temperature; Breeding ratio—males to females; Length of separation; Put male/female in first; How long until spawning?; Duration of spawning; Spawning stimulant; Time of

spawning; Spawning medium; Are plants harmed?; Number of eggs/young in average batch; Egg colour; Egg size; Hatching time; Is light detrimental to eggs?; Filtration?; Aeration?; Eggs are guarded/deserted/eaten; Remove male/female/neither; When to remove parents; Eggs adhesive/non-adhesive; Ratio of males to females in young; Free-swimming in . . . . days/hours; First food . . . . days/hours after hatching; Second food and when; Fish is: very easy/easy/not a beginner's fish/difficult; Difficulty of rearing; Hazards of rearing; References. Well, that's Mr. Birchall's list. Let me know if you would find this method of tabulation to be of interest; if so, perhaps we could encourage writers to "fill in the list," one per month? I like the idea although, as Mr. Birchall says in his letter, it may be a bit "dry" for some people. (It often makes interesting reading to read about people's failures).

Catford, S.E.6, is the home of Mr. C. M. Collett, and he recently purchased a water lettuce plant. It was quite large, but brown and broken, yet within three days it had developed four long runners, and on the fourth day each had developed a young plant. He pinched through the runners and distributed the young plants around his other tanks. He has found that they require strong light and a moist atmosphere, but noted that some fish pecked at the long roots—especially a pair of tiger barbs; this did not seem to affect their growth. Mr. Collett has tried aquarium photography. Out of fifteen attempts he only had five successes (not bad for a first go, I would say!). The most successful method, he thinks, is to use a daylight film, with sunlight shining on the subject. He found that a blue flash did not seem to work. When the flash is directed directly at the aquarium, a bright reflection bounces on to the film and spoils the picture. When directed at an angle, the flash did not seem to have any effect. His other method is to use an indoor film with strong, overhead lighting of the tank. Regarding freeze-dried foods, Mr. Collett tried one, in tablet form, which was stuck to the glass. His fish seemed to like it but left it alone after ten minutes. The tablet then became saturated and, when a fish went near it, it crumbled into a powder and clouded the water. He tried the tablets with smaller fish, in another tank, with exactly the same results. The water in both tanks took half-an-

hour to clear. Mr. Collett thinks that he will stick to flake foods which, even if some flakes sink, are eaten on the way down, and do not cloud the water.

I asked for methods of controlling algae in aquaria and got a reply from Mr. J. K. Wellby, who lives at Sheppey, in Kent. His answer is a *plecostomus* catfish. It had been his experience, and that of many of his fellow aquarist friends, since he persuaded them to buy one of these "incredible cleaners," that this is the only immediate and sure way of keeping algae completely at bay. He strongly advises anyone with algae problems to buy one—for as little as 8s. 0d. for a small one—

either. Mr. Wellby concludes that an under-gravel filter, and a *Plecostomus* sucking catfish, are the two essentials for a clean and attractive, furnished aquarium.

Mrs. Dorothy Young, of Bromsgrove, Worcs., was thrilled to read of other Oscar-lovers, in the August issue. She got her Oscar about nine months ago, by sheer chance. Having been a keen breeder of live-bearers, mainly guppies and swordtails, she soon had more fish than water. In desperation she went to a local pet shop and pleaded for help. They came one evening and spent hours catching baby fish of all descriptions. At that time Mrs. Young had three



*Plecostomus plecostomus* (Sucking Catfish)

and their problems will be over, he says. He has found the photographing of aquaria not to be difficult, and has used colour film, with flash, to obtain successful colour prints, and black and white polaroid, a little less successfully. The flash came out best with the aquarium lighting off. Mr. Wellby has tried several kinds of freeze-dried foods but his Oscars still only eat the live varieties. Regarding the ideal aquarium filter, he already has found his: a simple under-gravel filter. He has tried, at a high cost, various other external and internal filters, but has never found them to be really efficient, his tanks always having a grey cloudiness about them. Since using under-gravel filters his tanks have been crystal clear. He also had a nasty experience in which he lost some treasured fish, through contamination from some charcoal in an external filter. Never again, he says. Anyone worried about poorly growing plants with under-gravel filters should, Mr. Wellby says, do as he does, i.e., grow the plants in individual pots, beneath the gravel, and they can also be easily moved, if the need arises, without disturbing the root growth. He also has no problems with filter cleaning

tanks. The men from the pet shop had with them Oscar, who was then about  $\frac{1}{2}$  in. long, and very ugly. She was assured that he would keep the population down. He did! He ate a quite few of his larger friends and the time came when she realised that Oscar needed a tank of his own. He now has a 3ft. tank of his own and no-one has enough money to buy him from Mrs. Young. He is seven to eight inches long, now, and lives in a chaotic tank, devoid of the plants which he pulled up. He spends hours trying to plant the floating plants. He has spoiled his appearance by cutting his mouth when he ate the thermometer. When asked to "kiss" Mrs. Young, he always obliges, and she would never expect anyone to believe how a fish could become so intelligent and such a pet.

Her husband feeds him his portion of garden worms—despite her love for Oscar, she has not overcome her fear of worms—and when it's supper time, her husband has only to walk into the room and Oscar starts to wag his body as a dog wags its tail. During his daily play, Oscar carries the heaters around in his mouth and bangs the thermostat against the glass until she



seriously considers dropping an aspirin into the tank. She has visions of thirty gallons of water and big, fat Oscar on the lounge carpet. She would feel happier with a plate glass, wire-reinforced tank. Mrs. Young wonders if other Oscar owners have water splashed over the wallpaper, despite a properly fitting canopy, by a big, fat bundle of fun, and wonders if Oscar will calm down when he gets a little older. She concludes by saying that "he" may be a "she".

From Brighton, in Sussex, comes a letter from Mr. M. Cass and he has been breeding coldwater fishes for most of his life. More recently he has concentrated on guppies only. He discarded his old, angle-iron tanks and has now set up with three "Genyk" plastic tanks, 24in. x 8in. x 8in., which he finds to be ideal for guppies. He has six, large, glass globes for virgin females. He uses King British bottom filters which run with an air-stone and a small "Miracle" air pump which runs the three tanks all together. The filters cost 7s. 6d. each, he says. The pump and filters clear the tanks in less than one hour after the gravel has been disturbed, and the water is absolutely clear. He has tried several pumps but none has given him the satisfaction of the one named above. He has found it to give a little noise, but nothing uncomfortable, and it also has the power. (I tried a similar pump myself but would disagree with Mr. Cass's findings. Perhaps I was just unlucky with the one which I got). Mr. Cass uses one 40 watt light over each tank, at the opposite end to the filter. The filter end is thus a little more shady, and he thinks this to be more natural. His plants grow well and his fish are in good condition.

In the August issue I mentioned having received a copy of the Torbay Aquarist Society's newsletter. This brought a letter from Mr. R. C. Mills, of 70 Lee Road, Perivale, Middlesex. For the past two or three years he has been producing a monthly newsletter for Ealing and District Aquarist Society. He included a copy of his interesting newsletter, plus one of "The Bracknell Harlequin", which is edited by Mr. L. Jordan, 62 Fernbank Place, Ascot, Berks., of the Bracknell A.S. Mr. Mills exchanges newsletters with a couple of other societies and he and Mr. Jordan would like to hear of any clubs which would like to join in the exchange. I've given both addresses in full so that interested clubs can contact Mr. Mills and Mr. Jordan. (It sounds like a good idea and I'm sure that, having read both publications, there would be useful bits of information and ideas to be gained from the exchange of club publications. Perhaps Mr. Mills and Mr. Jordan would let me know, in the future, what sort of response they get to this request).

From Newcastle-upon-Tyne comes a letter from Mr. S. Fox, in reply to my question on the value of charcoal in aquarium filters. Mr. Fox has no doubt that its use is beneficial to both plants and fishes. Mr. Fox says that periodic water changes keep down

the build-up of fish urine, nonetheless he thinks that charcoal itself plays its part by "breaking-down" the urine, in between water changes. He notes that anyone who has placed coal, another form of carbon, into his aquarium, as rockwork, must confess to seeing clear water conditions prevailing. He says that many aquarists use air-operated aquarium cleaners in which the solid dirt is retained by a cloth bag, the water being returned to the aquarium, and thinks that there is a danger, where this form of cleaner is used exclusively, instead of siphoning out both water and dirt, of a build-up of urine in the water. He feels, thus, that charcoal in filters is a "must." I have begun to have my doubts about the value of charcoal in filters. Several times I have purchased different brands of filter charcoal and have found that the particles have been so small that they have fallen through the fine grid of the filter, when placed directly on this. The obvious answer is to place the charcoal between two layers of filter wool. Even here, it is not impossible for smaller pieces of charcoal, and fine dust, to get through to the return air-lift, and find its way into the aquarium, making the water dirty. Carbon is found in many forms. The two crystalline forms are diamond and graphite. These are known as allotropes. They are of no use in filters. Wood charcoal and animal charcoal are probably the two varieties most commonly used. That made from wood is produced by heating the wood with air being absent. "Activated" charcoal is made by treating the charcoal with very hot steam. This makes the charcoal very porous and absorptive. An absorptive substance is one which has the ability to attract and retain upon its surfaces other ions or molecules. If the activated charcoal is finely divided, it will have a larger surface area and thus a larger absorptive surface area. Thus activated charcoal can "take up and hold" substances in aquarium water, including gases such as carbon dioxide. It is most effective with gases, at lower temperatures, and will release them again at high temperatures. It is used in gas-masks. Animal charcoal is useful for absorbing dissolved substances, and can be used by the aquarist to clear aquarium water of coloured dyes which have been used to treat fish diseases. It is certainly useful in this context, but does it really do much good in general use in a filter, even if the activated charcoal is frequently changed? I am left wondering and have given up using it in my filters; however, I am prepared to be convinced of its general usefulness. Perhaps some of the manufacturers would care to try to convince me with their views? As we have only had one letter on this subject, perhaps there are many aquarists who just use the charcoal because the manufacturers of filters—many of whom also make and sell charcoal—tell us that we should do so; or perhaps the majority of filter

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# KEEPING MUD-MINNOWS

BY R. K. ALLEN

MR. S. FORSTER's interesting and informative article, "The Unknown, *Umbra krameri*," describing his experience in keeping the European freshwater dogfish or mud-minnow, is particularly welcome to those of us who have sought species outside the usual run of aquarium fishes, have kept them and, unfortunately, too often lost them.

The amount of detailed information given is considerably more than I have yet found in books describing European fishes, most of which, if they mention the fish at all, content themselves with brief references to size and habitat, and to its adaptability to the aquarium. A few aquaria books include a short description also. The fish is occasionally available from dealers, under the name "dogfish" and costing only a few shillings for two-inch specimens, but no one should keep them unless prepared to provide live food all the year round. Apart from its very large, almost disproportionate, nearly circular tail-fin, giving it a distinctly tail-heavy appearance, the form and position of its fins are those of the pike, even to the constant waving of the after-part of the dorsal fin. Similar in this respect is the rapid vibratory flutter of the pectoral fins when the fish is otherwise motionless. More often, however, the pectoral fins move alternately—the fish's best-known characteristic, and this, too, may sometimes be seen in such species as perch, sticklebacks and ruffe. The tail fin is often held rigid and motionless, like a boat's rudder, even when the fish is swimming. This, with its close and regular scale formation, the shape of its body and especially its head, with blunt snout and small eyes, and its smooth, sinuous mode of locomotion, is reminiscent of the wild form of the Siamese fighting fish.

The mud-minnow shares the ability of the sticklebacks and various members of the bass-family, to maintain almost any position, even to the extent of "standing on its head" without apparent effort. Of primary importance to others hoping to keep this fish, are the observations regarding temperature and feeding. I have found, in corroboration, that it demands live

food, rejecting even meaty dried food as well as all the freeze-dried foods; and that summer temperatures can be suddenly dangerous unless the tank is very clean and some form of water circulation provided to maintain oxygen requirements. Water varies from district to district, however, and I found that a powerful outside filter, set up to maintain a deep current through the tank for 4 hours daily in very hot weather, answered the need admirably. All the fish withstood temperatures over 70°F without any sign of discomfort.

The question of investigation to determine this species' needs as to acid or alkaline water is prompted by the wild environment described as "moorland pools" in works on European fishes. This suggests acid water but does not prove it, and it might not be safe to assume it. Those which were kept in a 36 in. × 15 in. × 15 in. tank, densely planted with *Sagittaria subulata*, did well in equal measures of mains water from the chalk-hills and clean rainwater which, in the absence of precise information, I hoped would be approximately suitable, though experiment may show this to be far from ideal. In these conditions the fish doubled their size in just over a year. Within one minute of being introduced to the tank they were consuming *daphnia*, and within a week some would take large *enchytrae* held between finger and thumb, just below the surface. They had phenomenal eyesight—missing nothing that moved, however small, and would crowd expectantly to the front of the tank whenever anyone went near, almost leaping out of the tank when a provident hand removed the top-cover.

The mud-minnow tends to establish a territory in any tank which happens to suit it in the sense that it regards it as "home," and will not hesitate to drive away fishes of its own or different species which venture near. Add to this the necessity of providing a constant supply of live food, and it will be seen that this is a species for those who are prepared to be generous with tank space and ready to devote time and effort to its special requirements.

# THE WORLD OF THE CICHLID (Part 2)

## DWARF CICHLIDS

By Stephen Forster

**Note:** As discussed in the previous article there are some doubts regarding the classification of cichlids; this article, however, deals with dwarf cichlids which are commonly accepted as such.

### General

All dwarf cichlids at present known to science are found either in South America or the African continent. For many years countries like Brazil and Guyana were the only source of supply of these fish. This position is now changed due to the wealth of cichlids found in the Belgian Congo and Lakes Malawi and Tanganyika. Due to the situation in Africa regarding export licences, many of these species have not yet been seen in this country.

### Behaviour

Unlike their larger cousins, dwarf cichlids do not have the desire to uproot and destroy plants, etc., and although they tend to be more retiring than the large cichlids, this is usually compensated by more colour and splendid finnage.

Dwarf cichlids are territorially-minded and will stake out a claim on any suitable hiding place. Some wild caught specimens never really settle down in captivity and although they seem to be most at ease in a community environment, as soon as they are set up in a breeding tank they become nervous and spend most of the time in hiding. This can be best illustrated with the species *Apistogramma ornatipinnis* of which I had a beautiful male in a community tank where he was always to the fore and rarely could not be seen. One of my friends had two adult females and I borrowed one of these to try and breed them. Both females were also kept in a community aquarium and showed no signs of timidity. The pair were placed in an 18 in. by 10 in. by 10 in. breeding tank, planted thickly but unfortunately furnished with only one flower-pot. Both fish attempted to install themselves in the flower-pot and in the ensuing battle the female was killed. I then obtained the other

female and introduced her into the community tank to which the male had been returned. This time there were no problems and although the male showed aggressive tendencies these soon developed into courting behaviour. After allowing the fish to become accustomed to each other in the community tank, the pair were again placed in the breeding tank in which four flower-pots had been set. Minutes later the fish had disappeared into the flower-pots and were rarely seen again for the month that I had them under close observation.

At the end of this period they were again returned to the community tank and immediately lost all signs of nervousness, and when the exercise was repeated the results were identical.

This pattern of behaviour was also found in the Blunthead Cichlid (*Aequidens curviceps*) which would spawn and attempt to raise the young in the community aquarium but always ate their eggs when spawning in the breeding tank.

### Feeding the Dwarf Cichlids

Dwarf Cichlids certainly prefer live foods but most of them, except for a few of the African species, can be weaned onto prepared foods. *Daphnia*, whiteworm, chopped earthworm and mealworms are all excellent live foods for dwarf cichlids but *tubifex* does not seem to be an attractive diet to many species.

Travel upsets the appetites of dwarf cichlids and it is advisable not to feed prepared foods for the first few days after they have been purchased as it is more likely to cause contamination rather than be eaten. *Daphnia* can be fed as this will remain alive until eaten and will not cause any pollution.

Once the fish have settled down in their new surroundings, they will readily accept beef-scrapings, freeze-dried foods and small flake foods. The latter should be fed in small quantities three or four times per day, as dwarf cichlids do not particularly like to feed at the surface, preferring to wait until the food sinks, when it will be taken in mid-water or lower. If too much

flake food is given at one time the residue will be ignored and again may lead to pollution problems.

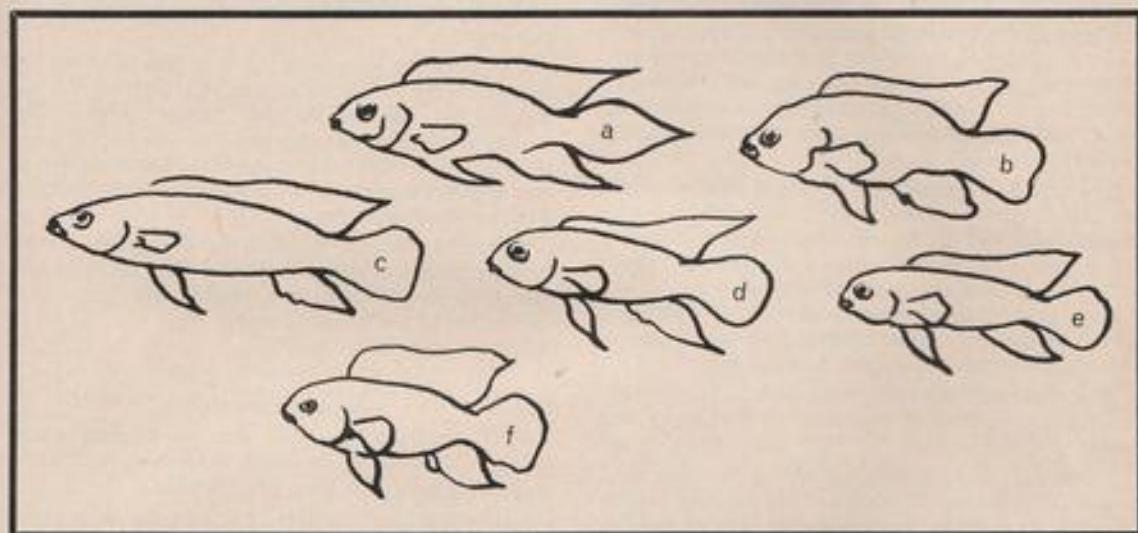
Feeding problems are greatly reduced in home-bred stock and *Apistogramma* and *Pelmatachromis* fry will come to the surface to feed and in cases of extreme hunger, will eat from the fingers. To obtain a maximum growth rate in dwarf cichlid fry it is best to feed them at least four times per day and, if possible, vary the menu at each feeding. When raising fry I try to feed flake foods, chopped earthworm, freeze-dried foods and *daphnia* once per day but if earthworm or *daphnia* is unobtainable, I substitute minced-beef and *tubifex*.

At the free-swimming stage fry can be given an excellent start on newly hatched brine-shrimp, grindall worm and Miracle Fry Treat. The only species which need to be started on smaller foods (e.g., microworm) is *Apistogramma reitzigi*.

byists recommend that natural light should be employed.

Filtration can be carried out by any preferred method but as the fry are quite small and seem to delight in trapping themselves in internal filters, it may save time and trouble if undergravel or one of the "fry-saver" filters are used. Although spawning pits are sometimes cleared, they are not the massive excavations dug by large cichlids and therefore the undergravel filters work quite well.

When dwarf cichlids are caring for eggs or raising fry it is advisable to disturb them as little as possible and the rear and side glasses of the breeding tank should be painted or covered with heavy paper. Pieces of stiff cardboard can be cut to the dimensions of the front glass and then small strips removed at various places. These pieces of cardboard should then be kept in readiness when particularly nervous fish are



**DWARF CICHLIDS:** a. *Apistogramma* b. *Hemichromis* c. *Crenicichla* d. *Pelmatachromis*  
e. *Nannochromis* f. *Nannacara*

#### Housing the Dwarf Cichlids

Apart from the Malawi and Tanganyika species, dwarf cichlids can be housed and bred in 18 in. by 10 in. by 10 in. tanks, which should be well planted and well provided with hiding places such as flower-pots or slate caves. These sites are necessary as all the dwarf cichlids are egg-hiders and require privacy for spawning.

Bright overhead lighting tends to upset them unless heavy floating plants diffuse the light reaching the bottom of the tank. In an 18 in. by 10 in. by 10 in. tank, lighting of 15 watts is adequate but some hob-

spawning, when they can be fixed to the front glass of the tank, cutting out any sudden movements but still allowing the aquarist to observe the fish through the slots.

#### Breeding the Dwarf Cichlids

For breeding the tanks should be set up as described previously and placed in a position where the minimum of disturbance is likely. Sexing is not difficult in the *Apistogramma* and *Nannacara* species where the males are more highly coloured and are endowed with longer fins than their female counterparts.

Among the Malawi cichlids there are many pairs which look like completely different species, the classic example of this being *Labeotropheus fuelleborni*, where the males have blue/black stripes on the body, with or without red tipped fins and tail, while the female is a marble colour dotted with random black spots. In the West African species *Pelmatachromis* and *Nannochromis* the best sex indication is the heavier body of the female.

Having determined that the proposed breeders are a pair, there is nothing further to be done but feed them as much live food as possible and don't disturb them too much.

Pre-spawning behaviour is not as riotous as that of the large cichlids and normally consists of the male displaying his fins and occasionally butting the sides of the female. The cichlid habit of jaw-tugging is not so prevalent amongst the dwarf cichlids but I have seen it occasionally in *Apistogramma* specimens.

The eggs are usually deposited in a hidden location and if a darkened flower-pot is available this is normally used. The site for the eggs will be cleaned before use but as the fish select areas hidden from view, the aquarist does not always see this warning prior to spawning.

The female deposits eggs in small batches which are then fertilised by her partner. As soon as the last egg has been laid the female takes complete charge of the operation and the male may suffer some damage if he does not have the sense to keep well out of her reach. Should this situation develop to the stage where the male is constantly under attack, it is advisable to remove him from the breeding tank.

The eggs hatch in two to three days and the fry become free-swimming in four to seven days depending on the species.

When the fish concerned are mouth-brooders such as the Egyptian mouth brooder (*Haplochromis multicolor*) the male should be removed as soon as possible after spawning as the female is liable to swallow the eggs or fry if she is continually disturbed by the male. Lake Malawi mouth-brooders are particularly vicious when mating and it is good practice to try and observe the spawning as the males invariably become aggressive after the female has been depleted of her eggs.

Female mouth-brooders of all species should be given at least two weeks to recuperate after releasing the fry. They will not have eaten anything for the whole of the incubation and raising period which, in some cases, can be as long as 21 days, and if returned to the males without being allowed to build up again they will usually be killed for refusing the advances of the male.

#### Which dwarf cichlid to breed?

The following species are detailed in an ascending

order of difficulty with regard to breeding and it is advisable to start with one of the easier species to gain experience in keeping dwarf cichlids.

#### Egyptian Mouth-brooder—*Haplochromis multicolor*

This species, as the popular name suggests, is native to the River Nile and its tributaries.

Sexing *H. multicolor* is not difficult as the female has a duller colouring, is smaller and has a peculiar head shape due to the jaw construction of the mouth-brooder. The male is a gold colour, speckled with green highlights and the anal, dorsal and caudal fins are tipped with orange.

A spawning pit will be excavated before mating but on occasion a piece of slate or the lower wall of a flower-pot may be used. As each batch of eggs is laid, they are fertilised and then taken into the mouth of the female. This process is repeated until the spawning has been concluded, when the male should be removed.

The eggs are incubated for five days and the fry retained in the mouth for a further 7-10 days. During this period the female will "chew" continually, passing water over the eggs and fry. As the fry grow the membrane of the throat sac of the female stretches and becomes transparent, through which the youngsters can be clearly seen.

Should the fry be expelled by the female before they are completely free-swimming they can be easily raised by placing them in a shallow dish floated on the surface of the breeding tank.

Temperature range 70-80°F.

#### *Nannacara anomala*

This species is the ideal start to keeping dwarf cichlids; they are easily sexed, easily bred and make no great demands on their environment.

Coloration is a chocolate brown on the body, with a light cream on the throat and stomach. The male, at two and a half inch, is about an inch larger than his partner and has the long extensions to the anal and dorsal fins. The female when excited or caring for young or eggs, darkens and an individual box pattern appears on the body.

A flower-pot is the preferred spawning site, and the spawning itself is completed in a matter of minutes, the eggs being deposited in four or five batches of approximately 20 each. It is advisable to remove the male on completion of spawning as the female *N. anomala* becomes a veritable tiger when caring for eggs.

The eggs hatch in 60 hours and the fry are placed in depressions until they become free-swimming four days later.

These fish are native to Guyana and prefer a temperature within the range 75-82°F.

*Apistogramma ramirezi*

*A. ramirezi* or Rams, share the top of the dwarf cichlid popularity table with *Pelmatochromis kribensis*. These fish, although belonging to the *Apistogramma* group, are somewhat different in shape to the others of the genus in that the body is much deeper.

Sexing immature specimens is very difficult and a multiple purchase of young fish is recommended. On reaching maturity the males show the characteristic elongated black spikes on the first two or three sections of the dorsal fin.

They breed in a similar fashion to the rest of the genus but are more inclined to deposit the eggs on a piece of rock facing the rear of the aquarium. Egg-eating is an unfortunate habit with this species and artificial hatching is recommended.

Although shy and retiring in the aquarium, males can be quite aggressive with each other and can be seen in challenging attitudes when a female or a piece of territory is at stake.

*A. ramirezi* should be kept at higher temperatures than most dwarf cichlids, 82-84°F being suitable for maintenance and 86-88°F for breeding.

A suggestion given to me by an Austrian fishkeeper was, that as the female tends to drive off the male before he has fertilised the eggs, the male should, if possible, be much bigger than his mate giving him the size and strength to assert his rights. This theory seems to work but one has to have a constant supply of young adult females and many aquarists are reluctant to separate a pair of breeders just because the female has grown.

A golden variety of this species has been developed and is unofficially referred to as *Apistogramma ramirezi auratus*.

*Nannochromis nudiceps*

*N. nudiceps*, commonly called the Blue Congo cichlid, have recently gained popularity in this country. The lines of the species, especially, the mouth and head shape, suggest that these fish have aggressive tendencies; this, however, is quite unfounded.

The pre-spawning behaviour of this species is unusual in that the male selects a suitable spawning site and once in residence in the cave or flower-pot, tries to tempt his partner inside every time she passes by. Sexes can be indicated by the number of horizontal lines along the top half of the caudal fin of the male; these are more in number and more heavily defined than those of the female. It is possible that there are two closely related sub-species of *N. nudiceps* as males with no caudal stripes at all are occasionally seen. Females, once fully conditioned, cannot be mistaken as the belly extends to alarming dimensions. Another unusual feature of the females is that as soon as they begin to fill with eggs, the ovipositor appears and the

larger she becomes the more noticeable the ovipositor. This should not be taken as a sign of an immediate spawning as this situation can exist for months without eggs being laid.

When the female has reached peak condition she becomes much more interested in the male's invitations and if all goes well the pair will soon be seen removing the gravel from the flower-pot.

Spawning is heralded by intensification of colour when the body becomes a bright ice-blue. After the eggs have been laid the male will be dispatched from the breeding site but need not be removed as he will assist in the care and protection of the fry once they are free-swimming. A temperature of around 80°F is the requirement of this species.

*Pseudotropheus auratus*

The golden Malawi cichlid is a mouth brooder and as they get involved in some highly aggressive match-making, a 24 by 15 by 12in. tank is the smallest that should be considered for breeding.

*P. auratus* are easily sexed when in breeding condition and almost impossible to differentiate under any other circumstances. Both sexes are similar in size, fin shape and body colour which is gold with two brown stripes passing along the upper half of the body. A similar stripe is also evident on the dorsal fin and spots of the same colour appear on the upper half of the tail fin.

When sexually aroused the male darkens until he is completely dark brown all over. As soon as this colour-change is noted the pair should be separated for conditioning and then placed in a breeding-tank, furnished with numerous hiding places and heavy planting. A watch should be kept on the fish as the male may become extremely vicious if his attentions are spurned. Should this happen the female must be removed and replaced again in a few days time.

When all goes well and the pair spawn, usually in a pit excavated beneath a rock, the trouble is still not over as the male may attack the female after the spawning is completed.

After her mate is removed the female will mouth the eggs and fry for a period of up to 21 days but may spit the fry out any time after the fifteenth day. On leaving their mother's mouth the young are quite large and will eat grindall worm and sifted daphnia without trouble.

The female should be removed within two days of the fry becoming independent or she may forget her maternal instincts and make a meal of her offspring. Broods are small, ranging from half a dozen to maximum of around 20 but the smaller the number the more robust are the fry when they are eventually released.

Coming from Lake Malawi, *P. auratus* prefer hard, alkaline (pH 0.8) water and a temperature of 75°F.

# OUR READERS WRITE

## Umbra krameri

I was delighted to read the excellent article "The Unknown *Umbra krameri*" in the September *Aquarist*. There is little information regarding this coldwater fish in books and this was the first magazine where I had seen it mentioned. Because of this lack of information, I would like to add my own observations to those of Steve Forster's.

I purchased my two Dogfish in March 1969 in Bradford for 4s. each. After reading that they were distant relatives of the Pike I placed these three-inch specimens in a 36 in. tank to themselves and fed them live food. At a later date I added three small Perch. At first they got on well together but the Dogfish fought between themselves causing minor injuries which soon healed. However, several months passed until I looked into the tank one night to find that the smaller Dogfish had extensive injuries to its front half. This area was badly scarred and covered in blood and the fish appeared to have seen the inside of a Perch's stomach. I therefore netted it and transferred it to a smaller tank containing Methylene Blue. Within a week, except for a re-arranged scale pattern, it was none the worse for its ordeal.

Having seen *U. krameri*'s aggressiveness to their own species, I kept each fish in solitary confinement for three months to cool off. Despite their size, they will attack earthworms their own length or a finger waved provocatively in front of them. At the end of their "solitary" I placed them together in a bare 14 in. by 8 in. by 8 in. tank without any form of aeration. Their ferocity is now only evident at feeding time when they make harmless darts at one another. In order of preference, mine eat earthworms, small guppies, whiteworms, maggots and *tubifex*.

I can only suggest that Mr. Forster was unlucky in losing his Dogfish because the temperature rose above 65°F. In my fish house, mine have survived at a constant 65-70°F for the past two months. The only tendency being that they remain nearer the surface of the stagnant water.

I hope these notes added to those of Mr. Forster's, will help to popularise this unusual, if uncommon, species.

JOHN CAWTHRA,  
Bradford.

P.S. I have been a regular reader since June '68. Keep up the good work, gentleman!

I should like to congratulate Mr. S. Forster on his interesting article on the European freshwater dogfish and, also, on his accurate observations regarding its habits.

I must point out, however, that this little fish is far from "unknown." In the March-April issue 1932 of *The Aquarist* four dealers were offering this fish at prices ranging from 6d. to 1s. and in No. 6 Vol. IV there was an article dealing with this species and one dealer, at least, has stocked them since the war. In the Rev. Gregory Bateman's book "Freshwater Aquarium" published at the end of the last century, and frequently reprinted since, he describes it as an aquarium inmate and illustrates it with a photograph. The reason it is not now on offer is merely the question of supply and demand. Unfortunately, few people now keep coldwater aquaria. Perhaps they find it too difficult!

Dogfish, by domestic association, bring me to catfish and I feel that I must take Mr. A. Boarder to task regarding a reply he gave in a recent issue in "Coldwater Queries." He stated that the coldwater catfish commonly offered was the European catfish *Silurus glanis*. This must have been a slip of the pen since Mr. Boarder is too experienced an aquarist to make this error. The catfish on sale are of American origin, though now bred in Europe and its name is *Ameiurus nebulosus*. It does not grow to an enormous size though *Silurus* has been known to reach over twelve feet. I have never seen *Silurus* offered for sale during the last half century though there are some magnificent specimens in the London Zoo Aquarium.

In the early 1860s Frank Buckland imported some and set them free in a large pond at Aldermaston Park. There was no trace of them three years later when the pond was drained. In 1880 seventy were released at Woburn Abbey. I know nothing of their subsequent history.

JOHN S. VINDEN,  
Brecon.

The article on *Umbra krameri* in the September issue of the *Aquarist & Pondkeeper*, makes interesting reading but the last paragraph poses a query which was answered nearly twenty years ago. It is stated that *U. limi* and *U. pygmae* may find their way over here sooner or later. In the case of the second named fish I found one of these in a coldwater class at one of the excellent exhibitions put on by the Hendon Aquarist Society in conjunction with the Hendon Borough Show. I see by my appointments book that I judged there on 16th May, 1951, but as I did so for a few years after this I am not sure of the exact date, but it must have been near to this time. The fish in question had been taken from a local pond and no one knew its name at the show. I was struck by the fish's appearance over all like a Minnow but the peculiar dorsal fin

was quite unlike that of a Minnow. It was long and had the wavy action of this fin similar to some tropicals. I was able to name this fish and would have been pleased to know how the fish came to be in British waters. No doubt it had been introduced by an aquarist or naturalist. If anyone reading this letter can give any information as to how this fish came to be in the pond I shall be interested to hear about it.

A. BOARDER.

The article on *Umbra krameri* in September's issue contains several errors which I would like to correct.

This fish is distributed in small numbers throughout the middle and lower Danube system—in small pools and shallow water generally.

The death of Mr. Forster's fish was certainly not due to the temperature in his tank reaching 65°F. This species will withstand temperatures in excess of 74°F.

Moreover, they have accessory air breathing capacity and are able to exist in conditions which would prove fatal in other species.

The water changes and the improvement of aeration and circulation of the water need to be looked into separately. Of the three, only the water changes hold the key to the improvement of the condition of the fish. It is possible that these changes tipped the balance in the aquarium towards acidity and therefore improved the general health and stimulated the breeding instinct.

The breeding sequences described by Mr. Forster contains two major errors. The female constructs the nest and is the dominant partner in the mating proceedings. He, therefore, had one female and four males in his tank and not the reverse.

Lastly the unknown!?! *Umbra krameri* has been available to the discerning aquarist in this country for many years.

D. CRABBE,  
Milton, Cambs.

I think Mr. Forster meant that this species was unknown to himself. (Ed.).

Mr. Steve Forster, in his article on *Umbra krameri* (September issue), is not correct in his assumption that this charming little fish is unknown to aquarium keepers in this country. As a matter of fact, it has been turning up in the tanks of dealers since the days of Queen Victoria.

If one bought *U. krameri* before the Second World War (it was frequently to be seen in the aquarium shops within ten minutes' walk of High Holborn) it was easy enough to read up about it in the Reverend Gregory C. Bateman's *Freshwater Aquaria*, A. E.

Hodge's *Vivarium and Aquarium Keeping for Amateurs* (Mr. Hodge was the founder and first editor of this magazine) or E. G. Boulenger's *The Aquarium*. Today we need go no further than that wonderful paperback called *The Pan Book of the Home Aquarium* by John Vinden.

*U. krameri* is easy to keep. I saw some lively specimens in a dealer's shop in Leicester last year, but foolishly did not think of purchasing any at the time. When I returned to this shop a week later, they had all been sold. Mr. Hodge records that he used to satisfy his specimens' appetite for flies by smearing treacle on the underside of the glass cover. The flies would find their way into the aquarium and the *Hundsfisch*, as the German-speaking peoples of central Europe commonly call it, would leap out of the water and capture them as they feasted on the sticky sweetness.

JACK HEMS.

#### Risk with Brine Shrimps?

I noticed with some concern an article in today's "Sunday Times Weekly Review" reviewing "The Doomsday Book" by Gordon Rattray Taylor.

Although the whole article tends to fill one with concern for the future of the human race, one paragraph in particular was of interest to aquarists. It relates to the build-up of toxic materials in higher forms of life caused by them eating large quantities of food which contain these materials and states:—

"Scottish trout, fed on brine shrimp larvae specially imported from the Great Salt Lake, died because each shrimp carried a small amount of pesticides which had got into the lake—not enough to kill the shrimp but enough to kill the trout after it had eaten a few hundred shrimps."

I have used large quantities of brine shrimp in rearing a number of different types of fish, e.g., *kribensis*, *A. gardneri* and siamese fighting fish with no ill effect but am rather worried about the advisability of using this food in the future. Brine shrimp is such a convenient and clean food that it would be a great sacrifice to stop using it, I would therefore be most interested to hear of your readers' experiences in using this food and their opinion of the risks involved.

S. J. LITIGO,  
88 Harlsey Road,  
Hartburn,  
Stockton,  
Teesside.

#### Starting a Marine Aquarium

A number of points made in the above article are questionable but I would confine my criticism to just



two of these which are seriously erroneous, in my opinion, and require challenging.

The first statement read "Most coral fish thrive at about 1.028 density." I find that far from thriving the fish usually perish in such high densities and the best results are obtained with a density of 1.020, allowing a range of tolerance between 1.018 and 1.022. Readers who might have followed Mr. Jack's advice on this point should reduce the density of their sea water before exploring all sorts of other possible reasons for their troubles.

The second statement I would challenge is "The temperature of the water should be slightly lower than that of an ordinary tropical aquarium, between 70°F and 75°F. Personally I find that most tropical marine fish are distinctly sluggish at 70°F and are at their best when enjoying a temperature range of between 76°F and 78°F.

MAX GIBBS.

#### The British Marine Aquarists' Association

It is with great pleasure that I announce the formation of a nation-wide specialist marine society. The society has a newsletter organised, and it is hoped members will contribute to this.

The subscription rate is 30s. per annum, and applications for membership should be addressed to the secretary, Mr. D. Horton, 125 Lowlands Avenue, Streetly, Sutton Coldfield, Warks.

It is hoped that the society will be able to put on displays of marine life in the future, whenever possible.

Special benefits will be afforded to members who will be kept informed of all new developments in the marine hobby.

HUW COLLINGBOURNE,  
The British Marine Aquarist's  
Association.

#### How Many Members?

I am delighted to discover that someone other than Mr. G. Jennings belongs to the I.M.S.S. About two years ago I went to a talk by Mr. Jennings regarding marine fish during which he stated that marines are easier to keep than freshwater tropicals. During the talk we learnt that a company was being formed which would sell marine fish at least 50 per cent. cheaper than current prices. All the staff at the company would be fully "qualified."

I would be pleased to know how the qualifications compare with a B.Sc. or even "O" levels and who awarded them for what?

I would also like to know what happened to the thirty bob I paid to Mr. Jennings for membership of the I.M.S.S.?

I met him sometime later at a London show and was assured that the I.M.S.S. would soon be under way and issue a paper full of useful information periodically.

A few months later I received a few Roneo sheets which, in short, contained a multitude of complaints that Mr. Jennings could not extract interesting articles from members for the paper and that further editions could not be printed without sufficient material. Assorted odds and ends made up the rest of the "Magazine."

I would be interested to know how many members of this "society" have parted with 30s. and where all the cash is residing at the moment.

Yours faithfully,  
J. S. GALLOP.

#### Mysterious Spawning Behaviour

Recently I set up two pairs of Honey Gourami (*Colisa chuna*) in separate tanks with a view to breeding. I had previously bred some of the other Gouramis and Siamese fighters. I had observed many of the previous spawnings, courtship and aftercare, if any, and found no variance with anything I had seen written in any books or magazines. This time, however, in one of the pairs I did see something different.

What I saw took place during the aftercare of the nest. This was done by the male and some type of bodily function occurred. In previous labyrinth spawnings I have seen more bubbles being added to the nest during this period by the various males. These bubbles were formed in the usual manner in the mouth. However, the male Honey Gourami had bubbles forming along his whole body. These bubbles gradually increased whilst he pushed around guarding his nest. They were not released randomly, however, but were completely under the male's control and were released under the nest with a couple of shakes or shudders. It could be that these bubbles form at the end of, or under, the scales and were released by the fish closing its scales and forcing the bubbles from the body. No bubbles were added to the nest by mouth during this period although the regular trips to the surface still occurred.

What were these bubbles for? They appeared to be very fine bubbles similar to those from a very fine airstone and did not increase the size of the nest. If the Honey Gourami breeds in nature in very poor water conditions it may, in fact, be aerating the nest. Unfortunately, one or both of the pair ate the eggs and destroyed the nest, only one youngster being saved. With the second pair of fish, the male did not remain on guard whenever I approached and even with prolonged observation no paternal instincts were displayed. It could be that this second pair had spawned so long before my attempted observation that the male had now lost interest. I had previously read that not all males protect the nest. I eventually removed this second pair and therefore saved the eggs and eventual fry.

I have never read anything about a gourami using its body to produce bubbles and I have set up the pair to try and repeat the spawning. Is this male a freak fish? The discus uses its body during aftercare so, why not this member of the gourami family?

B. TATE,  
12 Priory Close,  
Bingley, Yorkshire BD16 4HU.

#### Blushing Angels

With reference to the question: "I have been told that there is a blushing angel on the market. Is it true?"

The correct answer would be YES if you live in East Suffolk or near Ipswich. As a regular visitor to Mickfield Fish Centre I noticed the above fish last month. But when I saw the answer you gave in September's issue, I had to convince myself by driving to Mickfield where I found Blushing Angels in plenty.

I thought I would write to inform all angel-keepers where they would find this variety.

Yours faithfully,  
K. R. TEMPLY,  
26 Rectory Road,  
Ipswich, Suffolk.

P.S.—I have been informed by Mickfield Fish Centre that they are waiting for white and black Angels to be imported from Singapore.

With reference to your reader's query regarding Blushing Angels, and your reply, I would like to inform you that these fish can be purchased in the Yorkshire area. In Sheffield and Wakefield that I know of.

STEPHEN R. M. CORNES,  
Netherton, Yorks.

I read with interest a reader's inquiry on Blushing Angels, and the answer given. For your information I have been importing these beautiful little fish for some time now, they are a valuable asset in a community tank, very peaceful and do very well indeed. We keep them in well-aerated tanks. They love live foods of all kinds, but grow well on dry foods. They are very hardy; water conditions do not seem to worry them; they are, too, very resistant to white spot.

JOHN HUTCHINSON,  
Sheffield.

#### Piranhas

Having read the articles in August 1970 issue on Piranhas I'd like to pass on a little information to G. S. Myers and Jack Hems, about the feeding of my young charges.

I have in my care four *S. nattereri* about 2 in. long, they are the first Piranhas I have ever kept, but I must say one of the most interesting of all my tropicals.

They have got to the stage when they attack each other (not in play), parts of tail and dorsal fins missing confirm this but they are also still very shy, as in the wild, and hide behind plants when not feeding or when anyone goes near the tank.

As for the feeding of them, at first I used to give them chopped garden worms which they took with gusto; also chopped liver, meat or bacon (not smoked). I noticed that the smaller of the four seemed to sample the food then report to the other three then they would all feed till all the food had gone, then return to hide behind the plants.

One day I took a container of Tetra Min and read the ingredients and decided to try it. Putting a small amount into the tank I sat about 9 ft. away and waited. A few flakes floated to the bottom of the tank, a few more followed but fortunately the small Piranha came forward and took a flake then another, and another; this made the others slowly come from their hiding places and start to sample the flakes. After taking a few they started to dart in all directions to get as much as they could before it had all been eaten, so, after a while I gave them some of the larger flakes. Again I sat to observe the reaction and again after a few flakes had reached the bottom of the tank, they attacked again, darting like lightning in all directions after the food. Till all was eaten.

I now use a feeding ring to minimise the area of wasted food; this I remove each day.

I feed them four times a day and three of the feeds are flake and one of worm or liver, etc.

I fell for the Piranhas because of the challenge they give us as I feel there is not enough known about them.

I agree with Jack Hems about the feeding of flake.

At the moment they take flake faster than raw meats, but how long will this last I have yet to see.

Lets be honest with ourselves, Dr. Myers, we *All* have a lot to learn about our charges before we can say "YEA" or "NAY"; making observations and reporting them is the only way to the root of the matter.

On closing I would like to say that I can supply a photograph as proof of feeding and of Piranhas, not *Myloplus* species (Disc Tetra) or such genera.

I would like to hear any comments from G. S. Myers or Jack Hems.

I hope in the future to obtain other species of Piranha and obtain information for comment.

G. W. ROBERTS,  
Matson, Gloucester.

Further to "Our Readers Write" page Mr. James R. Lawrance on disgruntled M.I.M.S.S. and re The Mythical M.I.M.S.S.:—

Having had a fair measure of success with freshwater tropicals, I decided to go over to "Marines." Like your Mr. James R. Lawrance, I wrote to M.I.M.S.S. Not once, but three times, enclosing S.A.E., over a period of 6 months but to no avail. If other readers are doing the same, M.I.M.S.S. must be doing quite well on their income of 5d. stamps.

E. E. GIFFORD,  
103 Garland Court,  
Forton Road,  
Gosport, Hants.

Answer to FIND THE FISH  
Boris Bards.

## FIND THE FISH

Doreen Thiel

The first is in BORROW but not in LEND;  
The second is in SAVE but not in SPEND;  
The third is in DAWN and also in DUSK;  
The fourth is in IVORY but not in TUSK;  
The fifth is in SULTAN and also in SHAH;  
The sixth is in BOTTLE but not in JAR;  
The seventh is in GAMMON and also in HAM;  
The eighth is in DYKE and also in DAM;  
The ninth is in RIBBON but not in LACE;  
The last in in KISS but not in EMBRACE.

## HAPPINESS IS—OWNING AN AQUARIUM

G. N. Lansdown

LUCRETIOUS hit the nail right on the head when he said "What is one man's meat is another man's poison." Not everybody would like to own an aquarium. To some people it is a waste of time.

When talking to people about aquarium hobbyists, one will invariably come across the person who slowly shakes his head and says: "I can speak to my dog and cat, and receive their warm affection, but what affection could a goldfish, or turtle, possibly show to anyone? I simply cannot understand what real pleasure anyone can get out of owning an aquarium." My answer usually is: "Have you ever heard the story about the scorpion and the frog? One day, a scorpion asked a frog to carry him over a river on his back. 'Certainly not, you would sting me,' croaked the frog." The scorpion replied, 'What would I do that for? I cannot swim, and we would both drown.' The frog,

after thinking the matter over, agreed to the scorpion's request. When they were halfway across the river, the scorpion stung the frog. As the frog was drowning he croaked: 'That was a crazy thing to do. Now we will both drown.' The scorpion quickly answered: 'Mr. Frog, I could not help stinging you because it's my nature to sting.'"

In like manner, many men and women just cannot help but take a great interest in all matters concerning life in or near water. It is their nature to want an aquarium or pond of their own and to share their pleasure with like-minded people.

It is said that great wealth or beauty often fail to bring happiness. The question is—what is happiness? I may be wrong, but I think it is a state of mind. To a person who is keenly interested in life as seen in an aquarium, happiness is—owning an aquarium.

## BREEDING GOLDFISH

continued from page 261

for years is a mystery to me, but one day they will come up against troubles and then say, "Who would have thought it possible." I do not suggest that either of these foods would cause trouble if one could be certain that they contained no foul matter nor introduced any harmful pests into the tank. If only these aquarists could examine the water where these

creatures were caught under a microscope, they would be amazed what pests could be seen. If one can be sure that the *daphnia* and *tubifex* are perfectly clean and free from pests and diseases, then they could be quite safe by using them, but how many aquarists could state categorically that their live foods are trouble free?

## British Freshwater Fish

# THE DACE (*Leuciscus leuciscus*)

By Arthur Boarder



THE Dace is a lively fish which inhabits the rivers of Europe and is found in most rivers of England. It does not appear in Scotland. A fast running clear water is preferred by the Dace and it often can be found in Trout streams. In shape it is rather similar to the Chub (*Leuciscus cephalus*), but there are one or two distinguishing features. Although the Chub grows much larger than the Dace, when young it is possible for the casual observer to mistake the two fishes. The caudal fin of the Dace is more forked than that of the Chub and the dorsal and anal fins of the Dace are more concave than those of the Chub.

The Chub can reach a weight of 10 lb., or more, whilst the Dace rarely reaches a pound and a half. The general colouring of the Dace is as for many of our fresh water fishes, such as the Roach, Rudd and Bleak. Silvery at the sides and darker on the back. The record weight of a Dace caught in British waters is just over 1½ lb., but few are caught weighing over a pound. The food of this fish consists mainly of live foods such as the larvae of water insects, *daphnia*, *tubifex*, blood worms, small crustacea and worms. If these live foods fail the fish may eat soft vegetation.

The spawning season is in April and May and usually takes place in the higher reaches of the river where the flow is rather fast. The males show the white tubercles as may be seen on many of the Carp family during the breeding season. Very many eggs are laid and they are small but adhesive.

*The Dace is a swift swimming fish and gets its name from the French, dars a dart. Anglers fish for this little fish with fly and one needs to be very quiet*

and well hidden to be successful at catching it. The clear waters of a fast running river may show no signs of fish at all, but lurking under thick patches of water plants may be a fish or two. I remember fishing in the River Colne many years ago as a small boy in the company of three experienced men anglers and after a day's fishing I had caught the only fish, a half pound Dace, much to the chagrin of the other anglers. I expect that it was beginner's luck.

As a fish for the garden pond this fish has little to recommend it and unless the water was kept very clear with either a fountain or waterfall running, it is not likely to thrive. As a tank occupant it may thrive in a large well aerated tank but it is not a fish to be popular with indoor aquarists. As a food it is not very palatable, being rather muddy in taste with plenty of small bones. Actually, few of our fresh water fishes are as good to eat as most of the seawater ones. I like a Perch if it has been skinned, filleted and fried, covered with bread-crumbs. A pike can be made tasty if baked with good seasoning and Gudgeon is not too bad, but Roach, Rudd, Bream, Chub and Dace are better offered to the cat.

In Lancashire the Dace is often called a Graining and some fishermen consider that this is a different species, but this has never been established as a fact. Although the Dace is not native to Scotland, some can be found in Ireland, but whether an introduction or not is hard to establish. The record Dace caught by fair angling up to the present date is 1 lb. 8 oz. 5 drams. Any angler catching one of a pound or more would be well satisfied.

### The Fascinating *Palaemon* Prawns

by Huw Collingbourne

*Palaemon serratus* . . . the Common Prawn, and yet there are other prawns equally common around Britain. There are many of the genus *Palaemon* and these are characterised by their transparent bodies, often marked with splashes of brilliant colour. The blue and yellow pincers and the gold and silver markings on the body. The weird eyes set upon short stalks shine iridescent green at night, reflecting any chance beam of light. Their many antennae, some longer than the body, wave to and fro with the water currents.

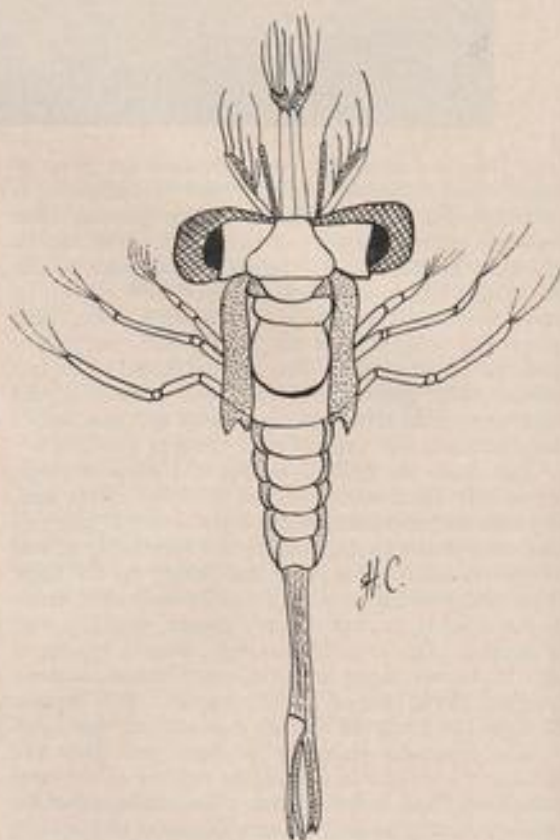
Suddenly, a prawn might see a piece of food floating down through the water. Up it will swim, its foremost legs outstretched to grasp the sinking morsel. But it is not the legs of a prawn that provide the propulsion. The swimming organs are set in a cavity under the abdomen; five pairs of small appendages called swimmerettes. To swim the prawn beats the water with these swimmerettes. The water is channeled past the abdominal cavity and the prawn moves forward. However, if a prawn is threatened by a predator, it can move very quickly backwards or even leap out of the water. This motion is achieved by a quick jerk forward of the tail so that the tail moves out of alignment with the body and goes under the body at a 45° angle. This action occurs in an instant and is the prawn's best means of escape.

In an aquarium a prawn will spend much of the day cleaning itself with an action reminiscent of a cat preening its fur. During "wash-time" all the organs of the body may be clearly seen. Each external part of the prawn anatomy is thoroughly examined and cleaned with the two long front claws.

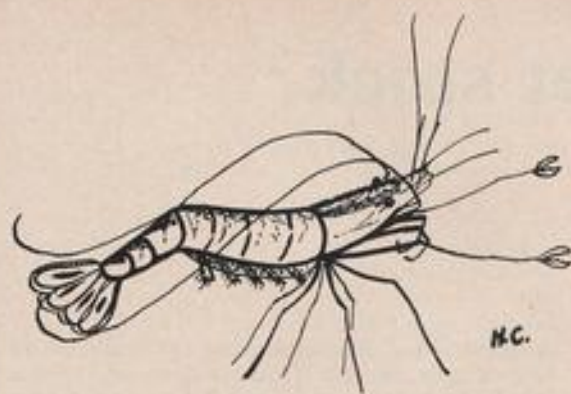
Once it has finished its inspection, the prawn may start wandering over the aquarium gravel eating any food which has escaped the other tank occupants and in this respect it makes an excellent scavenger. But the prawn is not always so well mannered! It must not be kept together with small and weak fishes like Whitebait. Prawns never miss the chance of an easy meal. The same applies to any small fishes which must be put in a jar or a plastic bag for a short time during transportation. In such a confined area it is only a few minutes before any prawns in the bag will have killed the fishes. But this is not true when prawns

are kept in aquaria with fairly robust fishes like govies and blennies. In fact a large blenny will gorge itself on young prawns.

Another interesting fact about prawns is that they are easily bred and are quite prolific in the confines of



a marine aquarium. Sometimes the abdominal cavity of a specimen will be seen to be filled with a grey mass. On closer observation this will be seen to consist of hundreds of tiny eggs adhering to the



adult prawn's swimmerettes. They do not impede swimming in any way but are in fact kept clean and aerated by the motion of the swimmerettes. During this period the parent prawn will move the swimmerettes slowly backwards and forwards even when not swimming. This motion also aerates the eggs.

In a few days each egg develops a black eye spot and gradually grows larger until finally the young hatch as prawn larvae or zoë. The time from egg-laying to hatching varies with conditions but may take more than a month. The newly hatched zoë become part of the plankton and being small (barely visible to the naked eye), they drift with the ocean currents. Their legs are constantly moving, pushing against the water in a vain attempt to move independently of the currents. Unfortunately, prawns are rarely raised to adulthood in small aquaria. Adult *Palaemon* can, however, attain seven cm. body length.

## Product Review

### TETRATIPS AND TETRA FD-MENU

TETRATIPS FREEZE-DRIED FOOD FOR TROPICAL FISH, AND TETRA FREEZE-DRIED-MENU, freeze-dried tropical fish food—"4 in 1", made by Tetra Werke of West Germany, and distributed by Herb-Royal Ltd., Colley Lane Estate, Bridgwater, Somerset. I do not as yet know the retail prices of these new foods.

When reviewing new fish foods, one must have a standard against which one judges them. To date, the Tetramin range has been my standard, I think so highly of it; thus it is a pleasure to review two new fish foods which have been added to the large, existing range.

"Tetratips" are tablets—about the size of a 6d. piece—which contain 50 per cent of freeze-dried substances, together with vitamin-enriched Tetra Flakes. This diet is a most nourishing treat for all tropical fish, and for goldfish. "Tetratips" contain a host of high value foods: freeze-dried brine shrimp, fish roe meal, freeze-dried beef liver, freeze-dried mosquito larvae, oat flour, f.d. tubifex worms, crustacean meal, aquatic plants, dried kelp, crab meal, fish liver meal, milk, fish glue, wheat germ oil and cod liver oil. The guaranteed analysis is: protein 46 per cent, fat 6 per cent, fibre 5 per cent, ash 10 per cent and moisture 8 per cent. The metal tube, with its white plastic lid, and metal foil seal, contains  $\frac{1}{2}$  oz. as 60 tablets. The tablets may be pressed on to the aquarium glass, where they adhere firmly, or dropped on to the aquarium floor for bottom feeders. (The tablets can easily be crushed with the fingers to produce a fine powder, if so required). In the June

issue of *The Aquarist*, Herb-Royal Ltd. were offering a free sample of this food, although I do not know if the offer will still be open when this review goes to press. All of my fish were exceptionally keen on this food and greedily consumed all that they were given at each feed.

"Tetra FD-Menu, 4 in 1" food was equally popular with my fish. The  $\frac{1}{2}$  oz. container, with its revolving plastic cap, contains four compartments, each with a different variety of freeze-dried food and flakes. The four varieties, which can be fed in alternating sequence are: brine shrimps, mosquito larvae, tubifex, and beef liver; each of these freeze-dried foods being enriched with Tetra flakes. The foods are not too large in particle size and are suitable for a wide variety of fish, and sizes of fish. They contain the same ingredients as "Tetratips," with the exception of the milk, and the fish glue, the latter not being required in this food as it does not have to adhere to the aquarium glass for feeding. The guaranteed analysis is: protein 47 per cent, fat 8 per cent and fibre 6 per cent. This is another handy container of four excellent foods, well worth a try by the aquarist who wants the best.

Herb-Royal Ltd. also produce an excellent Fish Feeding Guide, which is free, and well worth having. In addition to giving details of many of the Tetramin foods, and Tetracare remedies, the guide gives very useful advice about setting up and maintaining an aquarium, and about suitable foods and conditions for a wide range of aquarium fishes. It's well worth having!  
B.W.

# GUPPIES

## Where do we get stock?

By D. Phillimore and G. Goodall

THIS is one of the most vexing questions for a newcomer to the Guppy hobby to face, and it is one that cannot be answered, simply. The aquarist shops come in for a great deal of criticism where Guppies are concerned. How many times have we heard the tale, "I bought a pair of Guppies from old so and so's shop and what a load of rubbish they turned out to be, etc.", but can we really blame the shop-owner? We expect him to be a master water analyst, electrician, fish-doctor, a specialist in the particular type of fish that we are interested in, and a whole lot more. We must realise that he can only have a working knowledge of most types of fishes and Guppies are usually not one of them. His main sources of supply, in most cases, are wholesalers who, in turn, rely on importers, so a great many of the Guppies that we see for sale are imported. We have both bred from these imported fish with, in the main, very mediocre results, although after a few generations of selective breeding with them we have obtained enough knowledge to run a line from them, but we have never succeeded in line breeding them as they were when purchased. This, of course, need not bother us too much, as much valuable information can be gained by taking two unrelated fish and trying to breed a line of them, as long as we are not particular as to the colour and shape conforming to the original pair.

Guppies are a specialist type of fish and we should not expect too much from the average pet shop owner; by all means ask him if the Guppies in his tanks are line-bred, and we are sure that if he knows the history of them, he will tell you, but if you ask for a pair, and the results do not please you, then instead of griping over it, stop and think that even though you are disappointed you must have learnt something.

Here are a few pointers to look for when choosing fish from which to breed. Firstly, we do not necessarily need a true pair to start with; two like fish will do. In many cases by breeding from like fishes a very good F1 generation can be expected. It is usually a good bet to use a female with the widest tail available, not the biggest tail, but one where the rays of the tail come off nearly vertical from the caudal peduncle.

A female with a massive long thin tail should not be used if you are after broadtail Guppies. Even a round type female may be used if the starting of her tail is wide. The choice of the female CP gene is also a help to us. It is best to use one with the blackest caudal possible; black in a wide caudated female is a very desirable trait. Blue, and to a lesser extent green, very often is an indication that a female will throw good broadtails. Red is not the best of colours. We have, over the past few years, been trying to perfect red-tailed females, and the better the red in the female's tail, the poorer the broadtail males. Maybe you will say that is because of our concentration on the red CP gene to the exclusion of the males and you may well be correct but don't bet on it; a clear finned round tailed female should never be used as usually she is carrying sword tendencies that we want to avoid. Broadtails will revert to sword types at the slightest chance, so we must give as few chances as possible. Now, the dorsal which is a much harder trait to spot. A female that is carrying a rounded type dorsal will often pass this on to her offspring if a male carrying the same characteristic is used and the same if pointed dorsal fish are used, but if you mix the two you often mix the brood. Colour is impossible to know by just looking at a dorsal, but it is best to pick fish whose dorsal colour resembles the caudal, if only faintly.

Now for the body shapes. It might surprise you to hear that body shapes matter so much but they are, in fact, one of the main sources of information in buying Guppies. The female should have as large a body as possible so pick out the largest fish in the tank. Then look for the one with the thickest caudal peduncle. The top outline of the female should be a nice clean sweep from her nose to her tail with no breaks. The bottom outline should also have a clean sweep but from her head to her vent be full but not heavy. The male should be the same as for lines but should have a nice full chest with a thick caudal peduncle. Both fish should be in excellent condition; never use fishes that do not look at their peak; ignore ones that look fine in shape and colour, but are not

deporting to their best, or ones with bent backs, badly torn fins, split fins, or that are suffering from any form of disease, no matter how easily you think you can cure it. Split finnage may only mean that the fish damaged itself on a rock or was used roughly in a net but it might be inherent, so avoid them. Raggedness in the tail might mean nothing at all, but how can you select a correct tail shape when you do not know how much of the fin has been affected?

Of course, the best way of obtaining stock is to do so privately from an experienced Guppy hobbyist. Don't think on the lines "he must be mad to part with his good stock" and don't expect him to part with his best show-stock. Very often the best show stock are not always the best mating fish. Sometimes good fish get damaged in such a way that they are still perfectly good for breeding with but are no longer showable. All shows in this country are governed by show-standards. Some fish may not conform to one part of the standard, hence their uselessness for showing, but here again, put with the correct female they are just what we need for breeding. The hobbyist also knows the history of his fishes and this is of great help to us.

The best way of being introduced to these Guppy breeders is to join one of the many specialist Guppy groups where Guppies are studied in detail. These clubs form the main reason why the fancy Guppies of today are such magnificent specimens compared with the Guppies of ten years ago. Information is swapped by members along with their Guppies. It is possible to attend a Guppy society meeting and show every week throughout the year where theories are put into practice with the help of film-shows and lecturers, etc. Membership is open to all, whether beginner or experienced aquarist. On joining one section of an association this entitles one to attend all its sections meetings and shows. Fees are in the region of £1 0s. 0d. per annum, and the benefits gained are enormous. There are two Guppy specialist associations in this country the F.G.A. and the F.G.B.S. The F.G.A. are mainly concerned with the breeding and showing of the broadtail fancy Guppy although they have standards for shorttails. With the F.G.B.S. they specialise in the shorttail but also have standards for broadtails. For further details of the above, please send a S.A.E.

## WHAT IS YOUR OPINION?

continued from page 264

users don't bother with charcoal. Does anyone have any further comments to make for the next issue?

Well, those are all the letters for this month. I noticed an interesting phenomenon in one of my larger well planted aquaria, and wonder if readers have any comments to make. The tank contained, amongst a variety of other plants, a very strong, thick plantation of dwarf Amazon swords, as well as a large, healthy Amazon sword. The latter recently produced a "flower" stem which is producing a number of small plantlets. Since the large species has produced its plantlets, the dwarf swords have all died down, and lost most of their leaves. I wonder if there is any connection between the two events? I have postulated a couple of reasons as to why one plant could have affected the others, but realise that other factors in the aquarium's environment could have affected the dwarf sword plants. Perhaps readers would care to send their opinions or details of similar experiences?

I've recently been trying out a new type of filter siphon-tubing, supplied by "Inter-Pet," for testing. It was found that, in a few soft-water areas, their previous tubing sometimes tended to shrink or distort somewhat. The new plastic used in the test seems to have overcome this problem. Dr. J. N. Carrington, of "Inter-Pet", has kindly offered to exchange faulty

siphons, on receipt of a suitably sized stamped, addressed envelope. I must say that it's encouraging to know that British firms are carrying out research into such problems, and that solutions are being found. Having tried a variety of brands of different filters, I know that the problems of filter tubing, of different kinds, is one which faces a number of manufacturers. It's good to hear that "Inter-Pet" have solved the problem of their partial difficulty with filter tubing, in soft-water areas, and of their offer to exchange faulty siphons.

As well as the questions posed in the body of the article, let's have your opinions on the following: (a) Can you grow good plants in a tank with an under-gravel filter? If so, which plants do best? (b) Are good quality coldwater plants rare, or have I been unfortunate in trying to buy them from the wrong shops? (c) I still read, in print, that too many white-worms are harmful to fish. Do you agree? (d) Which cichlid have you found to be the easiest to breed, and how? (e) Have you raised any aquarium plants from seed? Details, please. (f) In selecting a female guppy, to produce good, broad-tailed male youngsters, which factors do you look out for? (g) Have you bred any of the more exotic swordtail varieties? I look forward to hearing from you!



# OUR EXPERTS' ANSWERS TO YOUR QUERIES



## READERS' SERVICE

All queries **MUST** be accompanied by a stamped addressed envelope.

Letters should be addressed to Readers' Service, The Aquarist & Pondkeeper, The Butts, Brentford, Middlesex.

## TROPICAL QUERIES

By Jack Hems

What can you tell me about an Australian sand smelt or silverside known by the formal name of *Melanotaenia fluviatilis*?

Briefly that this species is peaceful and attains a length of about 5 in.; that it is easy to feed on anything accepted by an omnivorous fish; that American aquarium keepers know it by the popular name of pink-tailed Australian rainbow fish.

I would appreciate some tips on the cultivation of *Aponogeton bernierianus* in my three-foot tropical fish tank.

Clear soft water giving a neutral to acid reaction is recommended. Next, sufficient light to encourage bright green growth, yet subdued enough to discourage leaf-suffocating algae. And finally, a planting medium of clay or non-fibrous loam mixed with some peat, together with a dash of grit to keep the mixture open.

Would any harm come to my fishes if I introduced a teaspoonful of cream of tartar into a 24 in. by 12 in. by 12 in. aquarium to acidify the water?

Cream of tartar (potassium hydrogen tartrate) can be introduced into an aquarium to acidify the water. But take great care that you do not alter the pH of the water too abruptly.

Is it true that *Cryptocoryne haerteliana* gives out a substance that is not only inimical to the fishes (by altering the chemistry of the water) but capable, also, of destroying plants of different genera planted in the same tank?

The fact that thousands of intelligent and observant aquarists have grown this delightful plant (correct name *Cryptocoryne affinis*) in their tanks for more than

thirty years with no ill effect is the best answer I can give to this question. There is, however, one point I would like to make clear. All plants have some effect on the pH value of a small body of water, but providing the change brought about is neither abrupt nor great no harm is done to the inhabitants of the aquarium.

Recently I saw some greeny grey fish in a dealer's tank labelled *Rasbora pauciperforata*. The dealer praised them to the skies and told me that I ought to buy some for my community tank. But they looked too dull and uninteresting for me, so I bought some tiger barbs instead. Now a more experienced aquarist than myself has told me that the dealer was right. What is your opinion?

The dealer was right. Once *R. pauciperforata* has settled down in a well-planted and well-established aquarium it assumes the loveliest colours imaginable and is peaceful and active into the bargain. Give your tiger barbs to your mother-in-law (if she keeps an aquarium) and dash off to the dealer to see if he has any of the red-lined rasboras left.

Is the merry widow just another popular name for the black widow fish?

The merry widow and the black widow are taxonomically and anatomically miles apart. The first is a livebearing fish, of the genus *Phallichthys*; the second is a characin known to science as *Gymnocorymbus ternetzi*.

Is it true that the loaches known as weatherfish react to changes in the atmosphere?

It is quite true. But we have a lot to learn about these interesting fishes before we can hope to interpret their fascinating behaviour at certain times with any exactitude.

I have been told that if I use wired glass for all but the front of my rather large aquarium frame, I will not have to worry about the weight of the water and furnishings exerting too much pressure against the bottom and sides. Is this true?

If you mean do I think that wired glass is stronger than plate glass, the answer is no. The virtue of wired glass lies in the fact that if it develops a crack the wire prevents the glass falling apart and in many cases a permanent repair can be carried out by applying a

bituminous compound or silicone rubber sealant over the damaged area.

**I would like to keep and breed *Hemichromis bimaculatus*. Please give me whatever information you think I should know about this fish.**

Firstly, I imagine you are aware that this cichlid is not suited to living with other fishes: it is too aggressive. A 2 ft. to 3 ft. tank will make a suitable home for a pair. It should be furnished with lime-free rockwork and, perhaps, an overturned flower pot placed on a carpet of well-washed sand. Rooted plants are pulled up almost as fast as they are introduced, but plants that will grow floating such as *Elodea densa* or *Najas kingii* are recommended to keep the water in good condition and provide a natural-looking surrounding for the fish. The fish are heavy feeders and flourish best on a diet of meat and living food such as worms, though they will accept the coarse grades of dried food. A compatible pair will breed as a matter of course, that is as soon as they come into breeding condition, and will prove good parents (the female will spawn inside or outside a flower pot or on a cleaned rock and sometimes on the exposed floor of the tank). A badly matched couple will fight, and as the female invariably gets the worst of it they need a lot of watching. A female may have to be separated from a male time and time again until they finally settle down to raising a family. Correct timing (Conditioning and placing the two together) is important. The newly hatched fry are hearty eaters and need brine shrimps, micro worms, tiny *Daphnia*, and the like.

**Please tell me the scientific name of the Congo salmon and supply me with a few details as to its care and behaviour in the aquarium.**



Congo Salmon

The handsomely marked Congo salmon is known to science as *Phenacogrammus interruptus*. It is a shoaling characin that frequents the middle of the water. It seldom, if ever, takes any notice of other fishes unless they are so small that they positively invite molestation.

It flourishes well at the usual range of temperature and eats live and dried food. Soft neutral to acid water suits it well and it looks its best under a bright light against a rich green background.

**I used to think that most cichlids known to ichthyologists inhabited the freshwaters of tropical America. But recently aquarists are hearing more and more about cichlids native to Africa. Is it possible that there may be more different species of cichlid living in Africa than there are in Central and South America, and some of the islands off-shore, put together?**

Africa is the home of an incredible number of cichlids. It is not possible to say how many hundreds, perhaps thousands, of species live there because so many yet remain to be discovered in the less accessible places. Lake Tanganyika alone is the home of more than a hundred different species.

**Last night I introduced a knife fish into my large community tank. It immediately retired into a thicket of vallisneria and seems loath to swim into open water for food or exercise. Is shyness a characteristic of knife fish or do you think the water in my aquarium is unsuitable for my solitary specimen? My tank is well-lighted and the other fishes living in it are in good condition.**



*Noptopterus* Species

The knife fishes (*Noptopteridae*) are not fishes to push themselves forward, but once they get over the shock of being transferred from one tank to another they soon settle down and are not difficult to keep. They are not fond of a bright light and much prefer to spend their days on the shady side of the plants. At dusk and after dark they become more venturesome and active. In general they are good mixers but tend to scrap among themselves. If I were you I would introduce some worms of some sort into the aquarium just before you retire for the night, that is to say a few moments before you plunge the room into darkness.

## COLDWATER QUERIES

By A. Boarder

**I am intending to set up a tank, 36 x 15 x 15in., for river fish. Which kinds can I have, but not any carnivorous ones, please?**

You can keep Chub; Dace; Minnows; Gudgeon; Bleak and Rudd. All except the Rudd are happier in running waters and so you may need plenty of aeration to enable you to keep them in good health. Of course the water should always be clean.

**I have reared a number of frogs from tadpoles and would like to know how to feed them during the winter as my supply of green fly is running out?**

It is not easy to keep young frogs during the winter. It would be advisable to let them loose in some long grass one evening when the weather is rainy. Most frogs remain very torpid during the winter and do not feed. If you have them in an indoor vivarium they could keep active all the winter. If you decide to keep them then you could feed them on maggots and white worms.

**I have a pool in which I have six Golden Orfe. A friend gave me some water plants and now I see at least 50 baby goldfish in the pond. I do not want these but how can I catch them without emptying the pond?**

The goldfish hatched from eggs which were on the water plants. As your pond is of a fair size it will not be easy to catch them. Try feeding in the same place for a few days with a fine dried food which floats. Then one day lower a large net under this spot and feed again. When they congregate raise the net. You could try a Minnow trap with some bread inside as a bait. Take this up now and again and you should have some youngsters inside. One good method is to visit the pond at night with a torch as many fish are quieter at this time and can be easily caught.

**I am intending setting up a large tank for Shubunkins, Fantails, Moors and Green Tench. I am rather worried as to whether the Tench will make good community fish?**

There is no need to worry about the Tench as they are not likely to interfere with your other fishes. I have kept and bred Tench in the same pond as Fantails for many years with no trouble. By the way do not refer to Moors as "Black Moors." If they are Moors they are all black and so the "Black" is superfluous.

**I have been trying for several weeks to obtain a pair of "Worm shredders" but with no success. Where can I get them, please?**

These shredders were made and sold by Mr. Walker of Christchurch. I am very sorry to say that Mr. Walker

died last February, and so there is no way at the moment of obtaining any of these useful shredders. Mr. Walker was a very good aquarist of the "Old school" and was well known in Nottingham before he moved to Christchurch. He will be missed greatly in all aquarist quarters.

**I have a great liking for Veiltail goldfish and used to breed them years ago. I still have nine tanks but here is the crunch. Where can I get good Veiltails? I have tried without success.**

I can quite understand your difficulty as I have seen very few good Veils about for many years now. They used to be fairly common for some years after the last war, but now so very few are seen. If there are any at the shows they lack the old beautiful colouring of the calico types. I will give you the address of a dealer who might be able to help you and I wish you luck as there are too few specialists in fancy goldfish today.

**I have a tank with two Shubunkins, two Fantails and two goldfish. Lately they have grouped together at the bottom of the tank and will not go to the top of the water for food. Why can this be?**

During the summer months if goldfish of any variety do not come to the top for food as soon as it is given this can be a danger signal. Providing the fishes have not been fed too much they should always be hungry and ready to take any food as soon as it is offered. If any of my fish in a tank did not immediately do so I would look for the reason. The first thing to look for would be the purity of the water. If it does not contain plenty of oxygen then the fishes could not feed at their maximum. Many aquarists are afraid to change a goodly portion of the tank water every week. In consequence, the water becomes fouled with the excretions of the fishes and in the impure water there is not enough oxygen. Certain chemicals can build up in the water. Change a fair amount, at least half, for fresh and then do not feed at all for two days. By this time you should find that the fish will feed well, but never give too much as a hungry fish is a healthy one and more losses are incurred by giving too much food than vice-versa.

**Do you think that there could be anything toxic in the make up of a new aquarium I have bought as the fish do not live long in it?**

The tank you mention is quite safe for your fish. If they die then you must look for another reason. I have one of the tanks in question in use and it functions perfectly. It may be that the goldfish you purchased were not in good condition and if you then started to feed them before they got used to the tank and changed water conditions you could have created a polluted water in which the fish would not thrive. Unless water is in good condition, that is has plenty of oxygen, then fish cannot feed and any food given will make matters worse in a short space of time.

**I have enclosed some aquatic insects which I would like you to identify?**

It is not my usual task to identify insects and their larvae. However, I have sufficient knowledge to recognise them as follows: No. 1, Leech, probably *Glossosiphonia heteroclita*, a young one and so difficult to be sure. No. 2, Pupa of mosquito. No. 3, Blood worm, larva of the Chironomus fly. No. 4, Mosquito larva. No. 5, Larva of Damsel fry (Miniature dragon fly). No. 6, Too disintegrated to recognise; may be a Lumbriculus, a small type of water worm.

**I intend to make a garden pool and line it with one of the plastic liners. I have made some enquiries and I am rather bewildered by the types obtainable. Can you advise, please?**

One of the Butyl liners should be satisfactory for you. Do not go for cheapness as a good one will last longer than a cheap one. Go to one of the large firms advertising in *The Aquarist*. Get a catalogue and choose one which suits your pocket best.

**I have an outside pond which has developed a crack about half an inch wide near the top. How can I repair it without emptying the pond?**

Get some Jetcem. This is the name under which the quick drying cement which used to go under the name of Prompt cement is being sold. Lower the water in your pond clear of the crack and clean out all loose concrete from the crack. Mix up the cement with equal parts of clean, fine, sharp sand and add a little water. Do not make too damp and then work this well into the crack. Do not spread the mixture around the crack but keep it within the crack itself. After an hour wash and refill the pond. If you wish to treat the whole pond at any time use Pondseal according to the makers instructions.

**The water in my pond is very green with Algae. I am thinking of buying a filtration system as advertised recently. Do you think that this will clear the water. I have an electric pump to work the filter?**

I have no personal experience of the filter you describe. However it should clear the water all right. You may have to clean the filter medium fairly often at first as the Algae could soon build up and tend to choke the filter.

**I have been given seven fresh water mussels and have no idea as to how they should be fed. What are their habits and is there any chance of breeding them?**

Fresh water mussels would not live in captivity unless their container had plenty of mud or mulm at the bottom. These mussels can only move about in such matter and they obtain their food by siphoning through such matter. Any infusoria or soft vegetation would be eaten. Unless you could provide the base

conditions I have described you would not be able to keep them alive for long, never mind breeding from them.

**Please could you tell me if it is advisable to keep sun bass and goldfish in the same tank?**

Small sun bass could be kept with goldfish. Large ones could eat small goldfish but if sufficient live food is given for the bass I do not think that they will harm the goldfish. If introduced to the tank when small they are likely to grow up in complete harmony with the goldfish.

**We have got two coldwater catfish and do not know anything about keeping them. Can you help, please?**

I suspect that the coldwater catfish are the European type called *Silurus glanis*. If so, they are mainly carnivorous and can eat fish and any small live foods available. Garden worms can be fed to them but be careful not to put them in your garden pond as you suggest when they grow too large for your tank. These fish can eat goldfish or any other fish they can catch. They can even eat Sticklebacks, spines and all. These fish are often sold as scavengers for ponds but there is the danger that they will eat most of the other occupants of the pond when they grow. Catfish up to over thirty pounds in weight have been caught and so you can realise what a tasty meal a nice juicy goldfish would make.

**I hand stripped a pair of shubunkins recently and had some success, but when doing the same again I have had not a single fish hatch out. Why is this?**

It is difficult to say why the eggs were not fertile. Even when fish spawn naturally in a pond there is not always a good hatching from the eggs. Hatchings can vary from time to time from the same pair of fish. There are two ways of stripping, one is to take the milt from the male into water first, and then add the eggs or take the eggs first. With trout hand spawning, the eggs are caught in a dry container and the milt added. The eggs and milt are then covered with water. I have succeeded with hand spawning fantails by taking the milt in a container of water first and then adding the eggs immediately after.

**I have tried very hard to breed earthworms without success. What should I do to keep them?**

Garden worms can be kept in damp, decaying leaves. They do not seem to live long in a container of earth. They must be cool and dark and the medium never allowed to dry out. It is a long job to breed them and the best way to obtain them is to have a heap of decaying vegetation which is covered with a wet sack. This is kept wet and any vegetable rubbish can be added to the heap. When any worms are needed they can be dug up from under the heap.

## MARINE QUERIES

By Graham F. Cox

**I am setting up a 48 in. x 12 in. x 15 in. tank for marine fishkeeping and I may later want to keep some invertebrates. I am using two 18 in. long u/g filters. Would there be any advantage in using a 30 g.p.h. outside filter packed with highly activated charcoal and filter wool?**

If, as you say, your filters are 18 in. long, then I must assume that they are of the several commercially available types. Unfortunately, all these filters were designed for use in fresh water aquaria and have an inadequate turnover rate for use in marine aquaria. May I refer you to my article of the January 1970 issue of the *Aquarist & Pondkeeper* in which I gave detailed instructions of how to construct the type of filter which you need. I notice also that although your tank is 4ft. long, your total filter length is only 3ft. The unfiltered gravel area resulting may, within a few months, be liberating lethal amounts of organic toxins into the sea water.

An outside filter, whether it be a power filter or an air lift type, can be an asset to the marine aquarium although it is by no means essential to use one. The filter materials used should be—

- (a) ultra highly-activated charcoal which is able to absorb from solution unionised organic matter such as forms an appreciable proportion of the excrement of marine fishes, and
- (b) high-alkali-resistant filter wool which, when densely compacted, forms a matrix through which fine particles of solid matter are unable to pass. However, in view of your intention to keep invertebrate animals in your sea aquarium, you should remember phytoplankton and zooplankton are also "solid suspended matter" and the use of filter "wool" in a high turnover rate external filter may well lead to the progressive starvation of filter-feeding animals, e.g., living corals.

**Can I make a 36 in. x 15 in. x 18 in. sea water aquarium using wood and glass only? If this is not possible, could I make an all-glass tank of the same dimensions using 3/8 in. plate glass?**

I'm afraid the answer to your question, Sir, is an emphatic "NO." Salt water is extremely corrosive to wood and the nails or screws which would be holding it together, and there is also the danger of toxic substances entering the sea water from the wood. However, there is no reason why a perfectly sound sea aquarium shouldn't be made by constructing a strong "glued and screwed" wooden open-topped container and then fibre glassing it on the inside with alternate

layers of resin and mat. A piece of plate glass would then be let into the front face using a suitable non-toxic mastic.

3/8 in. plate should be quite suitable to construct an all-glass tank measuring 36 in. x 15 in. x 18 in. provided that the tank is adequately reinforced and, when filled, stands on a perfectly flat surface which is also strong.

**I have recently established an aquarium in accordance with Mr. Cox's writings in the *Aquarist & Pondkeeper* and whereas the filtration system is working very well and all fishes are in glowing health, an "ugly brown stain" keeps appearing on corals, shells, gravel and glass. Although I removed these stains often they still reappear. Are they harmful and how can I get rid of them permanently?**

The "ugly brown stains" which you describe on corals, shells and front glass is caused by mixed colonies of brown algae and diatomaceous growths. These growths may be eradicated by using a good algal fertilizer in accordance with the instructions provided and simultaneously increasing the wattage and/or exposure period of incandescent (tungsten) lighting.

However, although the brown growths of which you complain may be unsightly, they are in no way detrimental to the welfare of your animals and, indeed, are beneficial in that until the green algae appear they are "feeding" on the undesirable end-products of excretory organic matter degeneration.

**I have just started my first marine tank and intend following your advice. With regard to stocking the tank with Damsels only for the first three months but, ultimately, I would like Surgeons, Tangs, Butterflies, Angels, etc. May these be introduced with the tank's original inhabitants without fighting developing?**

During the first two to three months' life of your new tank you will soon acquire the vitally important "feel" for marine aquarology without the crippling disappointment of losing valued animals. The Damsels with which you will stock your first tank will, because of their tremendous hardiness, survive all your beginner's mistakes, the most important of which being the high ammonia and subsequent nitrite level which will inevitably result from over-feeding during the four to twelve weeks bacteriological maturation period of your under-gravel filtration system. I would advise that you only buy four Damsels, say a Domino, a Cloudy, an Electric-blue and a Blue Velvet Damsel since there is a high risk of sharp fighting developing between Damsels of the same species in a small tank. You need have no fear of trouble developing when you later add an Angel, a Surgeon, a Butterfly, etc., but I would take the precaution of

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# HERPETOLOGICAL NOTES

By Stephanie J. Peaker

## FEEDING CAYMANS

FEEDING caymans, alligators and crocodiles is usually a simple matter. Two to three feet long specimens can be given raw meat several times each week. If this is placed at the water's edge the animals will be accustomed to finding it there. Freshly-killed mice or young rats should also be supplied regularly to provide roughage and a natural source of vitamins and minerals. In addition, a water-soluble vitamin preparation can also be given by injecting a small amount into the meat from a hypodermic syringe. Tablets of calcium phosphate, calcium gluconate and vitamin D are available at chemists and these can be pushed into the meat or powdered and sprinkled over it. Calcium deficiency is very common in rapidly growing young crocodilians and this treatment, together with the provision of a few minutes of ultra-violet light, usually prevents the disease.

Several hours after food is given any remaining should be removed so that the water does not become putrefied. Green water itself, though, is not harmful and, in fact, may be useful since *algae* contains vitamins which may be ingested with the food.

Sometimes, newly-arrived small specimens will refuse to feed. If they refuse food to an extent such that they appear less rounded than usual, and if raising the temperature has no effect, force-feeding may have to be carried out. Strips of raw meat (injected with vitamin and mineral supplements) can be placed at the back of the mouth and carefully eased down the gullet with a small, very smooth, handle of a spoon or a chemical spatula if one is available. After several treatments like this and good, warm conditions, the reptiles will often feed voluntarily with no further trouble.

## WHEN THEY GROW

Many owners try to persuade zoological gardens to accept caymans and other crocodilians which have been bought as hatchlings and outgrown their quarters. Unfortunately, zoos can only accept a few such animals since they simply do not have the available space. We had a crocodile pool which could be used for specimens up to the size of about three feet and was simply an area of greenhouse containing a concrete pond with a wooden fence around it. The walls of an enclosure such as this should be of smooth, painted wood or metal to prevent the animals from climbing

out. Apart from a pond, a mixture of sand and gravel makes the best floor covering because this can easily be hosed and raked clean. Any plants in the enclosure should be sturdy and well-established. It is important that the pond should be equipped with an efficient drain and soak-away system so that it can be cleaned with the minimum of effort. The pond can also be faced with smooth concrete so that *algae* can be scrubbed away.

Heating is difficult to arrange for the larger aquatic reptiles. Because of their low-price, the usual glass-tubed aquarium heaters are often used but can easily be kicked against the side of the pond and broken. After making unsuccessful attempts to protect the glass with tubes of perforated zinc, the following system was devised. A heater holder (two clips on a plastic strip) was screwed to a wooden block and the heater clipped in place. Other pieces of wood were screwed in place to give the heater protection at each end and on two sides. The whole set-up was then screwed to a wooden pole and attached to a wooden bracket on the side of the enclosure by a bolt. The heater could then be swung out of the water while the pond was cleaned (remembering to turn off the heater first). A thermostat was found not to be necessary for the heater, the wattage of the heater depending on the size of the pool and the outdoor temperature.

The air in the enclosure can be warmed by tubular heaters, well protected so that the animals do not burn themselves. Incandescent lamps can be provided. To prevent heat-loss in winter, a double layer of polythene sheeting placed over the enclosure is useful.

## DAY GECKOS

Madagascar has many zoological oddities. Not least amongst them are the day geckos (genus *Phelsuma*). They have two unusual characteristics; they are active by day as their name implies and they are bright green in colour. There are a number of different species and each has a characteristic pattern of colouration. This pattern is often striking—a combination of red and yellow spots, blue areas, etc. They need a high temperature (at least 80°F) and because they also need a high humidity, the vivarium can be planted with tropical plants and made to look extremely attractive. Another unusual feature about this group of geckos is that apart from eating small insects and similar animal food, they also eat soft fruit. K. H. Switak of the Steinhart Aquarium in San Francisco reported a very convenient method of supplying fruit to these animals. He found that the bottled, strained fruits and vegetables used for feeding human babies are readily accepted by day geckos. Two specimens of *Phelsuma madagascariensis*, a large member of the genus, were found to prefer peaches and apricots. Unused baby food can be stored in a refrigerator until use.

# BOOK REVIEW

THE NATURALIST IN WALES. By R. M. Lockley (David & Charles, 231 pages, 46 plates, 55s.).

Another new regional book attempts to cover the fauna and flora of Wales with good accounts of the birds and mammals, the geological past and conservationist's future, but only briefly summarised introductions to its waterlife. Its list of "Places to Visit" are almost confined to official reserves and centres, but there are useful if necessarily abridged accounts of many places for visitors. There's no mention of the natterjack toad anywhere, let alone its relict colony on the Foryd and Pensarn sides of the Clwyd estuary. Migratory, probably Irish, dragonflies have reached Anglesey as well as Skokholm which the book notes, and as well as the rivers, the freshwater pearl mussel also inhabits the Shropshire Union Canal in which I've seen it with "slug" pearls.

The book, is a very good summary within the limitations of its space, but the author might have extended more beyond the contents of *Nature in Wales*, which doesn't contain all Welsh field-work or the records of all the experienced field-workers. In the flora, for example, *Lloydia* has been recorded in Radnor (Stanner Rocks) as well as Snowdonia, the wintergreen *Pyrola rotundifolia* in Anglesey (Newborough warren) and Carmarthenshire's Towyn Burrows though the book states it is "found only in Glamorgan and Flint." Some effort has been made to expand the knowledge of Welsh dragonflies and pondsnails though it does not mention *Myxas glutinosa* in its only Welsh site, Lake Bala, a "soft" water, though this snail usually haunts hard water, or the American freshwater shrimp, *Crangonyx gracilis* which has spread into the Shropshire Union Canal in Wales.

The list of fishes does not distinguish between introduced barbel and ruffe, and native kinds.

Flounder could be added to the migratory travellers upriver from the estuaries up the Conway to Trefwr, the Dee to Bangor and the Severn. Mention might have been made of the aquatic insects, notably the known lists of anglers' "flies" of considerable interest to the numerous trout-anglers, from the Dee to the reservoirs and much studied Lake Bala, with its migration of sepia dun nymphs.

The burbot is included among the fishes of the River Severn, but there is no authentic Welsh record, and the few Severn ones are old records of 1933-40 from Gloucestershire and Somerset tributaries on the English side of the estuary, with no evidence that any survive. The bleak is listed, but the old records from the lower Dee have never been confirmed to my experience, for this is a fish of our eastern rivers. As for the barbel there, I know only of the Severn River Board establishing it in recent years in that part of the river outside Wales. To his list of Welsh fishes, however, can be added introduced American rainbow trout of very long history in the tributaries of Alyn, Glwyd and Elwy, as well as Lake Vyrnwy.

It is stated that the Gwyniad (*Coregonus pennantii*) is "found only in Lake Bala". Accepted specimens have been taken after travelling miles away down the Dee near Chester in 1937 and 1951 (one was preserved at Liverpool University). In the 19th century, Francis Day, the authority on British fishes, recorded it as far down the River Dee as Llandrillo, and it possibly moves frequently into and down the river. Fish netted from Lake Bala were also introduced to Llyn Caereuni in the hills towards Cerrig, which was also stocked with brown and rainbow trout. These are small points however in a book aimed for the visitor and limited by its size to cover little more than a broad outline. The stranger will find it a useful guide.

ERIC HARDY.

## MARINE QUERIES

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seeing to it that the smallest of these show-fishes is not less than 2 in. The famed pugnacity and aggression of Demoiselle fishes is usually directed against members of their own species.

A protein skimmer would be of no value in your sea aquarium since owing to the high nitrification potential of a high turnover rate under-gravel filter, no foamate

would ever be collected. Mild ozonisation (i.e., 2-3 mgs/ozone/power per each 10 gallons) is never wasted on a marine aquarium although it is not essential. There is no danger at this low level of ozonisation of the gravel's nitrifying bacteria being destroyed provided that the wooden diffuser block is an inch clear of the gravel.



## 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.

**M**EMBERSHIP of the Norwich and District A.S. has been steadily increasing during the summer months, due, it is thought, to the advertising campaign running this year. Advertisements in the regional newspapers and car stickers are a good way of getting a Society known. The Society held its first show recently, and being the first attempt it was decided to keep this to more as an exhibition with a competition for furnished Aquaria restricted to members. There were twelve entries for this, plus a large variety of specimen fish. Mickfield Fish Centre had a very colourful display of both freshwater and marine fish in show. Hilltop Nurseries of Costessey had a really beautiful garden and pond display, and also in attendance was Mr. Clarence Chua Ah Lam of Singapore Aquarists, who was showing some really outstanding Golden Salfini Mollies that he has developed. Mr. Chua was very busy all day answering questions. The attendance was far above that expected, being around twelve hundred.

The "Mickfield Trophy" for furnished aquaria was won by Mr. A. Barge, second being Mr. A. Beck, and third the combined junior entry of Masters Lacey, Hosh and Davies. Voting for this was done by the public.

Anybody interested in joining the Society should contact Hon. Sec. P. Groves, 35 Folly Road, Wymondham, Norfolk.

**T**HE main topic at the September meeting of the New Forest A.S. was a Slide Show and Tape lecture by the British Killifish Association entitled "The Fish House". This comprised a number of slides showing various means of constructing a completely insulated fish house which was easy to maintain and heat. The club expressed wishes that the Chairman, Mr. A. Williams, would soon recover from his injuries and would soon resume his post. The results of the evening show were as follows: Common Goldfish: Special, L. Meribennert; 1 and 2, D. Lane; 3 and 4, D. Harding. Swordtails: 1, Red Female, R. Moseley; 2, Red Male, D. Lane; 3, Red Lyretail, B. Higginson; 4, Green Male, G. Danby.

**T**HERE was an increased entry for the Bradford and District A.S. members' show. To encourage attendance this year, a Tape and Slide Show hired from the B.K.A. was shown while judging progressed. The judge for the Show was Mr. Pete Reynolds, President of the A.Y.A.S., and the results were as follows: Livebearers: 1 and 3, D. Parkin; 2, P. Chorley. Barbs: 1, W. Holmes; 2, A. Pirih. Characins: 1, P. Chorley; 2, A. Daugherty; 3, W. Fletcher. Carps and Minnows: 1, P. Chorley. Blue Galaris (Best in Show); 2, J. Mosley; 3, P. Chorley. Anabantids: 1, W. Fletcher; 2, N. Brotherton; 3, A. Pirih. Cichlids: 1, R. Kozicki; 2, L. Carrington; 3, G. Fairclough. A.O.V. Tropical: 1 and 2, P. Chorley; 3, T. Barnes. Goldwater: 1, J. Gawthra. Breeders Livebearers: 1, D. Parkin; 2, K. Avison; 3, G. Fairclough. Pairs: 1, A. Rudd; 2, A. Daugherty; 3, W. Holmes. The September Table Show Class was Carps and Minnow/A.O.V. Tropical combined: 1 and 3, P. Chorley; 2, J. Mosley (Panchax).

**I**N September Horsforth A.S. held an open night, which was very successful, with 115 entries. The results of the fish classes were as follows: Livebearers: 1, Mr. Megson, Aireboro;

2, Mrs. Pell, Horsforth; 3, C. Corra, Horsforth. Anabantids: 1, Mr. Taylor, Aireboro; 2, Mr. Megson, Aireboro; 3, Mr. H. Boyes, Leeds. Catfish and Loach: 1, Miss J. Helm, Horsforth; 2, Mr. Taylor, Aireboro; 3, Mrs. H. Boyes, Leeds. Barbs: 1, Mr. Whiteley, Aireboro; 2, Master G. Thickbroom, Castleford; 3, Mr. Taylor, Aireboro. Characins: 1, Master G. Thickbroom, Castleford; 2, Mr. Smith, Keighley; 3, Mr. Kay, Aireboro. Breeders: 1, Mr. Crowther, Swilling; 2, Miss J. Helm, Horsforth; 3, M. Dwyer, Aireboro. Cichlids: 1, Miss J. Helm, Horsforth; 2, C. Thompson, Aireboro; 3, Mr. Taylor, Aireboro. Pairs: 1, Mr. Taylor, Aireboro; 2, Mr. Whiteley, Aireboro; 3, Miss J. Helm, Horsforth. A.O.V.: 1, H. M. Smith, Keighley; 2 and 3, M. Dwyer, Aireboro. A.V. Goldwater: 1, Master G. Thickbroom, Castleford; 2 and 3, Mr. Asquith, Castleford. A.V. Junies: 1, Master G. Thickbroom, Castleford; 2 and 3, Master J. Dugdale, Gordale. Best in Show: Master G. Thickbroom of Castleford, with a large Blind Cave Tetra.

**M**EMBERS and visitors at the September meeting of the Coventry Pool and Aquarium Society listened with more than usual interest as Mr. Bob Fox described how he started and progressed in fishkeeping, until he has now a thriving business. His talk was illustrated with records of how he built the fishhouse. The Table Show attracted 35 entries. Table Show Results: Best Fish: Colera guppies of Dave Easingwood, Pairs (egg-layers): 1 and 3, B. Sheehy; 2, B. and F. Hirst; 4, M. Lewis. Pairs (livebearers): 1 and 2, D. Easingwood; 3, T. Manning; 4, M. Lewis. Pairs (Goldwater): 1 and 2, B. Bromfield; 3, E. Wilkins. Junies—Cichlids: 1 and 4, B. Hirst; 2, P. Davis; 3, M. Lewis.

**A**N Exhibition of Local Native Freshwater Fishes was opened in September at the Russell-Cotes Art Gallery and Museum by Councillor Gordon R. Anstee. The exhibition is by the Bournemouth A.S., and is set out in a suitably decorated room. Eleven tanks are at present set up, displaying fish such as Perch, Grayling, Bleak and Pike, all of which can be found in the local rivers. In his opening address, Councillor Anstee said that he felt this Exhibition could be a major achievement, since some of the fish displayed were very difficult to keep in captivity. More fish are to be added as they become available, including Salmon, Trout, and Roach. Councillor Anstee congratulated the Bournemouth A.S. for their effort, and in particular to Jack Jeffery, who arranged the exhibition. Replying for the Society, Mr. Jeffery said how much he had enjoyed the work, and expressed his wish that the exhibition, which is educational rather than decorative, would prove popular, and of benefit to those who saw it.

**A**t the September meeting of the Society, held shortly afterwards, the main item was an illustrated talk by H. Inall, entitled, "Electric Fishes". The Table Show of the Month was judged by Jack Jeffery and Les James, and the results were: Barbs: 1, Mr. Watkins; 2, Mr. Hunter; 3, Mr. Earl. Scott-Morgan Trophy for Guppies (Owner-bred pairs): 1 and 2, Mr. Davis; 3, Mr. Greenhalgh.

**T**HE following officers were elected at the Annual General Meeting of the Alfreton and District A.S.: Chairman and Treasurer: S. Dooley; Secretary: S. Hill, 35 South Street,

Riddings, Derby, DE5 4EJ. Show Secretary: B. Hickling, 15 Meadow Close, Eastwood, Notts. Telephone Langley Mill 5104; Committee: Messrs. W. A. Bramley, P. Bramley, J. Wright, D. Wrags, M. Allsopp, and Mrs. J. Lindley.

**T**HE main event at the September meeting of the Skegness and District A.S. was a bring and buy sale, which was not very well attended. The results of the two fish shows were: Junior A.O.V.: 1, K. Burke; 2, S. Hayes; 3, J. Turner. Catfish: 1, J. Turner; 2 and 3, S. Hickson. Breeders Class: 1, S. Hayes; 2, B. Collins; 3, S. Hickson. Senior A.O.V.: 1, 2 and 3, J. Lyall. Catfish: 1, J. Lyall; 2 and 3, B. Rhythyn. Breeders Class: 1, J. Lyall; 2 and 3, B. Rhythyn. Novice: 1 and 2, P. Markham.

**T**HE Club Show results of the Yeovil and District A.S. were as follows: Goldfish: 1, 2 and 3, N. Collins, London Shrubbankins; 1, 2, 3 and 4, R. Heather, Bristol Shrubbankins; 1, 2 and 3, D. S. Langdon, Twintails; 1, 2 and 3, V. Collins; 4, R. Heather. Pond or River: 1, 2 and 3, V. Collins; Equal 4, Mrs. Wright and Mrs. Heather. Coldwater Breeders: 1 and 3, V. Collins; 2, D. S. Langdon. Barbs: 1, W. J. Adams. Characins: 1, M. Hulbert; 2, W. J. Adams. Cichlids: 1, Miss B. Hulbert; 2, C. Bushell; 3, K. Wright; 4, Mrs. S. Rendell. Labyrinth: 1, M. Fischer; 2 and 3, Mrs. V. Bushell; 4, Mrs. H. Nicholls. Guppies: 1, Mrs. J. Heather; 2 and 3, M. Hulbert. A.O.V. Egg-layers: 1, C. Bushell; 2 and 3, M. Hulbert; 4, A. E. Rendell. Male Guppies: 1, M. Hulbert; 2 and 3, A. E. Rendell; 4, Mrs. J. Heather. Female Guppies: 1, Mrs. S. Langdon; 2, P. Sealey; 3 and 4, A. E. Rendell. Swords and Plumes: 1 and 2, A. E. Rendell; 3, F. Laiting; 4, M. Hulbert. Mollies: 1, Mrs. E. Wright; 2 and 3, A. E. Rendell. Egg-layers (Breeders): 1, D. Phinn. Livebearers (Breeders): 1, A. E. Rendell; 2, P. Sealey; 3, C. Bushell. Home Aquaria: 1, N. Stainer; 2, D. Phinn; 3, A. Rendell; 4, M. Hulbert. Ladies Cup: Mrs. V. Bushell. Most Points in Show: A. E. Rendell. Best Tropical Fish: M. Fischer. Best Live Bearer: A. E. Rendell. Best Goldwater Fish: V. Collins. Ode Cup: V. Collins. Clubman Shield: M. Hulbert.

**T**HE Hemel Hempstead A.S. met recently for the first time since the school holidays. Unfortunately the speaker booked was unable to come, so Mr. Alan Tufts filled in with a very interesting talk about fish houses. Meetings are held every other Thursday at Adefield Secondary School and the Secretary is Mr. P. Tremwith, 52 Woodmead Drive, Hemel Hempstead, Phone 56464. Press Secretary is Mrs. J. V. Collins, 63 Palceys Lane, Hemel Hempstead.

**T**HE Mersey Breeze which is the official journal of the Merseyside A.S., again contains some excellent features in the October issue. Of special interest is a report on an illustrated lecture on "Know Your Water" presented by the City Water Board and delivered by Mr. Payne. Also included is an article on "Fungus" by Jim Kelly. These together with more general information make quite an interesting number.

**T**HE Wednesday and District A.S. held its annual general meeting early in September, when the following members were elected to serve for the year 1971/72: President: E. Skidmore; Chairman: D. Highfield; Vice-Chairman: E. Hyde; Secretary: G. Wardle; Assistant Secretary: J. Reeves; Treasurer: A. Wood; Show Secretary: T. Shipton; Assistant Show Secretary: A. Mawby; Committee Members: L. Healey, R. Dawes, Mrs. E. Highfield, Mrs. J. Wood, B. Fellows, D. Fryer.

The Society holds its meetings at "The Midland Vaux", High Bullen, Wednesday, the first Monday of each month and new members and visitors are always welcome.

**A** RATHER smaller than usual attendance was recorded at the September meeting of the Carshalton and District A.S. This however did not spoil an interesting talk on fish diseases and remedies given by Mr. Ian Mathison of the Tonbridge A.S. The table show results were: A. V. Cichlids: 1, David Wiltshire; 2, Jean



Horsley; 3, Ronald Wiltshire, Junior Class; 1, John Dixon, Livebearers (Brooders); 1, Christopher Lamb; 2, David Wiltshire, Plants; 1, 2 and 3, Christopher Lamb.

AT the two September meetings of **Southend Leigh and District A.S.**, members took part in a mini-tank table show, Marine Table Show, A.S. Table Show, and a Judging competition. The marine table show was poorly supported, but it is to be hoped there will be more competition for this class next year. This was the first marine table show ever held by the Society. The winners were: Mini-tank: 1, T. Clark; 2, D. Victor; 3, D. Little; 4, A. Russell. A.S.: 1, D. Little; 2, K. Adams; 3, T. Clark; 4, D. Morris. Marines: 1 and 2, R. D. Orford.

The judging competition consisted of members judging six fighters, the member having the closest points to those awarded by the judge (D. Edwards) being declared the winner. B. Burdison won this competition. In addition there was a Characin table show for junior members (under 16 years). Characins (junior): 1 and 3, M. Chapman; 2, D. Victor. Members were also entertained by a lecture from Mr. G. Yallop of Maldon, who spoke on his experiences, and the fishes he has seen and caught in many parts of the world. D. M. Chewright gave a talk on Foods. Intending members are invited to the meetings at St. Andrew's Hall, Electric Avenue, Westcliff-on-Sea, or should contact the Secretary, Mrs. J. Norris, 58 Leighcliff Road, Leigh-on-Sea (phone Southend 76239).

DUE to traffic conditions the entries were down at the **Yeovil and District A.S. Open Show**. Results: Barbs: 1, A. Cox (Weymouth); 2, J. Turner (Weymouth); 3, M. Phipps (Bath); 4, D. Noble (Bristol). Characins: 1 and 4, R. T. Ridley (Basingstoke); 2, G. Carter (Weymouth); 3, Mr. Edwards (Llanwrthwl). Cichlids: 1, J. Turner (Weymouth); 2, J. Stamp (London); 3, R. Bishop; 4, C. Bushell (Yeovil). Angels: 1 and 3, A. Cox (Weymouth); 2, Miss B. Hulbert (Yeovil); 4, P. Hallitt (Yeovil). Dwarf Cichlids: 1, Mrs. S. Rendell (Yeovil); 2, D. Phipps (Bath); 3, Mr. Phipps (Bath); 4, D. Phinn (Yeovil). Labyrinth: 1, Mr. Phipps (Bath); 2, M. Fischer (Yeovil); 3, Mr. Larcombe (Bath); 4, Mrs. V. Buschell (Yeovil). Fighters: 1, N. Stead (Basingstoke); 2, R. K. Day (Bristol). Higgelaying Toothcarps: 1 and 4, N. Stead (Basingstoke); 2 and 3, L. Shirley (Sherborne). Corydoras: 1, G. Carter (Weymouth); 2, M. Squibb (Weymouth); 3, J. Stamp (Froelance London); 4, V. Higgins (Martock). Rasboras: 1 and 3, D. Phipps (Bath); 2, M. Medway (Weymouth); 4, M. Hulbert (Yeovil). Danios and W.C.M.M.: 1, D. Pitt (Basingstoke); 2, G. Carter (Weymouth); 3, L. Menhamer (Southampton); 4, J. Stamp (London). Loaches: 1, M. Squibb (Weymouth); 2, D. Noble (Bristol). A.O.S. Egg-layers: 1 and 3, A. Cox (Weymouth); 2, Mr. Phipps (Bath); 4, J. Turner (Weymouth). Pairs: 1, A. B. Rendell (Yeovil); 2, B. Spiers (Bristol); 3, G. Carter (Weymouth); 4, M. Medway (Weymouth). Male Guppies: 1, M. Medway (Weymouth); 2, J. Stamp (London); 3, M. Hulbert (Yeovil); 4, Miss L. Hulbert (Yeovil). Female Guppies: 1, Mrs. S. Langdon (Yeovil); 2, P. Sealey (Yeovil); 3, M. Squibb (Weymouth); 4, A. E. Rendell (Yeovil). Sword-tails: 1, J. Turner (Weymouth); 2, M. Medway (Weymouth); 3, F. Lainge (Yeovil); 4, R. Bishop (Pines); 1 and 4, A. E. Rendell (Yeovil); 2, R. K. Day (Bristol); 3, M. Ricketts (Yeovil). Mollies: 1, Mrs. J. Pamford (Bristol); 2 and 4, B. Spiers (Bristol); 3, S. Voisey (Yeovil). Goldfish: 1, N. Collins (Yeovil); 2 and 4, Mrs. V. King (Kingsington); 3, L. Menhamer (Southampton). London Shubunkins: 1, 2, 3 and 4, R. Heather (Yeovil). G.S.G.B. Shubunkins: 1, R. King (Kingsington); 2 and 3, D. S. Langdon (Yeovil); 4, Mrs. V. King (Kingsington). Twintailed Goldfish: 1, 2, and 3, V. Collins (Yeovil); 4, R. King (Kingsington). A.O.S. Coldwater: 1, 2 and 3, V. Collins (Yeovil); 4, R. King (Kingsington). Tropical Breeders (Higgelayers): 1 and 4, R. T. Ridley (Basingstoke); 2, V. Higgins (Martock); 3, B. Spiers (Bristol). Tropical Breeders (Livebearers): 1, A. B. Rendell (Yeovil); 2, G. Carter (Weymouth); 3, B. Spiers (Bristol); 4, P. Sealey (Yeovil). Coldwater (Breeders): 1, R. King (Kingsington); 2 and 4, V. Collins (Yeovil); 3, D. S. Langdon (Yeovil). Plants: 1, P. Lainge (Yeovil); 2, M. Hulbert (Yeovil); 3, D. Phinn (Yeovil); 4, A. E. Rendell (Yeovil).

D. S. Langdon (Yeovil). Plants: 1, P. Lainge (Yeovil); 2, M. Hulbert (Yeovil); 3, D. Phinn (Yeovil); 4, A. E. Rendell (Yeovil).

**THE South Derbyshire and District A.S.** held an all Aquaria Show in August, which was the first of its kind in the area and this proved to be a huge success. Held at the Society Headquarters, the members judged by ballot all exhibits and this was quite interesting and popular. Later the show was open to the public, and created great interest. Nine new members were enrolled during the show.

The winners of the show were as follows: Coldwater Furnished Aquarium: 1, A. Hunt; 2, B. Hunt. Tropical Furnished Aquarium: 1, N. Fearn; 2, J. Hunt; 3, T. Bowler; 4, B. Sturgess. Mini-Jar (Coldwater): 1, 2 and 3, A. Winfield; 4, A. Hunt. Mini-Jar (Tropical): 1 and 2, B. Sturgess; 3, T. Bowler; 4, A. Sturgess. The September monthly meeting and the table show was for A.V. Barbs, the result being: 1 and 2, G. Burton, who is one of the junior members. Anyone wishing to join the society are invited to contact Mr. A. Clark, Secretary, 13 Vale Road, Midway, Swadlowcote, nr. Burton-on-Trent.

**MEMBERS of Hampstead and District A.S.** produced two fish for the best "Any Variety" of Tropical fish at the September meeting. The P.B.A.S. judge was Mr. Harrison, who, after judging, gave an interesting talk on the fish on show. The results were as follows: 1, R. Green (Female Guppy); 2, E. G. Harvey (Cardinal Tetra); 3, M. Bradford (Male Guppy); 4, T. Cusack (Trichopsis Vitatus).

**THE results of the first open show of the Wellingborough and District A.S.** third annual show were as follows: Barbs: 1, Mrs. Colam (Peterborough); 2, Ron Bunsley (W.A.D.A.S.); 3, Mr. Roberts (Solihull). Characins: 1, Ben Sargeant (Bletchley); 2, R. Trippas (M.T.A.); 3, B. Edwards (Northampton). Cichlids: 1, G. H. Roberts (Lucan, Solihull); 2, Ben Sargeant (Bletchley); 3, Mr. and Mrs. Bert Jeffs (Bedford). Labyrinth: 1, Ben Sargeant (Bletchley); 2, J. Phillips (W.A.D.A.S.); 3, B. Roberts (Solihull). Egg Laying Tooth Carp: 1, Mrs. Colam (Peterborough); 2, J. Randall (Bedford); 3, D. Calver (Bedford). A.O.S. Catfish: 1, D. Lomas (Nuneaton); 2, Alun Robinson (Northampton); 3, Iris Whitfield (Rubery Select). Corydoras and Brochius Catfish: 1, D. Page (Corby); 2, M. Tyrrell (Kettering); 3, D. Smith (Leicester). Loaches: 1, G. H. Roberts (Lucan, Solihull); 2, Ada Tappan (W.A.D.A.S.); 3, D. Smith (Leicester). A.O.S. Tropical Egg-layer: 1, A. Tappan (W.A.D.A.S.); 2, D. Bitchene (W.A.D.A.S.); 3, Ben Sargeant (Bletchley). Male Guppies: 1, A. Worsley (Kettering); 2, Joyce Atkins (W.A.D.A.S.); 3, E. Mason (Northampton). A.O.S. Tropical Egg-layer: 1, P. Anderson (Leicester); 2, Clive Evans (W.A.D.A.S.); 3, Mrs. Colam (Peterborough). Single Tail Goldfish: 1, 2 and 3, K. Speaks (Goldfish Society). Twin Tailed Goldfish: 1, K. Speaks (Goldfish Society); 2, D. Page (Corby); 3, D. Atkins (W.A.D.A.S.). Breeders Class and Tropical Livebearers: 1, Guppies, E. Upton (Northampton); 2, Golden Guppies, A. E. Sweetman (Hera); 3, Molly Yellifers, Phyl Flint (W.A.D.A.S.). Best in Show: K. Speaks, Single Tail Goldfish. The show attracted 274 entries.

**THE September meeting of the Lincoln and District A.S.** was devoted to the annual table show competition for the Richard Baines Rose Bowl. The judges were Mr. Sibson and his friend Mr. Jackson. Results were as follows: 1 and 2, H. Runnige; 3, Master Clayton; 4, Master Smith. After the judging, Mr. Sibson discussed the fish in detail and gave pointers regarding fish exhibiting. Meetings are held on the third Monday each month at 7.30 p.m. in the Liberal Club, St. Swithins Square, Lincoln.

**NEARLY** four hundred fish were staged at the first open show of the **Weymouth and District A.S.** The winners were as follows: Barbs (A.V.): 1, 2 and 3, A. Cox (Weymouth); 4, M. Carter (Bracknell). Characins (A.O.V.): 1 and 2, A. Blake (Basingstoke); 3, T. Jones

(Weymouth); 4, J. Jeffery (Bournemouth). Characins (H.H. and C.): 1, 2 and 4, J. Haynes (Torbay); 3, M. Poole (Torbay). Cichlids (A.O.V.): 1 and 3, J. Turner (Weymouth); 2, T. Hatton (Weymouth); 4, T. Jones (Weymouth). Angels: 1, A. Cox (Weymouth); 2, E. Jones (Torbay); 3, T. Hatton (Weymouth); 4, P. Carter (Weymouth). Dwarf Cichlids: 1, T. Hatton (Weymouth); 2 and 4, A. Blake (Basingstoke); 3, J. Haynes (Torbay). Labyrinth (A.O.V.): 1 and 2, A. Blake (Basingstoke); 3, A. Nichols (Yeovil); 4, C. Bushnell (Yeovil). Siamese fighters: 1, J. Jeffery (Bournemouth); 2, R. Lane (Salisbury); 3, G. Orton (Weymouth); 4, A. Blake (Basingstoke). Catfish (A.O.V.): 1 and 4, J. Turner (Weymouth); 2, C. W. Eason (Weymouth); 3, T. Jones (Weymouth). Corydoras and Branchis: 1, P. Carter (Weymouth); 2 and 4, M. Squibb (Weymouth); 3, T. Blanchard (Salisbury). Rasbora (A.V.): 1 and 2, M. Poole (Torbay); 3, T. Jones (Weymouth); 4, A. Blake (Basingstoke). Danios and Minnows: 1, M. Squibb (Weymouth); 2, R. Weston (Torbay); 3, P. Carter (Weymouth); 4, E. W. Woolley (Torbay). Loaches and Botia: 1, M. Carter (Bracknell); 2, T. Hatton (Weymouth); 3, A. Blake (Basingstoke); 4, M. Poole (Torbay). Guppy (Male): 1, A. Cox (Weymouth); 2, T. Squibb (Weymouth); 3, T. Mudge (Torbay); 4, T. Jones (Weymouth). Guppy (Female): 1, T. Squibb (Weymouth); 2, C. Spring (Weymouth); 3, Mrs. Langdon (Weymouth); 4, M. Squibb (Weymouth). Platy (A.V.): 1, A. Rendell (Yeovil); 2, R. Cox (Bournemouth); 3, P. Studley (Weymouth); 4, E. Jones (Torbay). Mollies (A.V.): 1, R. Lane (Salisbury); 2 and 3, T. Woolley (Torbay); 4, C. Spring (Weymouth). Swordtails (A.V.): 1, A. Smith (Portsmouth); 2, G. Orton (Weymouth); 3, J. Turner (Weymouth); 4, M. Medway (Weymouth). Live-breeders: 1, M. Cooker (Roxeter); 2, M. Strange (Basingstoke); 3, A. Rendell (Yeovil); 4, T. Woolley (Torbay). A.O.V.: 1, L. M. Carter (Bracknell); 2, M. Strange (Basingstoke); 3 and 4, A. Blake (Basingstoke). Single-tailed Goldfish: 1 and 4, D. Langdon (Yeovil); 2, N. Collins (Salisbury); 3, J. Jeffery (Bournemouth). Twin-tailed Goldfish: 1, 2 and 3, V. Collins (Yeovil); 4, R. King (Torbay). Coldwater (A.O.V.): 1, V. Voisey (Salisbury); 2 and 3, V. Collins (Yeovil). Egg-layers (Breeders): 1, M. Strange (Basingstoke); 2, M. Poole (Torbay); 3, C. W. Eason (Weymouth); 4, P. Studley (Weymouth).

Winner of the Hatton Challenge Cup for the best fish in the show was P. Carter of Weymouth with his Corydoras Juli. He also secured the "Our Dog Shop" trophy for the best tropical fish. V. Collins of Yeovil won the Bennett Cup for the best Coldwater. M. Strange of Basingstoke the Bond Challenge Cup for the best breeders, and A. Blake of Basingstoke the G.S.L.S. trophy for the highest entered class.

**AFTER** the summer break the **Independent A.S.** met once more at their Eden Grove, Holloway, venue. Mr. Frank Tomkins, the club President, welcomed members back and gave an extremely interesting talk on egg-laying Toothcarps which it is hoped will encourage all the members to try to breed these particular fishes. New members will be made most welcome and are invited to come along any Monday evening at 8 p.m.

A record number of 533 fish were entered in **Torbay A.S.** open show, entries being almost double that of last year. The results were as follows: Class Ad: J. Bragg (Torbay). Class Ae: G. Thompson (Torbay). Class Ac: C. Tolcher (Torbay). Class Ab: Mrs. A. Dodd (Torbay). Best fish in Show: T. Jones (Weymouth). Class B: 1, Mrs. S. Gartell (Plymouth);

**PREVENTS**  
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**ALGAE**  
**Hillside Aquatics London N12**

2, W. G. Gorrick (Taunton); 3, R. Lay (Torbay); 4, W. Hoessell (Plymouth); Class C: 1, Mrs. I. Clark (Plymouth); 2, R. G. Lucas (Plymouth); 3, J. J. Edwards (Covbridge); 4, R. Barnes (Torbay); Class Ca: 1 and 4, W. G. Gorrick (Taunton); 2, M. Poole (Torbay); 3, J. Haynes (Torbay); Class D: 1, J. Hoessell (Plymouth); 2, W. G. Gorrick (Taunton); 3, W. M. Matthews (Torbay); 4, T. J. Lemm (Taunton); Class Da: 1 and 2, A. J. Bull (Bradford on Avon); 3, W. G. Rundle (Plymouth); 4, J. J. Edwards (Covbridge); Class Db: 1, J. Haynes (Torbay); 2, T. Wooley (Torbay); 3, T. Hutton (Weymouth); 4, G. Crowe (Hilfcombe); Class E: 1, E. Wilson (Bristol); 2, T. Jones (Weymouth); 3, A. Nicholls (Yeovil); W. G. Gorrick (Taunton); Class Ea: 1, J. R. Davis (Torbay); 2, B. Bowyer (Totnes); 3 and 4, T. Wooley (Torbay); Class F: 1 and 2, B. Bowyer (Totnes); 3 and 4, T. Wooley (Torbay); Class G: 1, G. Edmondson (Exeter); 2, T. J. Lemm (Taunton); 3 and 4, B. Bowyer (Totnes); Class H: 1, F. F. Cox (Torbay); 2, A. Kirby (Plymouth); 3, M. Squibb (Weymouth); 4, M. Poole (Torbay); Class J: 1, 3 and 4, M. Poole (Torbay); 2, M. Coker (Exeter); Class K: 1 and 2, E. Wooley (Torbay); 3 and 4, Mrs. R. Matthews (Torbay); Class L: 1, M. Poole (Torbay); 2, T. Hutton (Weymouth); 3, R. Bull (Plymouth); 4, R. Carter (Weymouth); Class M: 1 and 4, T. Jones (Weymouth); 2, T. Hutton (Weymouth); 3, Mrs. L. Doubleday (Torbay); Class N: 1, J. R. Davis (Torbay); 2, Mrs. O. Lay (Torbay); 3, M. Coker (Exeter); 4, J. R. Davis (Torbay); Class O: 1, M. Gaylard (Yeovil); 2, M. Poole (Torbay); 3, Mrs. A. Carr (Torbay); 4, W. G. Reid (Plymouth); Class P: 1, T. Wooley (Torbay); 2, Mrs. S. Langdon (Yeovil); 3, R. Lucas (Plymouth); 4, M. Squibb (Weymouth); Class Q: 1, R. Bull (Plymouth); 2, W. Hoessell (Plymouth); 3, M. Poole (Torbay); 4, D. Moss (Exeter); Class R: 1 and 2, Miss A. Kirby (Plymouth); 3 and 4, Miss K. Rendell (Yeovil); Class S: 1, Mrs. O. Lay (Torbay); 2 and 4, J. Woodberry (Exeter); 3, B. Bowyer (Totnes); Class T: 1 and 3, B. Bowyer (Totnes); 2, J. C. Fiddock (Exeter); Class U (Singletail): 1, R. King (Torbay); 2, N. Collins (Yeovil); 3 and 4, W. Matthews (Torbay); Class U (Shubunkins): 1, 2 and 4, D. Langdon (Yeovil); 3, M. Gaylard (Yeovil); Class V: 1, 2 and 3, V. Collins (Yeovil); 4, M. Gaylard (Yeovil); Class W: 1, 2, 3 and 4, G. Thompson (Torbay); Class Wa: 1 and 2, V. Collins (Yeovil); 3, R. Sudd (Bradford on Avon); 4, G. Thompson (Torbay); Class Xa: 1, 3 and 4, M. Poole (Torbay); 2, E. Wilson (Bristol); Class Xb: 1, R. King (Torbay); 2, J. Doubleday (Torbay); 3, Mrs. S. Benthal (Exeter); 4, I. Haynes (Torbay); Class Xc: 1, V. Collins (Yeovil); 2, 3 and 4, R. King (Torbay); Class Y: 1 and 3, L. Doubleday (Torbay); 2, D. Parham (Torbay); 4, A. Rose (Torbay).

**THE Fancy Guppy Association** are to hold the Sixth International Guppy Show at the Glebe Farm Community Centre, Stechford, Birmingham, on Saturday 29th and Sunday 30th May, 1971. This is an Open Show, and is open to non-F.G.A. members, who can have their guppies judged to F.G.A. Standards, in competition with Guppies entered from all over the world.

**MEMBERS of the Bristol Tropical Fish Club** have been achieving considerable success in Open Shows during 1970, especially Gordon Furber. His recent achievements have been high in the award cards at the Yate Open Show, including Best Fish in the Show. He also figured prominently in the more recent Bristol Aquarist Open Show Club, Treasurer Bob Toone was also justly pleased in breeding his recently acquired Discus and then going on to

win the Breeders Award in the Bristol Aquarist Open Show with the offspring. Features for the 1970/71 monthly meetings are currently being planned and new members and visitors are always extremely welcome.

**ENTRIES at the Ealing and District A.S. Second Open Show** just exceeded the total of the Society's first Open Show. Results: Class Ad: 1, R. Mills; 2, M. Goss; Class B: 1 and 3, C. Pike; 2 and 4, P. Grosvenor; Class C: 1, G. Ennever; 2, R. Cooper; 3, A. L. Hozer; 4, T. Summers; Class D: 1, L. Jordan; 2, Mrs. Bellingham; 3, R. Savage; 4, Mrs. M. Netherhall; Class Db: 1, Mrs. Mackay; 2, Mr. and Mrs. Pagan; 3, G. Greenhalf; 4, R. Baker; Class E: 1, P. Kendrick; 2, M. Goss; 3, Mrs. J. Garrad; 4, R. Wright; Class F: 1, C. S. Walker; 2, K. A. Johnson; 3, F. Kendrick; 4, J. Bellingham; Class G: 1, J. Bellingham; 2 and 3, J. Batts; 4, F. Kendrick; Class H: 1, T. Cruickshank (Best Fish in Show—C. schwarz); 2, A. Ankin; 3, D. Amsour; 4, R. Cox; Class I: 1, M. Carter; 2, Mr. Mackay; 3, Mrs. I. Appin; 4, R. Mills; Class K: 1, P. Grosvenor; 2, R. Mills; 3, Mrs. Leslie; 4, M. Carter; Class L: 1, M. Carter; 2, Mr. Mackay; 3, T. Summers; 4, Mrs. Bellingham; Class M: 1, J. Batts; 2, T. Summers; 3, E. Creighton; 4, R. Leslie; Class N: 1, Mr. Wright; 2, K. A. Johnson; 3, G. Greenhalf; Equal 4, Mr. Wright and Mrs. D. Cruickshank; Class O: 1, Miss B. Quennell; 2, J. Stamp; 3, Miss M. Netherhall; 4, R. Cox; Class P: 1, Mr. and Mrs. Pagan (Best Guppy); 2 and 4, Mrs. M. Netherhall; 3, K. Johnson; Class Q: 1, R. Wood; 2, R. Cox; 3, T. Cruickshank; 4, K. G. Quennell; Class R: 1, 3 and 4, L. Little; 2, E. Creighton; Class S: 1, G. Greenhalf; 2, A. Howe; 3, Mr. and Mrs. Pagan; 4, B. W. Smith; Class T: 1, J. Batts; 2, Mrs. Cruickshank; 3, R. Cooper; 4, M. Carter; Class U: 1 and 3, V. Voysey; 2 and 4, D. Goodbody; Class V: 1, 2 and 4, R. Elson; 3, V. B. Hunt; Class W: 1 and 3, V. Voysey; 2 and 4, V. B. Hunt; Class Xa: 1, J. Batts; 2, P. Grosvenor; 3 and 4, A. R. Chandler; Class Xb: 1, 2 and 3, G. Greenhalf; 4, M. Quennell; Aquascapes: 1, Mrs. S. Ankin; 2 and 3, R. Barrett; Reptiles and Amphibians: 1, M. Wood; 2, S. R. King; 3, R. Barrett; 4, Master R. Summers; Pets Inn Characins Cup: G. Ennever (Ealing A.S.); Healey Trophy: C. Pike; Cruickshank Trophy: L. Little (Bracknell A.S.); Sellers Trophy: Mr. Mackay (Kingston A.S.); F.R.A.S. Trophy for Single-tailed Goldfish: V. Voysey (Bracknell A.S.); Aquarist Gold Pin: T. Cruickshank (Ealing A.S.).

**THE Open Show results of the Oldham and District A.S.** were as follows: Guppies: 1, 2 and 3, Mr. Duffy (F.G.A.); Mollies: 1, Mr. and Mrs. Bewick (Middleton); 2, Mr. Harrop (Otram); 3, Mr. and Mrs. Grimshaw (Sunnybrook); Swordtails: 1, Mr. Brankin (Oldham); 2, Mr. and Mrs. Cobb (Belle Vue); 3, J. P. Gee (Belle Vue); Platies: 1, H. R. McKenna (Nelson); 2, S. Heap (Belle Vue); 3, Mr. and Mrs. Hogarth (Salford); Anabantids: 1, B. Dawson (Oldham); 2, Mr. Harrop (Otram); 3, H. Lees (Oldham); Fighters: 1 and 3, P. Shackleton (Belle Vue); 2, D. Trahy (Nelson); Small Barbs: 1, 2 and 3, F. E. Gregory (Oldham); Large Barbs: 1, C. Stewart (Nelson); 2, J. Higham (Warrington); 3, Mr. Illingworth (Nelson); Small Cichlids: 1 and 3, Mr. and Mrs. Smith (Top Ten); 2, Mr. and Mrs. Miller (Belle Vue); Large Cichlids: 1, Mrs. M. Davies (Belle Vue); 2, Mr. and Mrs. Wilkes (Middleton); 3, K. Parker (Merseyside); Angels: 1, H. Lees (Oldham); 2, F. E. Gregory (Oldham); 3, Mr. Kenyon (Belle Vue); Small Characins: 1 and 2, Mr. Tonge (Oldham); 3, F. E. Gregory (Oldham); Large Characins: 1, Mr. and Mrs. Headless (Atherton); 2, F. Mulla (Merseyside); 3, Mr. Harrop (Otram); Rasbora: 1, R. and A. Johnson (Atherton); 2, Mr. Ashton (Independent); 3, Mr. Harrop (Otram); Danios and Minnows: 1, Mr. and Mrs. Hogarth (Salford); 2, Mr. and Mrs. Cobb (Belle Vue); 3, R. Barber (Atherton); Sharks and Foxes: 1, Mr. Ashton (Independent); 2, D. Norris (Oldham); 3, Mr. and Mrs. Bewick (Middleton); Tooth Carps: 1 and 2, B. C. White (Leigh); 3, M. Tonge (Oldham); Corydoras Catfish: 1, R. Davies (Belle Vue); 2, R. Bowling (Sunnybrook); 3, A. Baldwin (Nelson); A.O.V. Catfish: 1, A. Baldwin (Nelson); 2, Mr. and Mrs. Webb (Middleton);

3, Mr. Illingworth (Nelson); Loaches: 1, B. C. White (Leigh); 2, Mr. and Mrs. Webb (Middleton); 3, Mr. Kenyon (Belle Vue); Breeders (Beggars): 1, J. Higgins (Oldham); 2, F. E. Gregory (Oldham); 3, Mr. and Mrs. Bewick (Warrington); Breeders (Livebearers): 1, Mr. and Mrs. J. Brearley (Belle Vue); 2 and 3, Mr. Duffy (F.G.A.); Pairs (Livebearers): 1, Mr. and Mrs. S. Heap (Belle Vue); 2, Mr. Duffy (F.G.A.); 3, Mr. and Mrs. Hogarth (Salford); Pairs (Beggars): 1, Mr. and Mrs. Cobb (Belle Vue); 2, F. E. Gregory (Oldham); 3, Mr. and Mrs. Wild (Salford); Fancy Goldfish: 1, Mr. Whitney (Accrington); 2 and 3, Walsh (Accrington); Common Goldfish: 1, Mr. and Mrs. Cobb (Belle Vue); 2, F. Cobb (Belle Vue); 3, Mr. Whitney (Accrington); A.O.V. Coldwater: 1, Mr. and Mrs. Miller (Belle Vue); 2, Mr. Whitney (Accrington); 3, S. Walsh (Accrington); A.O.V. Tropical: 1, Mrs. J. Tonge (Oldham); 2 and 3, Mr. C. Stewart (Nelson); Plants: 1 and 2, Mr. Davies (Sunnybrook); 3, E. Birchwood (Oldham); Best Fish in Show: F. E. Gregory (Oldham).

A FULL programme comprising table shows, lectures and inter-club events is being enjoyed by East Dulwich A.S. Recent speakers to whom the Club owes thanks are Mr. F. Vicker on Characins and Mesars, D. Phillimore and G. Goodall on Guppies. Members are looking forward to a visit from Mr. Roy Skipper in December. On the inter-club scene, matches have recently taken place against Croydon A.S. and Freelance A.S., with East Dulwich defeated by Croydon but successful against Freelance. At inter-club table shows arranged by South Thames Aquarist Group, of which East Dulwich is a member, the Club is adequately holding its own and at Open Shows, members of East Dulwich seem to be "getting among the cards" more and more. Future plans include a home furnished-aquaria competition and a Christmas ticket draw.

Meetings are held at 8.15 p.m. on the second and fourth Mondays in the month at Dulwich Baths Reception Hall, Crystal Palace Road, London, S.E.22, and interested aquarists are cordially invited to come along or contact D. Sutton, telephone 693 5397.

**THE First Annual Open Show of the Penarth A.S.** attracted 285 entries, and the results were as follow: Barbets (under 2 1/2 in.): 1, 2 and 3, A. Trotman; 4, Mrs. Baylton; 5, G. Churchill; A.O.V. Barb: 1, G. Churchill; 2, D. Britton; 3, R. Hill; 4, R. Newton; 5, W. Limbrick; H. and H.: 1, A. Ibbison; 2, R. Swenson; 3 and 4, R. Hoare; 5, R. Wilkie; A.O.V. Characins: 1, M. Williams; 2 and 3, C. Harding; 4, B. Harding; 5, L. Morgan; Dwarf Cichlids: 1, M. Williams; 2, R. Newton; 3 and 5, A. Trotman; 4, C. Harding; A.O.V. Cichlids: 1, P. Player; 2, R. Hoare; 3, 4 and 5, J. Allen; Angels: 1, R. Morgan; 2, C. Harding; 3, E. Brooks; 4, J. Allen; 5, M. Williams; Fighters: 1 and 3, C. Harding; 2, R. Hoare; 4, M. Williams; 5, J. Allen; A.O.V. Labyrinth: 1, C. Pass; 2 and 4, R. Hoare; 3, C. Harding; 5, R. Bennett; Corydoras: 1, R. Hoare; 2, R. Palmer; 3, A. Ward; 4, Mrs. Baylton; 5, W. Limbrick; A.O.V. Catfish: 1, P. Player; 2, C. Harding; 3, J. Allen; Botia, Loaches, Bels: 1, R. Newton; 2, R. W. Hill; 3, K. Williams; 4 and 5, A. Ward; Rasbora: 1, 2 and 3, A. Trotman; 4 and 5, R. Hoare; Danios, Minnows: 1, R. Wilkie; 2, R. Meek; 3, C. Harding; 4, D. Britton; 5, E. Brooks; Guppies (Male): 1, J. Gellis; 2, 3 and 4, P. Player; 5, W. Martin; Guppies (Female): 1, S. Ireland; 2 and 4, P. Player; 3, C. Harding; 5, J. Allen; Swords: 1, R. Hoare; 2, J. Pumphord; 3, C. Harding; 4, C. Pass; 5, R. W. Hill; Platys: 1 and 3, R. Hoare; 2 and 5, C. Harding; 4, A. Ibbertson; Mollies: 1, R. Meek; 2, K. Williams; 3, C. Harding; 4, C. Bennett; 5, J. Cilia; Killifish: 1, R. Newton; 2, 3 and 4, G. Churchill; A.O.V. Tropical: 1, 3 and 5, P. Player; 2, R. Hoare; 4, W. Limbrick; Purnish Jar: 1, R. Bishop; 2, R. Bennett; 3, N. Cilia; A.V. Fish, Int.: 1 and 5, Miss D. Player; 2, D. Brooks; 3 and 4, M. Wilkie; A.O.V. Goldfish: 1, 3, 4 and 5, R. Harding; 2, M. Wilkie; A.O.V. Coldwater: 1, W. Limbrick; 2, B. Harding; Best Breeders (Beggars): 1 and 2, A. Ibbertson; 3, C. Harding; 4, G. Churchill; 5, P. Player; Best Breeders (Livebearer): 1, R. Wilkie; 2, M.

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Wilkie; 3, A. Bartley. Best Fish in Show; R. Newton, Penarth A.S. Most Aggregate Points; C. Harding, Cardiff A.S. Most Aggregate Point by Penarth Member: A. Trotman.

**THE Kings Lynn and District A.S.** held an exhibition recently and this, the club's first public exhibition, was designed to give the general public an insight into the hobby of keeping fish. The show, opened by the town's mayor, was visited by an estimated 3,000 people, which proved that there is a demand for this sort of exhibition in this part of the country. The society was very grateful for the support of local trade exhibitors, who combined with society tanks, made a very good show.

The Mickfield Fish Centre had a selection of the "Mickfield Marions". Gillett of Wisbech also had marines on show and Terrington Aquatics had a very good display of Freshwater fish.

The club still meet at the "Anglia Carpen Centre" in Norfolk Street, Kings Lynn, and a warm welcome is extended to anyone interested in making a visit.

Details of club membership or meeting dates can be obtained from the secretary, Mr. G. Rothwell, 42 Higham Green, Fairstead Estate, Kings Lynn, Norfolk, or by telephoning Kings Lynn 63403.

**THE November meeting of the Aberdeen A.S.** will be held in the Y.M.C.A. Rooms, Union Street, on Tuesday 17th November, at 7.30 p.m. The first part of the evening will be an open Table Show. There are only two classes: (a) single fish (any variety); (b) pair of small fish (any variety). Points will be awarded for entries in (a) and (b) sections and will go towards winning one of the club cups. During the second half of the evening there will be a "Bring and Buy" Sale and members are requested to bring along any spare or old equipment. At the September meeting there was an excellent turnout of old and new members, and a very good slide show with taped commentary was thoroughly enjoyed. The competition for the club badge was won by Clive Barclay.

Anyone wishing further details of the club should come along to the meetings, or contact the secretary, Mr. Ian McHattie, 79 Mile End Avenue, Aberdeen, phone 55773. Out-of-town visitors from other clubs will be made most welcome.

**DESPITE** bad weather more than a thousand visitors attended the **Brighton and Southern A.S.** annual show. Mr. Gerry Greenhall won the Best Fish of the Show (Brighton Annual Trophy) with his *Ctenopoma acrostictus*, which netted 86 points. The results were as follows: Class B: 1, K. Williams; 2, P. Ginger; 3, M. Tee; 4, Q. Taylor. Class C: 1, R. Cooper; 2, A. J. H. Smith; 3, C. Wood; 4, R. Taylor. Class D: 1, R. Kerridge; 2, W. D. Harner; 3, J. Bellingham; 4, P. Hammond. Class Dhr: 1, S. Crabtree; 2, R. C. Burton; 3, P. Tee; 4, T. Hine. Class E: 1, G. Greenhall; 2, T. J. Summers; 3, M. Tee; 4, A. Blake. Class Eic: 1, C. Wood; 2, R. Cooper; 3, I. T. Matheson; 4, R. Durrant. Class F: 1, H. Armitage; 2, D. C. M. Durrant; 3, I. T. Matheson; 4, J. Bellingham. Class G: 1, T. J. Summers; 2 and 3, G. Greenhall; 4, K. Dryden. Class H: 1, E. F. Greenhall; 2, R. Smith; 3, P. S. Grovesnor; 4, M. Tee. Class J: 1, W. D. Harper; 2, B. Cox; 3, A. Blake; 4, T. Hine. Class K: 1, H. Maddison; 2, G. Greenhall; 3, W. D. Harper; 4, S. Crabtree. Class M: 1, R. Kerridge; 2 and 3, P. Tee; 4, H. T. Davidson. Class Q: 1, P. A. Ginger; 2, P. Tee; 3 and 4, K. G. Quennell. Class R: 1, R. Smith; 2 and 3, G. Greenhall; 4, A. Howes. Class S: 1, G. Greenhall; 2, N. Short; 3, P. J. Brendley; 4, P. Ginger. Class T: 1, J. A. Pollard; 2, R. Cooper; 3, D. Cruickshank; 4, A. Blake. Class Xa Breeders: 1, B. F. M. Humphries; 2, P. A. Grovesnor; 3, D. Soper; 4, H. Maddison. Class Xb Breeders: 1 and 2, G. Greenhall; 3, J. Redford; 4, D. Soper. Individual Furnished Aquaria: 1, E. R. Nicholl; 2, J. Salisbury; 3, H. Maddison; 4, D. McFarlane. Coldwater Species: Class Uc and d: 1, V. Hunt. Class V: 1, V. Hunt. Class W: 1 and 3, V. Hunt; 2, A. Pollard; 4, A. Howes. Guppy Shields: 1, B.

Ilmes, Best Single Guppy; 2, D. A. J. Riley. Best Single Opposite Sex; 3, M. Scott. Best Breeders Team.

**AQUARISTS** from Amesbury, Salisbury, New Forest and Winchester joined those of **Southampton A.S.** to hear Capt. "Alligator" Edwards, F.Z.S., give a lecture entitled "All God's Creatures". Together with representatives of other Southampton organisations they were entertained as he introduced his subject by showing slide illustrations of the converted cellars at his home where he keeps a comprehensive collection of reptiles and amphibians from all over the world as well as pictures of their natural habitats.

He went on to explain that he had been keeping fish as well as these animals for many years and had been appalled at the numbers threatened with extinction due to people's greed and ignorance. He spends a great deal of time lecturing at schools and to young people's organisations on the merits of conservation because they are the ones who have most to lose if these animals are wiped out.

To refute the views held by many people that these creatures are repulsive he produced and handled many live specimens of lizards, iguanas and snakes. The latter included a Royal Python, which he allowed a Southampton junior aquarist to handle. For a finale he introduced Gubbert, a Mississippi Alligator, and went on to explain the differences between crocodiles and alligators as well as the problems of keeping the species.

A Table Show of fish bred by members of the Southampton A.S. was judged by Mr. C. McCann, with the following result: Advanced Class: 1 and 3, M. Mansbridge; 2 and 4, J. Gilbert. Novice Class: Malcolm Calvert. Coldwater: 1 and 2, W. Ryder.

**THERE** was a record entry of 367 in **Seaham Rock House and District A.S.** seventh annual show. Best fish in the adult show was exhibited by J. A. Whiteley, of Aireborough. Results: Adult Show. A.V. Guppy: 1, W. Cady (Seaham); 2, D. H. Hartley (Castleford); 3, T. Milson, A.V. Mollie; 1, Atkinson (Mount Pleasant); 2, T. Sotham (Peterlee); 3, A. Cook (Peterlee). A.V. Swordtail: 1, B. Stobhart (Newcastle); 2, A. Babbington (Peterlee); 3, E. Turnbull (Hartlepool). A.O.V. Livebearer: 1, J. Jennings (Mount Pleasant); 2, D. Renton (Newcastle); 3, J. A. Whiteley. A.V. Barbs (small): 1, J. A. Whiteley; 2, P. Carey (York); 3, C. A. Enright (Houghton). A.V. Barbs (large): 1, J. D. Ambrose (Mount Pleasant); 2, R. Dobson (Peterlee). A.V. Fighter: 1, A. E. Whitlock (Tadcaster); 2, C. Simpson (Peterlee); 3, W. Jackson (Mount Pleasant). A.V. Labyrinth: 1, P. Carey; 2, M. J. Jennings; 3, T. Smith (Mount Pleasant). A.V. Characin (Small): 1, H. Greenacre (Mount Pleasant); 2, R. A. Walker; 3, M. M. and A. Crowther (Swillington). A.V. Characin: 1, R. A. Walker; 2, M. McCristal (Priority); 3, F. Peat (Seaham). A.V. Angel: 1, M. C. Asquith (Castleford); 2, S. Stranger (Houghton); 3, B. Hanner (Castleford). A.V. Cichlid (small): 1, W. Jackson; 2, R. Atherton; 3, I. Gardner (Houghton). A.V. Cichlid (large): 1, R. Atherton; 2, Mrs. Skillen (Hartlepool); 3, W. Jackson. A.V. Catfish: 1, P. Carey; 2, W. Cady (Seaham); 3, Mr. and Mrs. Atwell (Peterlee). A.V. Loach: 1 and 2, A. Babbington (Peterlee); 3, D. H. Hartley (Castleford). A.V. Rasbora and Danio: 1, Mr. and Mrs. Atwell; 2, W. L. Backworth (Newton Aycliffe); 3, N. Watson (Hartlepool). Toothcarp: 1 and 3, M. M. and A. Crowther; 2, P. Carey. A.V. Shark: 1, B. Scrafton; 2, K. Adams (Hartlepool); 3, J. A. Whiteley. A.O.V. Egglayer: 1, Mr. and Mrs. Atwell; 2, A. E. Whitlock; 3, E. Bell (Peterlee). Breeders' Egglayers: 1, T. Sotham; 2, and 3, W. Worrall. A.V. Goldwater: 1 and 2, C. Asquith (Castleford); 3, Mrs. E. Asquith. Furnished tank: 1, A. Bailey (Sunderland); 2, R. and D. Shanks (Mount Pleasant); 3, Mr. and Mrs. Daglish (Newcastle). Breeding pairs: 1, A. Bailey; 2, R. A. Walker; 3, J. A. Whiteley.

Juniors' show. A.V. Guppy: 1, I. and N. Stobhart (Newcastle); 2, T. Backworth (Newton Aycliffe); 3, G. McAndrew (Seaham). A.V. Swordtail: 1, R. Dobson (Peterlee); 2, P.

Dwyer (Aireborough); 3, C. Cook, (Peterlee). A.V. Mollie: 1, R. Dobson (Peterlee); 2, J. Simpson (Peterlee); 3, S. French (Newton Aycliffe). A.O.V. Livebearer: 1, T. Backworth; 2, R. Atkinson; 3, S. Stranger. A.V. Characin: 1, J. Waller; 2, C. Cook; 3, J. Simpson. A.V. Labyrinth: 1, I. and N. Stobhart; 2, P. Dwyer; 3, J. Cope (Seaham). A.V. Cichlid: 1, A. Shanks; 2, T. Backworth; 3, C. Keith (Seaham). A.V. Catfish or Loach: 1, P. Dwyer; 2, T. Backworth; 3, P. Rodgers. A.V. Rasbora, Danio or Toothcarp: 1, M. Atwell; 2, J. Simpson; 3, T. Backworth. A.O.V. Egglayer: 1, P. Dwyer; 2, M. Atwell; 3, R. Dobson (Peterlee). A.V. Goldwater: 1, M. Cook; 2, A. Bird; 3, I. Rooney (Seaham). Breeding pairs: 1, C. Keith; 2, J. Robertson; 3, I. and N. Stobhart. Best fish in the junior section was an egglayer shown by P. Dwyer, of Aireborough.

**THE Selby and District A.S.** have amended the date of the First Open Show. This will now be held on Sunday, 26th September, 1971. The place of venue has now been booked, and will be held at The Museum Hall, Park Street, Selby. Four judges have been asked to attend this show, refreshment arrangements have been made. Further information will be given as available, or can be obtained from the Show Secretary, W. A. Bunnage, 22 Heath Croft, Pudfoot, York.

**THE Paul Stokes and Harry Williams Memorial trophy** was competed for recently at the G.K.N. Works Restaurant. This event is held annually to commemorate two well-known aquarists who did so much for the hobby and who were so tragically killed. It is competed for by four local aquarist societies, namely **Dudley and District A.S., Wednesbury and District A.S., Tipton and District A.S., and G.K.N. Pond and Aquarium Society.** This year's hosts were G.K.N.

Entertainment was provided, while judging was taking place, by speakers from M.A.A.S. and a film show was also provided for the children. Judging was carried out by M.A.A.S. judges. This year's winners of the trophy were Wednesbury and District A.S., and the full list of results was as follows: Livebearers: 1, B. Land (D.); 2, W. Devison (W.); 3, R. Cook (T.). Characins: 1, N. Hinson (W.); 2, T. January (W.); 3, J. Reeves (W.). Cichlids: 1, K. Walker (W.); 2, A. Masby (W.); 3, A. Rowley (G.K.N.); Barbs: 1, A. Masby (W.); 2, R. Cook (T.); 3, B. Jenks (D.). Catfish and Loaches: 1, A. Masby (W.); 2, Mrs. Smith (W.); 3, G. Garner (D.). Danios, Rasboras and W.C.M.M.: 1, T. Lewis (D.); 2, K. Hall (G.K.N.); 3, P. Mathews (T.). Anabantids: 1 and 3, J. Taylor (G.K.N.); 2, J. Croft (D.). A.O.V. Tropical: 1, Mrs. Smith (W.); 2, E. Highfield (W.); 3, Reeves (W.). True Pairs, Egglayers or Livebearers: 1, W. Devison (W.); 2, V. Yarnall (G.K.N.); 3, F. Boston (G.K.N.). Best in Show was a Parrotfish exhibited by Mrs. Smith of Wednesbury Society.

**THE** best Goldwater or Pond Fish and the best Aquarium Plant were the classes for the September table show of the **Plymouth A.S.** Although there were not a great number of entries the judge treated the members to his detailed comments on each individual exhibit. This is the first time that exhibitors have had the satisfaction of being shown the merits and faults of their own particular entries—Perhaps future judges will follow this lead. Particularly interesting was the explanation regarding the exhibition of aquarium plants—Plymouth club members have little experience in this field. The excellent example of judging was given by Mr. R. J. King, of Kingsteignton, Torbay, who is a

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qualified F.B.A.S. judge. Results: Coldwater Fish: 1 and 2, R. W. Bull; 3, J. Collins; 4, W. Kirby. Aquarium Plant: 1 and 2, W. Rundle; 3, P. G. Lucas.

The earlier meeting of the club was taken up exclusively by a show of coloured slides, presented by Mr. Matthews, who is a member of both the Plymouth and Torbay Aquarist Societies. The abundance of slides and the accompanying smooth flowing commentary left little time for any other business. The evening was still all too short for such an interesting display.

**EARLY** in September the **Hastings and St. Leonards A.S.** entertained members from the **Hexhill A.S.** for the evening. There was a quiz, which was won by **Hexhill** by 22 points to 18. The individual winner was **R. Sleet** of **Hastings**. The inter-club table show was for catfish: 1, **P. Martin** (**Hastings**); 2, **Mrs J. Shead** (**Hexhill**); 3, **D. Spencer** (**Hexhill**). At the second meeting there should have been a talk on Killifish, but the guest speaker failed to turn up. However, the society has a Killifish enthusiast, **Graham Fryke**, who was able to give an impromptu talk on this subject, which was very informative and interesting. The table show was for Killifish and results are: 1, **P. Harbord**, **Aphyosemion Australis**; 2, **G. Fryke**, **Aphyosemion Gardneri**; 3, **T. McCormick**, **Rivulus**.

**THE Brighton and Southern A.S.** met recently for its fortnightly function. This meeting followed the highly successful Open Show reported previously.

Altogether 43 members, 5 juniors and 12 guests, of which nearly all have taken out membership to the Brighton and Southern Club. This reflects most favourably on the interest aroused by the Open Show and associated publicity. All club members would like to express the warmest welcome to all those new members who joined recently and hope their association with club will be a long and happy one. The club will continue to meet fortnightly on Mondays at the Springfield Hotel, Springfield Road, Brighton, at 8 p.m. All interested persons are welcome and are assured of a warm welcome.

Any enquiries concerning the club will be promptly dealt with by our Secretary, **Mr B. Shelton**, who can be contacted at 45 Coventry Street, Brighton.

**THERE** was a record entry of over four hundred at the fourth annual open show of the **Yate and District A.S.**, which was undoubtedly the best Open Show that this society have put on. The results were as follows: Male Guppy: 1, **Mr. Daniells**; 2, **Mr. Whitehead**; 3, **P. Wright**; 4, **R. Adams**. Female Guppy: 1, **D. R. Stevens**; 2 and 4, **R. Adams**; 3, **T. Hayward**. Swordtails: 1, **G. R. Furber**; 2, **Miss L. Smith**; 3, **Mr. Daniells**; 4, **D. R. Stevens**. Mollies: 1 and 2, **K. Spiers**; 3, **J. Powell**; 4, **P. Hiscocks**. Platies: 1, **G. R. Furber**; 2, **C. Stickland**; 3, **M. Samuels**; 4, **N. Furniss**. Barbs (under 3 in.): 1, **J. Powell**; 2, **D. Noble**; 3, **S. Green**; 4, **G. Churchill**. A.O.V. Barbs: 1 and 4, **D. Noble**; 2, **J. Brown**; 3, **R. Larcombe**. Minnows, Danios, Rasbora: 1, **G. R. Furber**; 2, **Mr. Daniells**; 3, **Mr. Menhennet**; 4, **Mr. Trotman**. Characins H. and H.I.: 1 and 2, **D. Noble**; 3, **R. C. Hyett**; 4, **R. Swinnons**. A.O.V. Characins: 1, **R. Bishop**; 2, **B. Water**; 3, **D. Noble**; 4, **P. Wright**. Annabantids: 1, **P. Hibbs**; 2, **C. Stickland**; 3, **G. R. Furber**; 4, **J. Willett**. Fighters: 1 and 4, **Mrs. King**; 2, **Mrs. Eager**; 3, **T. Hodge**. Angels: 1 and 2, **A. J. Bull**; 3, **D. Noble**; 4, **T. Hodge**. Dwarf Cichlids: 1, **R. Bennett**; 2, **P. Hibbs**; 3, **A. Trotman**; 4, **C. Butcher**. A.O.V. Cichlids: 1, **J. Powell**; 2, **C. T. Shepherd**; 3, **M. Emery**; 4, **J. Brown**. Corydoras Cats: 1 and 3, **R. Larcombe**; 2, **P. Wright**; 4, **R. Bishop**. A.O.V. Cats: 1 and 2, **S. Green**; 3, **B. Snel**; 4, **Mr. Daniells**. Sharks, Bels, Loaches: 1 and 2, **G. R. Furber**; 3, **J. Powell**; 4, **K. Watkins**. Sexed Pairs: 1, **G. R. Furber**; 2, **J. Powell**; 3, **C. Butcher**; 4, **K. Spiers**. Breeders Team (Livebearers): 1 and 3, **K. Spiers**; 2, **G. Powell**; 4, **D. R. Stevens**. Breeders Team (Gigglayers): 1, **G. Churchill**; 2, **D. Bateman**; 3, **K. Watkins**; 4, **J. Smith**. Killifish: 1, **R. Larcombe**; 2, **Mrs. King**; 3, **G. Churchill**; 4, **J. Smith**. A.O.V. (Tropical): 1, 2 and 3, **P. Wright**; 4, **G. R. Furber**. Goldfish: 1, **P. Hibbs**;

2 and 3, **M. Menhennet**; 4, **R. Sad**. Shubunkin: 1 and 2, **Mr. Daniells**; 3, **C. Stickland**; A.O.V. Goldfish: 1, **R. Bishop**. Junior A.O.V. Tropical: 1, **T. Hayward**; 2, **K. Davies**; 3, **C. Vowle**; 4, **J. Marks**. Furnished Aquaria: 1, **R. Bishop**. Highest Points: 1, **G. R. Furber**. Best Junior: 1, **T. Hayward**. Best Breeder: 1, **K. Spiers**. Best Characin: 1, **R. Bishop**. Best Catfish: 1, **S. Green**. Best Fish in Show: 1, **G. R. Furber**. Best Livebearer: 1, **G. R. Furber**.

**THE** fortnightly Monday evening meetings of the **Reigate and Redhill A.S.** at **Somers Hall**, **Slipshoe Street**, **Reigate** continue to attract new members and recent meetings have covered a variety of topics. Recent meetings have included a demonstration of tank glazing, and 14th September was a **Coldwater Night** with **Roger** and **Pam Whittington** and **Bill Leach** of the **G.S.G.B.** providing a slide show illustrating varieties of Goldfish and aquatic plants with a stage by stage photographic description of the building of the **Whittington's** fish house and numerous ponds. On 28th September **Graham Cox**, of **Seaquariums**, lectured on varieties of tropical marine fish and showed a colour film of such fish in their natural Red Sea habitat. There were over 400 entries at the Open Show and the results were as follows: Interclub Furnished Tropical: 1, **Reigate and Redhill A.S.**; 2, **Portsmouth A.S.**. Interclub Furnished Goldwater: 1, **Portsmouth A.S.**; 2, **Reigate and Redhill A.S.**. Individual Furnished: 1, **T. G. A. Humphreys**. Barbs: 1, **W. D. Harper** (**Kingston**); 2, **Mrs. J. Bellingham** (**Tonbridge**); 3, **C. J. Taylor** (**R. & R.A.S.**); 4, **Mrs. M. Nicol** (**R. & R.A.S.**). Characins (C): 1 and 3, **Mrs. M. Nicol** (**R. & R.A.S.**); 2, **T. J. Summers** (**Uxbridge**); 3, **L. Jorday** (**Becknell**). Characins (Ca): 1, **R. C. Taylor** (**Tonbridge**); 2, **Mrs. D. Barrett** (**Kingston**); 3 and 4, **D. W. Armour** (**Riverside**). Cichlids: 1, **W. D. Harper** (**Kingston**); 2, **J. Bellingham** (**Tonbridge**); 3, **Mrs. M. Nethersell** (**Riverside**). Angels: 1, **Mrs. M. Nethersell** (**Riverside**); 2, **J. Wood** (**R. & R.A.S.**); 3, **D. Wiltshire** (**Carshalton**); 4, **I. Stemp** (**R. & R.A.S.**). Dwarf Cichlids (Db): 1, **Mrs. D. Barrett** (**Kingston**); 2 and 4, **T. F. Hine** (**Tonbridge**); 3, **D. J. Mackay** (**Kingston**). Labyrinths: 1, **G. Greenhalf** (**Kingston**); 2, **K. Barrett** (**Kingston**); 3, **Mrs. M. Nicol** (**R. & R.A.S.**); 4, **T. J. Summers** (**Uxbridge**). Siamese Fighters: 1 and 3, **R. Cooper** (**Kingston**); 2, **C. Wood** (**North Kent**); 4, **P. W. Cottle** (**North Kent**). Egg-laying Toothbears: 1, **R. D. Birch** (**North Kent**); 2, **M. Carter** (**Bracknell**); 3, **R. C. Taylor** (**Tonbridge**); 4, **I. Matheson** (**Tonbridge**). A.O.S. Catfish: 1, **R. J. Baker** (**Tonbridge**); 2, **G. Greenhalf** (**Kingston**); 3, **J. Wood** (**R. & R.A.S.**); 4, **T. J. Summers** (**Uxbridge**). Corydoras, Brochius: 1 and 4, **D. W. Armour** (**Riverside**); 2, **R. Cooper** (**Kingston**); 3, **G. Greenhalf** (**Kingston**). Rasbora: 1, **W. D. Harper** (**Kingston**); 2, **M. Carter** (**Bracknell**); 3, **J. Wright** (**R. & R.A.S.**); 4, **D. J. Mackay** (**Kingston**). Danios and W.C.M.M.: 1, **W. D. Harper** (**Kingston**); 2, **R. Weston** (**Basingstoke**); 3, **J. Wood** (**R. & R.A.S.**); 4, **M. Carter** (**Bracknell**). Loaches: 1, **M. Carter** (**Bracknell**); 2, **L. Jordan** (**Bracknell**); 3, **T. A. Cruickshank** (**Ealing**); 4, **D. J. Mackay** (**Kingston**). A.O.S. Egg-layer: 1, **M. Strange** (**Basingstoke**); 2, **J. Wright** (**R. & R.A.S.**); 3 and 4, **T. J. Summers** (**Uxbridge**). A.V. Guppy Male: 1, **B. Smith** (**R. & R.A.S.**); 2, **K. A. Johnstone** (**Portsmouth**); 3, **R. Smith** (**Tottenham**); 4, **Mrs. M. Nethersell** (**Riverside**). A.V. Guppy Female: 1, **K. A. Johnstone** (**Portsmouth**); 2, **Mrs. M. Nethersell** (**Riverside**); 3, **B. Smith** (**R. & R.A.S.**); 4, **P. Wills** (**North Kent**). Swordtails: 1, **K. Barrett** (**Kingston**); 2, **T. A. Cruickshank** (**Ealing**); 3, **J. Stephens** (**North Kent**); 4, **G. Greenhalf** (**Kingston**). Platies: 1, **G. Greenhalf** (**Kingston**); 2, **B. W. F. Smith** (**Kingston**); 3, **Mrs. M. Nethersell** (**Riverside**); 4, **J. W. Rood** (**Tonbridge**). Mollies: 1, **G. Greenhalf** (**Kingston**); 2, **B. W. F. Smith** (**Kingston**); 3 and 4, **J. Wood** (**R. & R.A.S.**). A.O.S. Livebearers: 1 and 2, **Mrs. D. Barrett** (**Kingston**); 3, **R. Cooper** (**Kingston**); 4, **M. Strange** (**Basingstoke**). Singletail Goldfish: 1 and 2, **Miss D. Morris** (**G.S.G.B.**); 3, **W. Leach** (**R. & R.A.S.**); 4, **B. W. F. Smith** (**Kingston**). Twinstail Goldfish: 1 and 2, **Miss J. Leach** (**R. & R.A.S.**); 3, **V. Hunt** (**Portsmouth**); 4, **Miss D. Morris** (**G.S.G.B.**). A.O.S.

**Coldwater**: 1, **Miss F. Leach** (**R. & R.A.S.**); 2, **E. Binstead** (**Portsmouth**); 3 and 4, **V. Hunt** (**Portsmouth**). Tropical Egg-layers Breeders: 1, **M. Strange** (**Basingstoke**); 2, **P. W. Cottle** (**North Kent**); 3, **J. Bellingham** (**Tonbridge**); 4, **L. W. Jordan** (**Bracknell**). Tropical Livebearers Breeders: 1, **J. Stephens** (**North Kent**); 2, **M. Strange** (**Basingstoke**); 3, **J. Wright** (**R. & R.A.S.**); 4, **A. C. Gardiner** (**R. & R.A.S.**). Coldwater Breeders: 1, **Miss D. Morris**. Best Fish in Show: **D. W. Armour** (**Riverside**).

**AT** the October meeting of the **Bedworth A.P.S.** members took part in a competition organised by the Chairman, **C. Skidmore**. They were asked to identify forty slides of tropical fish giving both latin and common name, also the show to be entered in under **M.A.A.S.** rules. The winners were **J. Davis**, the secretary, and a junior member, **R. Shakespear**, with 70 points out of 100. The evening closed with an auction of all unsold items left over from the open show. This was conducted by the vice-chairman, **K. Upton**.

Included in the table show was a new venture, a novelty jar class, in which any container was allowed. Among the exhibits were a loving cup, a brandy glass, and a giant light bulb. The winner was **R. Shakespear** with an empty show jar with the caption, "Who let the cat in the fish house". Second and third were **Mr. and Mrs. Carter**, and fourth **Mr. and Mrs. Pratt**. Other results: Pairs (Livebearers): 1 and 4, **Mr. and Mrs. Carter**; 2 and 3, **K. Pratt**. A.O.V. Goldfish: 1 and 2, **Mr. and Mrs. Balcombe**; 3, **K. Pratt**; 4, **C. Pratt**. **Mr. M. H. Carter** has been appointed Press Officer.

#### NEW SOCIETIES

**THE** inaugural meeting of the **Gloucester Fishkeeping and Social Club** was held recently at the **Longlevens Pavilion**, **Longford Lane**, **Gloucester**. After the formulation of the rules the following officers were elected: Chairman, **Mr. R. E. H. Moulder**; Secretary, **Mr. B. H. Stoneham**; Treasurer, **Mr. T. Collier**. The club made a very encouraging start with the enrolment of thirty-one members. The next meeting of the club will be held at the same venue at 7.30 p.m. on Monday 26th October, and every last Monday of the month. Further information on the club's activities can be obtained from the secretary, 54 Tredworth Road, Gloucester.

**THERE** is now a **Marine Society** in **Sheffield** which has been named the **Hallamshire Marine A.S.**. The society meets on the last Thursday of each month. Anyone who would like information can write to the hon. secretary, **P. J. Smith**, 30 Sheaf Gardens Terrace, Sheffield S2 4HL, or phone Sheffield 79207 after 5.30 p.m.

#### SECRETARY CHANGES

**Winchester and District A.S.:** **Mr. J. Cairns**, 41 Billingbury Court, Chandlersford, Hants.

**Rotherham and District A.S.:** **Auriel Harrison**, 35 Oubert Road, Broom, nr. Rotherham, Yorkshire.

#### AQUARIST CALENDAR

**1st November:** Association of Yorkshire Aquarist Societies. "Aquarist Fair," Victoria Hall, Victoria Park, Keighley, Yorks.

**8th November:** Hartlepool A.S. Twelfth Annual Show, Longcur Hall, Seaton Carew. Schedules available September from **J. D. Watson**, 42 Sydenham Road, Hartlepool.

**14th November:** Hendon and District A.S. Annual Congress, Whitefield Secondary Modern School, Claremont Road.

**29th November:** Aireborough and District A.S. Annual Open Show, Greenacre Hall, Rawdon. Schedules available September from **G. E. Walker**, 2a West End Terrace, Guiseley, nr. Leeds, LS20 8LX, Yorks.

**6th December:** Hordforth A.S. Second Open Show at Greenacre Hall, Rawdon, nr. Leeds.