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THE **AQUARIST**  
AND PONDKEEPER





# THE AQUARIST

AND PONDKEEPER

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*Pomacanthus maculosus*  
Courtesy of  
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The Editor accepts no responsibility for views expressed by contributors.



# ALL-GLASS AQUARIUMS

## *SOME FURTHER NOTES ON THEIR CONSTRUCTION*

By K. G. Russell

In constructing all-glass aquariums it should be remembered that the strength of a joint is not attributable to the amount of adhesive between the joined surfaces, but to the quality of the joint. This means of course, not only the excellent qualities of the modern Silicon Rubber Adhesive, but also true-cut edges and care in workmanship. It is not necessary to put a certain thickness of adhesive between the surfaces to make a good joint.

I will describe the sequence as I produce two 18 in × 10 in × 10 in tanks (46 cm × 25 cm × 25 cm) remembering, of course, that we are not starting out to make just two tanks as this will be found uneconomical as regards the Silicon Rubber Sealer.

Firstly I must state that I have never used anything more exotic than metal polish to clean the glass prior to construction and if it is ensured that no dust is present on the surfaces to be joined, there is no reason why it should be necessary to use C.T.C. or even meths. to clean prior to each join being made.

Materials required will be (say for a run of six tanks):

Glass: 4mm plate, for each tank:

- 1 at 46cm × 25cm Base
- 2 at 46cm × 24.6cm Front and Back
- 2 at 24.2cm × 24.6cm Ends.

- 2 tubes silicon sealer (about £1.00 each)
- 2 pieces polythene sheet approx. 20 in × 3 in.

Tools required:

Stanley paint stripper or similar (this is the tool sold at most D.I.Y. or decorating shops for trimming the paint from windows after painting the frames. A spare blade is also needed for frechand use in awkward corners and along edges.

Two pieces of cotton cloth, one for dusting edges prior to applying sealer and one for wiping any sealer off the fingers.

Clean and level work surface approx. 4 ft × 10 in.

Start with a piece of the polythene sheet at one end of the bench (to the right if you are right handed), this should be about two thirds of the width of the bench away from you, and place on the polythene cover to half of it a front glass with the cut edge away from you and lying on the sheet of polythene. Now apply the sealer, with the nozzle cut to give a hole of about  $\frac{1}{8}$  in, along the edge using the edge of the glass and the polythene to give a continuous fillet. Next take the base glass and stand it behind and about  $\frac{1}{8}$  in away from the sealed edge. Behind this glass put a heavy object (I use a tin of paint) and lean the glass back against this; bring the bottom of this glass forward to

contact the sealer and let it just rest against the support whilst you apply sealer to the bottom and one side edge of an end glass. During these operations it is best to have both hands free so if at all possible, you could make up a simple vice to hold the glass whilst you apply the sealer. This is done by drilling clearance holes for three or four screws through a piece of  $\frac{1}{2}$ - $\frac{3}{4}$  in ply wood approx. 20in x 5 in. The holes for the screws should be drilled as low as possible in the ply so that when it is screwed to the side rail of the bench the top of the ply is level with the surface. Tighten the screws so that the ply just about grips the glass and it will be found that the glass can be put in and taken out again without the need to tighten and undo the screws.

Having applied the sealer to the end glass as above, check and place it the correct way round (it makes rather a mess if you find you have put it the wrong way up and have to remove it again) down onto the front glass leaving about  $\frac{1}{4}$  in clearance from the end. Hold this end glass and bring the base glass up to meet it. If the end glass is cut true you now have a three sided box which must be forming perfect right angles. Apply the sealer to the other end piece and place it on the front glass, again leaving  $\frac{1}{4}$  in clearance at the end, so that the sealer on the bottom edge is not quite in contact with the base glass and then slide it to meet the base glass. Now check how well you or your glass supplier can cut right angles, if the ends are true you should have a perfect seal down both ends when you look from the other side of the base glass. If you are forced to work facing a wall so that you cannot see the other side, try holding a mirror behind the tank and viewing through this. If you require any supports for cover glasses or suchlike they should be stuck in place at this stage as we next take the glass for the back and place it in the vice to receive sealer along its bottom edge only as the cut edges of the end glass should have had sealer applied to them previously. I have written this part of the construction the wrong way round as I have frequently made this mistake myself and had to put the back glass down whilst applying the sealer to the ends so perhaps by writing it this way you will not make the same mistake. Now take the back glass from the vice and, holding it with the finger tips at the ends, gently lower it into position on the end glasses; again it is placed so that the sealer along the bottom edge is just clear of the base glass and it is slid gently into place. Check the seal from the other side and if all is well leave this tank to set. If your edges are cut true and the clearance at the end glasses is checked to be equal there should be no need to apply any sticky tape as the tank will be completely self-supporting. Now produce another tank alongside the first and leave them overnight to cure. The next morning you can gently turn the tanks onto their bases and strip off the polythene sheet to enable the

sealer to cure right through. I have got this part of the construction down to about 10 minutes per tank and if anyone knows a faster or more accurate method I would be pleased to hear from them. Once you have become proficient at this stage we can say that about half an hour has been spent on the first night. I have purposely left out the actual time for cutting the glass as some people will be able to buy their glass from a shop already cut and ground to size.

The next evening you can trim off any surplus sealer using the paint trimmer and loose blade and overseal these first two tanks. For oversealing the tube applicator should be cut to give a bead of approx.  $\frac{1}{4}$  in or about  $\frac{1}{2}$  in above the second ridge from the tube nozzle. Having oversealed you now put these first two tanks aside and make two more up as before in their place. I think that here would be a good place to give a tip or two on how the sealer should be applied. Always push the sealer along with the nozzle, never try to drag it behind as this can cause air pockets to be trapped underneath which are difficult and messy to remove. When applying the sealer to the edge of the sheets during construction it will help to avoid slipping off of the edge (resulting in possible cuts) to make a small "v" cut in the end of the nozzle and use this to guide you along, and try to get a continuous flow from one end to the other as it is difficult to pick up the join again. When doing the overseal work from the top corner of the ends downwards, do not draw the tube away from the glass as soon as you reach the bottom but push it right into the corner and give an extra squeeze until the sealer can be seen coming out from under the nozzle. Keep the pressure the same whilst drawing the tube away otherwise you will have a stream of sealer across the bottom of the tank or will suck the sealer out of the corner again. When sealing the base to the uprights of the tank do not try to seal from one corner to another but start in the middle of each glass and work towards the end overlapping slightly in the centre join and you will produce a perfect fillet with a slight flash of sealer on either side. This is trimmed off afterwards with the paint trimmer. By placing your finger between the glass and the tool you will find that you can trim this flash off quite easily. A further refinement that I do on my tanks is to use the trimmer with the blade facing the seal and remove the slight smear left by gently pushing it onto the seal. After doing this you can give the seal a gentle rub with a soft cloth and you will find that a perfectly straight edge is obtained.

Having trimmed the overseal you will have produced two tanks in three evenings which are ready for use after a thorough washing out to remove any loose pieces of sealer.

One last word, glass is dangerous if handled carelessly so please treat it with respect as it could give you a very nasty cut or worse.



# AN INTRODUCTION TO THE BARBS

by K. N. Walsh

THE FISHES commonly known as barbs come from the family Cyprinidae (carps and carp-like fishes). They are divided into three genera; those without barbels have been called *Puntius*, those with two barbels are called *Capoeta*, and those with four barbels, *Barbodes*.

The majority of these fish are very easy to keep and breed. They are very tolerant of water conditions provided that the water is not abnormally hard or soft, but it should be well aged.

Barbs are native to two continents, Asia and Africa. Most of the barbs available to the aquarist come from the area which includes Ceylon, India and Malaya. Outside this area there are a few in China. Those which come from Africa are very rarely imported, mainly because of the difficulty in collecting and shipping them. Those few species which have been made available do not seem to match the Asiatic barbs for colour and they do seem more difficult to breed. Maybe this is because not enough is known about them, or not enough information has been made available to the aquarist.

## FEEDING THE BARBS

Before setting up the tank for these fish, something should be known about feeding habits. Most of these fishes possess a set of barbels or whiskers. These are more olfactory than tactile organs and are characteristic of many bottom-feeding species. This is not to say that barbs are strictly bottom-feeding fish; they are active fish and are usually the first to detect the presence of food being put into the tank, and are usually the last to leave it. They have excellent appetites, and the larger barbs are apt to elbow their smaller tank mates away from the food. Many fishes will not grub on the bottom for uneaten food: this is where the barb comes into his own. If there is any instance of overfeeding, and very often there is, the barbs can be counted on to do almost as good a job as the catfish. This does not mean that the barbs will

thrive on anything and everything in the food line. Dried flake food is usually the main part of their diet in the aquarium, but this is not as nourishing as live food. An effort should be made to feed the fishes live food as often as possible. This may not be available all the year round, but freeze-dried food is just as beneficial to them and there is less risk of introducing parasites into the tank because this food is sterilised in the processing.

*Tubifex* worms are one of the most available live foods and most dealers stock it, but it should be well washed before feeding to your fish. *Daphnia* is another fine food and although it is 90 per cent water, it provides the roughage in the fishes' diet. Daphnids are usually found in small ponds high in organic material and with very little fish life. In their natural habitat, mosquito larvae probably provide 80 per cent of the menu for most carnivorous freshwater fishes, and the barbs are no exception. These are usually found in the same ponds as the *daphnia*. Bloodworms are another excellent food for the larger barbs, but be careful not to put them into a tank containing small fry; they are capable of catching and killing them.

## THE BARB AQUARIUM

Since the majority of barbs are peaceful they are ideal for the community aquarium, provided there is plenty of space for them to swim as they are very active fishes. The ideal temperature of the tank should be 75 to 78°F. There should be a fair amount of plants in the aquarium, spread around the back and sides, leaving the centre clear for swimming.

It must be remembered that in maintaining tropical fish artificially their natural environment must be duplicated as closely as possible. Since the barbs originate in tropical zones where the amounts of rainfall are both high and recurring, frequent, partial changing of the aquarium water becomes essential. A partial change of about a quarter of the water should be



made every week, to prevent a build-up of toxic waste excreted by the fish. This water should be siphoned from the bottom of the tank to make sure all the muck and excreta are removed. Even the filter connected to the tank does not remove every particle that is present.

The signs of an oncoming toxic tank condition are unmistakable. The barbs refuse to eat, they can become nervous and excitable, the edges of their fins begin to rot and finally they decompose very rapidly. Strangely enough, and this is what misleads many aquarists, the water remains crystal-clear. The extreme acid conditions of the water, caused by the decomposing waste products, can only be detected by a pH check. The solution to this problem is a complete water change made in several stages. This is to avoid shocking the fish, which is just as harmful as the toxic waste (it can kill them). Make sure all the debris is removed from the aquarium before adding the new water, otherwise this, too, will become toxic.

#### BREEDING THE BARBS

The tanks for breeding barbs should be thoroughly cleaned before setting up. The size of the tank used varies with the size of the fishes; it can be as small as five gallons for the very small barbs, such as the cherry barb, or as large as fifty gallons for fully grown larger species like the spanner barb and clown barb. After the tank has been thoroughly cleaned, it should be filled with clean fresh tap water. Since fresh tap water contains an excess of dissolved gases, it should be allowed to stand for 24 hours. The ideal water conditions are soft, slightly acid; pH 6.6 to 6.8 DH 5 to 6. A peat filter can be added to the tank to make the water on the acid side. If this is done the filter should be left to run for about three days to allow the acids to escape into the water. The water after this time will be crystal-clear and a slightly amber colour.

The base of the tank should be covered with large pebbles or marbles. This will allow the eggs to fall through without the parents being able to eat them. Fine-leaved plants, such as *cabomba* and *Myriophyllum*, can now be added. These plants are ideal for receiving the eggs which will adhere to them. About a third of the tank should be covered with these plants. Nylon mops can also be used as a spawning medium, but they must be boiled thoroughly before placing in the tank.

The temperature of the tank should be raised to around 78 to 80°F. This higher than usual temperature increases the barbs' desire to spawn. This entire process should be completed before introducing the fish to the tank.

The males and females which are to be spawned should be kept in separate tanks. This stops them spawning before you are ready for them. Also keep the tanks apart from each other, otherwise the two

sexes may see each other and become excited. This may cause the female to expel her eggs without a male being present to fertilise them, or the male to release his sperm without any eggs to fertilise.

Both sexes should be fed large helpings of various live food to get them into the best breeding condition. When properly conditioned, the males will be in full colour, swimming around with all their fins erect. The females will be heavy-bellied with their eggs. When they are like this they may be placed in the breeding tank. In the evening is the best time for this operation as they will start their breeding activity early the next morning.

Spawning begins with a lively chase between the sexes, the males being the pursuers. This may go on for quite a while, but at the end of this chase the males will force the females into the plants for a few "dummy runs" before the actual mating takes place.

The males move alongside their partners and start quivering; this excites the females and they, too, start to quiver. The female will now expel a few eggs and the male will immediately fertilise them. This carries on for maybe an hour or so until the female is depleted. When the female has deposited all her eggs, the activity will slow down and both fish will start to consume the eggs. Barbs are avid egg eaters. Before this can happen the breeders must be removed and replaced in their respective tanks to start conditioning for the next breeding session. Usually it may be two weeks before they are ready to breed again for the smaller species; the larger ones may take up to a month.

#### REARING THE FRY

If the temperature is maintained at 80°F the eggs will hatch in 24 to 48 hours, depending on the species of barb being bred. Once the eggs have hatched, maintain aeration, but disconnect the filter to prevent the young fry being sucked into it. The tiny fry hang on to the plants or spawning media, their yolk-sac, from which they derive their first nourishment, is clearly visible. This yolk sac will last for two or three days at the previously mentioned temperature. Now is the time to start feeding them.

*Infusoria* is usually the first food for egg-laying fry, and this applies to the smaller species of barbs. As the fry of barbs are quite large generally, newly hatched brine shrimp can be fed to them almost immediately. Fine dried food can be fed to them after the first week. When feeding dried food, do not sprinkle it on top of the water. Put a small amount into a container and mix with water; this will saturate the food and will sink directly to the bottom when poured into the tank. This is where the young fry will be feeding. The young barbs will consume food eagerly and will grow very rapidly provided they have the proper amount of space to grow in.



# WHAT IS YOUR OPINION?

by B. Whiteside

Photographs by the Author



WE START this month's feature with a letter from Mr. H. Stock, of 202 Harvard House, Doddington Grove, London, SE17 3TE. He writes: "I've just been reading the July issue, and in W.Y.O.? this chap's talking about 'promote' the holders of the P.T.A. or/and maybe the B.V.A. Diploma. I'm one of those learner things, and wonder whether the nearest fish shop is P.T.A., so I start looking at all the advertisements—and can only find two that advertise as being P.T.A. members. *The Aquarist & Pondkeeper* is not advertised as either P.T.A./B.V.A. . . . With all the the writings of Mr. Alan Horn, P.T.A./B.V.A. Dip., I would think that the majority of the trade would wish to deal with Diploma holders, yet they haven't seen why they should." (I'm not qualified to comment on Mr. Stock's views—with the possible exception of his observation about this magazine. I assume that *The Aquarist* is a commercial magazine, and does not sell living animals; therefore it would not, as such, have any reason or right to membership of the P.T.A.—any more than, say, car, photography or hi-fi magazines.)

Mr. L. Sandfield, whose home is at 25 Leighton Road, London, W13 9EL, also has some comments to make on the same subject. His letter begins: "The data about the P.T.A. in the July edition was extremely interesting. It seems to me that if this organisation were to have its committee discuss the subject of equipment and livestock standards with the committee of the F.B.A.S., a fruitful exchange of ideas might ensue." Mr. Sandfield continues: "Mr. Cornwell, I see, would like to see club news dropped and replaced by advertisements. This is a lousy idea! Apart from there being far too much advertising in proportion to text, the club reports help to recruit members, especially beginners, to the clubs. Perhaps Mr. Cornwell is not a club member. If he had been, he would not have had 'to learn the hard way' about filters." He goes on "I can't see that sub-gravel filters are any use at all in freshwater tanks. I'm willing to accept the zoological (?) activity in marine tanks, where everything seems much more intense, but in freshwater the only kind of filter worth using is a motorised filter with a spray bar. This brings me to Dr. Carrington and his contention that aquarium fishes do not get enough exercise—with which I fully agree. What I can't understand is why anyone these days should use a quaint old-fashioned airstone! In my community

tank I have a Super Twin modified with a Powerstream motor pump driving an Eheim spray bar. This gives quite a fair current into which my fishes love to face. The round tailed fishes, *Apistogramma ramirezi* and *Colisa lalia* ('rams' and dwarf gouramies) seem to enjoy it just as much. (I presume that airstones are still used because not everyone can afford an outside filter—or indeed a filter of any kind—for every tank; and there are certain tanks—e.g. tanks in which certain species of fishes are being bred—where aeration, but not filtration is required. My own favourite outside filter is also a Super Twin fitted with a Powerstream motor unit—using the conversion parts which can be bought from Interpet; however, I have not yet tried the Eheim spray bar. It sounds a useful addition!)

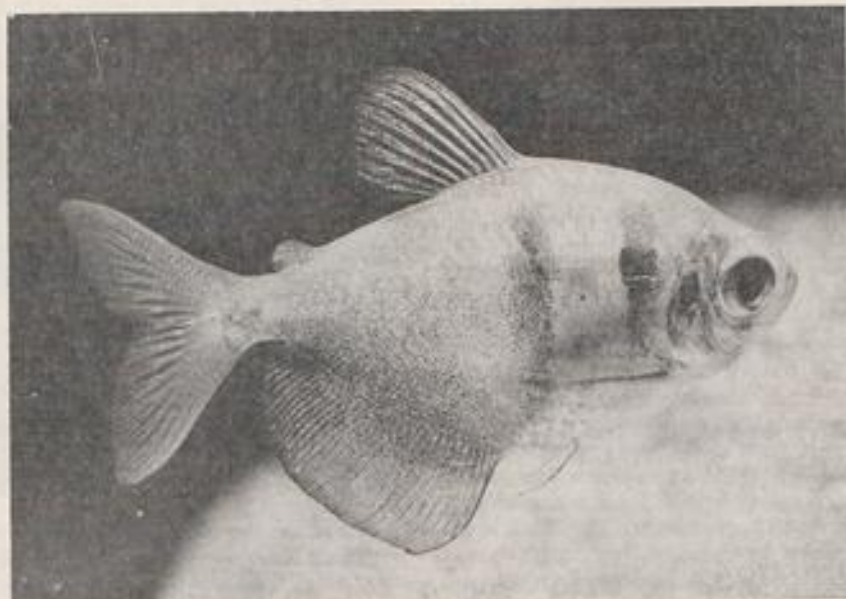
Back to Mr. Sandfield's letter: "The platy has always seemed to me to be the least prolific of the livebearing toothcarps; not difficult to breed, but occasionally one comes across a pair that are reluctant and slow to breed—perhaps even sterile. From what I've heard, this may be on the increase. Perhaps we need some wild, grey stock bred back into domesticated strains. I despise guppies and won't keep them. One should not say 'they breed like flies,' but '...like guppies'. Horrible things!" (Anyone care to disagree? For the first time in many years, I don't have any guppies myself at the moment. Would the guppy experts agree that **good quality** guppies are amongst the most difficult fishes to produce? With most other fishes, two good parents will usually produce at least some good youngsters; whereas a male and a female guppy which look good may produce only average or fair youngsters. Would any of the guppy specialists care to send their opinions?) Mr. Sandfield goes on to say that he has grown *Hygrophila polysperma* and Indian fern immerse and emerse. He considers that 'strata rockwork' backing paper, papers showing sandy beaches, and those with 'aquatic scenes,' etc., seem horribly phoney to him. He thinks that 'strata rockwork' is at least honestly artificial, as it looks as if it were the side of a pond. Under one 3 ft. Gro-Lux plus one 3 ft. warm white tube, lit for 6 hrs. daily, over a tank containing artificially softened water and lime-free gravel, he can best grow a plant that looks rather like *Lobelia cardinalis*, but with lots of adventitious roots that are very hairy—some of which penetrate the gravel. His plants are from 2 in. (new), through 6 in.



(9 months), to 10 in. (10 months) tall; the leaves are a glorious light green under his lighting, but darker under daylight. He asks if readers can identify the plant. Under the same conditions he finds that: "Cryptocorynes show a certain dwarfing; *C. aponogetifolia* 10-18 in.; *C. affinis* is liable to die; and that *sagittaria subulata* remains thin and small." Mr. Sandfield concludes his letter thus: "I like your feature. It gives those aquarists who have the urge to communicate a chance to do so. On the subject of algae: I grow mainly the thread type. I no longer try to destroy it with additives, but just keep it down—like a gardener keeping down weeds."

Mrs. S. Deacon lives at 30 Southall Avenue, Brighton, BN2 4BB, and she has been keeping fishes

who said recently that he had difficulty in obtaining *The Aquarist* in Brighton. Mrs. Deacon's local news-agent obtains her *Aquarist* for her 'on the dot' each month. She would very much like to see the magazine appear each fortnight. Since she began, Mrs. Deacon has always used undergravel filters, together with a layer of peat between two layers of gravel; she has never had any plant problems, and has grown *Vallis.*, *Aponogeton*, *Acorus*, Amazon swords, *Bacopa*, *Hygrophila*, *Ambulia* and pigmy chain swords. Mrs. Deacon is another reader who would like to see some sort of credit club for buying aquarium books because, she says, her "local library is virtually useless for books on this hobby." She is a housewife, mother of six, and grandmother of one, and any books she buys have to



for four years. She begins her letter with some comments on livebearers: "I have kept different types of fishes, but my own particular favourites are platies and swordtails—but here is where I run into problems. I have been in dozens of fish shops all over Sussex, and several outside, and I notice the minute one inquires about these fishes one is brushed off as a complete know-nothing. It seems unless you want cichlids, you are supposed to know nothing about fishes. The lack of stock of these fishes, especially hi-fin and double swords, is appalling, and the condition of the fishes offered is very poor. So, may I make an appeal through your pages for anyone who breeds these fishes and would be willing to sell some, to contact me. I am willing to pay the right price for good stock." (Would other readers agree that the quality of some livebearers is deteriorating? Let me have your views please.) Mrs. Deacon goes on to reply to a reader

be saved for out of the housekeeping money.

Mrs. Deacon supplies her stock with fresh green food in the form of scalded lettuce; and has also found that half a frozen brussels sprout put into a cup with boiling water until thawed out, is appreciated by her fishes. Her tanks are backed with a plain bluey green 'linen look' wallpaper, and it looks well behind the plants. She detests "those fake scenes sold in the shops." Regarding V.A.T., Mrs. Deacon has found that it has had the same effect on her hobby as on the rest of her living standards. She concludes: "We are on a fixed income, and with prices on the up and up one's living standard goes down—and money for hobbies is just that much more difficult to find."

In the August edition, Mr. L. McCourt's statement that the tiger shovelnose catfish "is correctly named *Sorubim lima*," has brought a reply from Mr. A. C. Young, of 40 Pennine Way Longbenton, Newcastle-



on-Tyne 12. Mr. Young writes: "Being a staunch hobbyist myself, for some twenty years, who has lectured, judged, written and experimented over the years, I am glad that Mr. L. McCourt does very little judging in this part of the country. The fish he names as *Sorubim lima* is the ordinary shovelnose catfish, and the correct name for the tiger shovelnose catfish is *Pseudoplatysoma fasciatum*—as stated in the June edition of "Tropical Queries!" (I tried to check the above in my edition of Sterba, but he only deals with the former species and does not give a common name for it).

Master Kevin Medcalf is 15 years old, and lives at 1 Talbot Gardens, Goodmayes, Ilford, Essex. His suggestions for aquarium backgrounds are: (a) cork wall tiles; and (b) sheets of polystyrene. He says that the former come in different sizes—e.g. 3×12—and patterns which can be cut round to fit different sizes of tank, with "quite a good effect." For the latter he uses polystyrene sheets at least 2 in. thick, and with a blow lamp or other means of direct heat he 'melts' "interesting caves" into the polystyrene. Shells and "other bits and pieces" can be pressed into the "caves" while the medium is still hot, and they will become embedded. The whole 'background' can then be sprayed with, say, dull green or brown paint. Kevin is just starting a fish house—with nine tanks of different sizes—in his mother's laundry room! He would be pleased to have any tips on running a fish house and on cichlids (Any offers of advice, please?)

Mr. and Mrs. C. Smith's address is "High Noons," 6 Kirklands Avenue, Baildon, Shipley, Yorkshire, BD17 6EQ, and their most costly failure in fishkeeping—commonly called "The Malachite Green Massacre" amongst their friends—took place about two years ago when some experienced aquarists told Mr. and Mrs. Smith that the fishes in their 3 ft. community tank had white spot. The Smiths didn't believe the experienced aquarists, but bowed to their supposedly expert knowledge. Too much malachite green was used and all but five fishes were killed. The Smiths have not used malachite green since! As a background to their tanks, the Smiths use foil covered paper—rather similar to kitchen foil but backed with paper—obtainable in wide rolls from W. H. Smith's, and sold as gift wrapping paper. Mr. and Mrs. Smith have found that dark blue or green gives the best results; and their next venture is to set up a 3 ft. tank stocked entirely with barbs.

"I doubt if this part of my letter will be published, but I must get it off my chest," is the opening to Mr. S. Casson's letter that reached me from 133 Lovelace Drive, Pyrford, Woking, Surrey, GU22 8RZ. He continues: "I feel it is time for *The Aquarist* to specialise as at present it is too comprehensive, trying to cover too many subjects. Some months there are only two or three articles that cover tropical freshwater

fishes. I feel that it would be a far better magazine if it were only on tropical or goldfish. Of course I appreciate that there would be many people who would drop *The Aquarist*, but this would be compensated for by the number of people who are in need of a decent tropical magazine." (I would certainly agree that it would be ideal if one could purchase separate specialist magazines, published in Britain, dealing with, say, tropicals; coldwater fishes; marines; reptiles; etc., but I should imagine that there are not enough people in the U.K. to support such specialist magazines—hence a compromise has to be reached such that it pleases most of the people for most of the time and some of the people some of the time. No doubt magazines that don't please anyone don't last very long! And no doubt very few people ever read the whole of any given magazine, no matter what its subject matter. As *The Aquarist* in one form or another, will



have been on the market for 50 years in 1974, it must obviously have pleased, and still be pleasing, a large number of readers.) Mr. Casson goes on to say that giant *Hygrophila* grows well in his tanks—complete with fairly hard, aged tap water and quite strong lighting. For green foods, he gives his stock cooked brussels sprout, cooked or raw cabbage, and cooked or raw peas. Mr. Casson uses several layers of green tissue paper as a background to his tanks. He works in a local aquarium shop and has found that the majority of items have not risen in price by much, if anything, because of V.A.T. The hardest hit things, he says, are fishes themselves, as "they have had 10 per cent put straight on to their price." He goes on to say that he found it peculiar that heaters went down by about 5p, and thermostats went up by the same amount.

I'll break off here, rather sadly, to tell you that my rather elderly tortoise, Tojo, about which I have written now and again over the years, has just died. He gradually ate less and less over the past few weeks, and finally stopped taking any interest in food. I don't know what the cause of death was; possibly old



age as I've had him since I was a youngster, and he was a reasonable size when he was given to me by my uncle, a sea captain, who brought the tortoise home with him from a foreign port of call. In my feature in the August edition I wrote: "... my own tortoise is poised on the top of a pile of your letters on the centre of the dining room carpet. I hope that he has no plans to eat them!" When I wrote that, I had no idea that in a few weeks Tojo would never again be eating anything! It's rather sad when one loses an elderly pet—particularly one that has had a tiny corner in one's life for so many years. Although one does not normally credit an animal such as a tortoise with much intelligence, over the years Tojo learned to respond to the human voice, and would often literally come when called or spoken to. He also had developed a technique of stretching his head and neck high in the air, and opening his mouth, to indicate that he was hungry and wanted some food; and he could cross the room with a speed that amazed those who thought that tortoises were very slow moving creatures. Tojo lived to see a wide variety of other pets that I've kept, come and go. I still have my fishes, and my very affectionate ten years old Scottish terrier—but I'll miss old Tojo's ambling gait and canny ways! (For how long have you managed to keep a tortoise?)

16 Peveril Way, Great Barr, Birmingham, B43 6ER, is the home address of Mr. R. Spencer, who begins his letter: "My opinion of W.Y.O.?—excellent!" He goes on to say that he always uses air stones in all his tanks, mainly to give water movement so that the surface area is always being changed. He hasn't any filters on his three tanks—but the water is very clear. Mr. Spencer looks after two other tanks, in a local school, and they are fitted with undergravel filters. The water is crystal clear but the plants do not appear to be growing as well as in his own tanks without filters. He finds that guppies breed very easily in his tanks—although their quality is not very high. Mr. Spencer finds platies are very good for the community aquarium, being hardy and easy to breed. He considers that they are very under-rated, and that they are ideal for beginners. Mr. Spencer's suggestion for an aquarium background consists of: a piece of hardboard, rough side towards the tank, coated with Dunlop Thixofix and then sprinkled with sand. A quantity of dry sand can also be mixed with Polyfilla, and sprinkled on in horizontal 'streaks' to give a lighter colour. The latter mixture, mixed with water, can be used as a 'cement' with which to stick small pebbles from the garden, plus aquarium gravel, on to hardboard as a background. The finished 'set' can be sprayed with Letraset fixative, or polyurethane lacquer, to give a "wet look". Mr. Spencer suggests that aquarists who are short of tank space could probably obtain the use of an aquarium in a local school. He says that there would probably be

no problems as regards feeding as there would usually be someone about to feed the fishes. (I would have reservations about the latter—speaking as a school-teacher with experience. Few people can be persuaded not to over-feed fishes in school tanks!)

Mrs. B. R. McDonald's home is at 226 Long Lane, Bexleyheath, Kent, and she sends us details of her successes and failures with a number of different fishes. She has five small breeding tanks, complete with heating and lighting, set up in her "side loft," and can shut herself away for hours on end, if necessary, and have the time of her life dabbling about in water, spawning mops, etc. (Her husband thinks she is quite mad, she says!) Mrs. McDonald has bred hundreds of guppies, platies and swordtails, of different varieties, with great success; however, her results with egg layers were as follows. *Tiger barbs*: three young raised to about half grown size; eaten immediately by young swords when placed with them. This experience brought real tears as Mrs. McDonald found the young tigers "so pretty, and their parents had perished when a thermostat failed to operate." She hasn't tried again as she says that the area in which she lives has "very little good stocks of barbs suitable for breeding." (Please let me have your experiences with the breeding of tiger barbs.) *Zebra danios*: successful on three separate occasions, but all young showed some deformity later on. They also seemed rather prone to wasting disease and invariably Mrs. McDonald had to dispose of them before fully grown. (I'll continue by quoting from Mrs. McDonald's letter) "*Siamese fighters*: successful on many occasions, but they seem to disappear in great numbers over night. I have come to the conclusion that they eat each other so I separate them into different sizes; but even that hasn't worked as when I placed them in my main community tank, when about half grown, they were immediately eaten by the slightly larger inmates. *Beacons*: unsuccessful after three attempts! *Neon tetras*: I tried to breed these very early on, and looking back I realise I was being very optimistic. I use the book, 'All About Tropical Fish,' by McInerney & Gerard, and carried out their advice on water preparation, etc., to the letter. Believe it or not, I was successful! The eggs hatched and there were about a dozen or so babies darting about within three days. The number dropped to three over the next two days, and then the Electricity Board decided to have their strike last winter. I thought all was lost; but no, these three babies survived—kept warm by an empty whisky bottle, filled with hot water, and placed in the tank at regular intervals. After about a week they just disappeared. I couldn't find any trace of their remains. Naturally, I was very disheartened and I haven't had the opportunity to try again recently. *Black widows*: my breeding pair are very accommodating and oblige on every occasion; but I still have not



raised any young to maturity. They just die off after about a month."

Mrs. McDonald goes on to say that she would be pleased if someone could give her some *real* advice as she finds it all rather soul-destroying. She always abides 'by the book,' uses the 'correct' water and temperature, and feeds the young on Liquify—followed by brine shrimps when she has time to prepare them. Finely powdered dried food is used next on the list. Mrs. McDonald continues: "I think the answer is probably in the feeding, but I just do not know what else to do short of providing fresh *infusoria* which I just cannot possibly find time to prepare." (I should imagine that most aquarists would agree that Liquify is at least as good as *infusoria*—and very much easier to use!) Mrs. McDonald ends her letter with a tip: "I have noticed that when my fishes spawn they seem to lay rather a lot of eggs on the heater: these are burnt immediately. This seemed rather a waste to me, so I tried burying the heater under some fine gravel—and it worked. If breeding a fish which does not require gravel I wrap the heater in some fine plastic mesh—the sort that brussels sprouts come in—and this helps a lot; but a few eggs still perish." (I don't think I'd be too keen on the idea of burying an ordinary heater under the gravel. It could well over-heat and the glass crack! I've heard of a jam jar being used to cover a heater.)

16 Morrell Crescent, Littlemore, Oxford, is the home address of Mr. G. Hall, who begins his letter: "I have often intended to write to your excellent column but have never got around to it before. I have recently purchased a 5 in. shovelnosed catfish—*Sorubim lima*—which at over £4 is the most expensive fish I have ever owned. It spends all day lying on a plant leaf. For the first five days it would eat nothing, although it looked quite happy, and I was beginning to get quite worried as all my other fishes in six tanks have eaten within 24 hours at most. Eventually it took some small earthworms dropped under its nose. It eats about four at a time, but will only feed every other day . . . . Information in books is rather scanty and I believe this is a fairly rare fish. Has anyone had any experience in keeping this fish?" (Relatively few aquarists write books, and this is where magazines such as *The Aquarist* can help fill in gaps in knowledge about fishes by allowing ordinary aquarists the opportunity to provide other readers with information about fishes which have not been discussed in detail in text books. At least, that's my view!) Mr. Hall uses crumpled Fablon or wallpaper, of a marbled or fairly plain design, taped to the back of his tanks as a background. He says that the result is "a pleasing illusion of depth with a 'caving' effect." Regarding ornaments, mermaids, ship wrecks, etc., Mr. Hall says: ". . . (they) have no place in a serious aquarist's tanks, but can be effective and amusing in a tank set

up in a child's bedroom for instance." He continues: "I must agree with Mr. Green's remarks about temperature fluctuations in the wild (August edition). One would think that similar changes would be beneficial to our fishes, but it is known that they are not. Could it be that our fishes, so many of which have been born and raised in controlled settings, have got soft?" Mr. Hall ends his letter by stating that he is the secretary of the Abingdon Aquarist Society—which has never been a big group, having only ten members. He says that new faces are desperately needed so that the society's programme can be increased, and he considers that there must be hundreds of fish keepers in the area, although local advertising has failed to draw them to the society. He would be pleased to hear from anyone interested in joining.

At the top of a letter from Mr C. H. Keeling, of 225 Ham Road, Worthing, Sussex, is the printed heading: 'Educational Services In Practical Zoology'—(Incorporating the National Federation of Junior Zoological Societies). Mr. Keeling writes: "I noted with interest that you were seeking readers' views on aquarium 'ornaments,' a slightly strange matter, as we seem to be taking a retrograde step as far as these monstrosities are concerned. If I may use what has lately become a dirty word, whether or not one made an aquarium resemble an overwhelmed city was largely a matter of 'class.' Briefly, you installed chunks of coloured 'stone', lighthouses, castles and mermaids only if you also had ceramic ducks on the wall, gnomes in the garden and no books in the house. In other words, the chances were that if you put this sort of junk in a tank you also went to a holiday camp in July or August! But human nature changes and over the last very few years I have been amazed at the number of serious aquarists and good institutions, who, and which have been smitten with the ornament bug. I fully appreciate that it is the concern of only one person if he wishes to watch his cardinal tetras swimming through miniature gun embrasures, but it is a state of mind quite beyond me. The Bristol Zoological Garden is a most worthwhile place, but on my last visit there I received two unpleasant jolts in The Aquarium. The first was the sight of a large anchor half buried in the gravel in the tank containing the electric eel. Apart from distracting visitors' attention from the exhibit it could also have injured it had it dashed against it in sudden fright. The second was the remnants of a large model galleon on the bed of a tank containing Characins from far up the Amazon! I have noticed, too, that many reputable dealers who once would not have touched such stuff are now offering it for sale—which brings us to another interesting point. Have you noticed that a person professionally engaged in selling aquarium fishes is usually far more enthusiastic about, and informed on,

(Continued on page 275)



# THE PYGMY RAINBOW CICHLID

by Jack Hems

THE pygmy rainbow cichlid, that ranges far and wide over West Africa, was once known to tropical aquarists under the scientific name of *Pelmatochromis kribensis*. Today ichthyologists—or at least some of them—tell us that this appellation is not valid: that henceforth the rainbow cichlid or kribensis should be designated *Pelvicachromis pulcher*. As "pulcher" or "pulcer" is the Latin word for handsome or beautiful, no-one will deny that this is not a far more descriptive trivial name.

There is a band of grey along the side, above this a soft green melting into brown. Then green below fading to ivory, or cream, with pale pink or red deeply glowing in the belly. A tinsel-bright spot adorns the gill covers. And, on the head, and extending back as far as the tail, a shifting greeny gold to lilac—or violet-blue sheen. Some dark smudges and bars overlay the ivory tints of the snout and region of the eyes. These are large and rimmed with gold.

The sexes may easily be distinguished. For in the main the finnage of the male is more colourful than that of the female and his dorsal fin is prolonged to a fine point. That of the female is pointed, also, but not greatly extended. Then again, in the upper portion of her dorsal fin there are one or two black spots with white or creamy margins. The male has similar markings, but more of them, in his caudal fin. Further, the mature female has more red in her body colouring than the male, and when she is moved by love her underparts assume a fiery hue. And still another distinguishing feature, age for age the male is the larger of the two. A full grown male averages 3½ to 4 in. The female grows to about 3 in. at most. The body shape in both sexes is rather rounded and stocky.

Although *P. pulcher* is reasonably well-behaved in a community aquarium, it is better to give a pair a home to themselves. An aquarium tank 2 ft. long by a foot

across and a foot tall will suit a couple well. It should be furnished with a thick (3 in. or thereabouts) carpet of painstakingly washed fine shingle or sharp sand, several thickets of bushy growing plants such as *Hygrophila* to afford shelter and shade and exploratory territory, and some small flower pots to encourage breeding—the species is a cave or fissure breeder.

The flower pots should be placed rim-side down on the compost. The drainage hole should be enlarged prior to introduction to allow the fish easy entry. Alternatively, the pots may be overturned on the sand with the opening facing away from the front of the aquarium and strong light. Water on the soft side and giving a slightly acid reaction is advised. For breeding, the temperature of the water should be from 78°F (26°C) to 82°F (27°C), but for normal maintenance 72°F (22°C) to 75°F (24°C) is about right.

*P. pulcher* is not always on the go. All the same it seldom remains inactive for long. Where one fish goes the other usually follows. Some chasing and games of hide-and-seek go on in the plants. It is not a faddy feeder and will accept most living or artificial foods. But to bring it into prime condition, various worms and freshly minced red meat are recommended.

The prelude to spawning—and spawning follows sooner or later if the fish are happy in their surroundings and the food and temperature are right—is enhancement of colours and a more than usual coming and going in the plants. This greater activity is punctuated by frequent visits to, and inspection of, possible breeding sites. And digging. Always the sand is moved from the inside to the outside of the flower pots. Occasionally it is moved from around the base. Usually it is the male who does the digging while the female hangs about in the background, but within visual range of her busy mate. Every so often, she performs an abortive dance and flashes her fire opal or more brilliant tints. If the male is ready for



spawning, he falls for this charm and welcomes her into the shadowy chamber he has prepared ready for the nuptial rites. But not always. Sometimes she persuades him to follow her into a flower pot of her own choosing.

The eggs laid may number no more than a score. But much larger spawnings are a common occurrence. The eggs need fanning to prevent dirt settling on them. Almost always the female assumes this duty while the male hovers about near at hand. Although the eggs incubate in four or five days, the fry do not emerge from their dark hole until some four or five days later. Now, the parent fish guide them about the tank and assemble them, at irregular intervals, in depressions they have fanned, or fan, in the sand. As natural light fades or when the tank light is put out, the parent fish move the fry back into the safety of a flower pot for the night.

Soon after the fry have become free-swimming they look around for food. Pounded dried flake will be eaten, but more rapid growth is made on live food. Brine shrimps and micro worms are taken with relish. But as the fry increase in size, and they do so daily, so the size of their food must be increased accordingly.

Great care must be taken over feeding the fry. Little and often must be the rule. For overfeeding will result in left-overs and left-overs will result in decay and decay will result in pollution of the water. Any pollution is bad for the fry. Scrupulous cleanliness, then, is the key to success. If everything turns out well, the fry should reach nearly two inches before six months are out. Young and old are avid nibblers of mossy algae, and this, in a nursery tank, is always to their liking.

Generally speaking, the mood of the parent fish will remain calm, but occasionally a happy relationship will become strained by all the care and attention lavished on the fry, and minor quarrels or pecking matches will break out. Before the trouble escalates and serious damage is done, the male or the female should be removed from the tank. Later on the parent fish left behind should be removed too. Cannibalism following a flare-up between parent cichlids and their offspring is not unknown.

The rainbow cichlid was known to science as long ago as 1901 but it did not appear on the aquarium scene until some fifty years later.

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## PLANT-GROWING MEDIUMS

by S. M. H. Loquens

AQUATIC PLANTS, unlike terrestrial plants, are capable of successfully absorbing nutrients over their entire surface. This does not mean that their roots are used merely for anchoring them, far from it; they are equally important in furnishing the plant with essential nutrients from the growing medium.

The nutrients essential to healthy plant growth are nitrogen, potassium, phosphorus, calcium, sodium and magnesium. Two nutrients, sometimes referred to as trace elements, are copper and zinc. These, as the reference implies, are only required in minute quantities, but are nevertheless immensely important to correct cell formation and therefore healthy plant growth. Biologists and chemists are at present determining the amount of these elements required for optimum growth in various species of land plants, particularly those of economic importance to the food industry. All plants have a need for a particular amount of these nutrients and quantities above and below such an optimum often have an inhibiting effect. Plants

have a self-regulating system, whereby they can control to a certain extent, the absorption of these elements. This may well fail to work, however, where excessive levels of a nutrient occur. The same principles concerning nutrient uptake can be applied to aquatic plants, but it is doubtful whether any proper experiments have been done on this subject.

The ordinary aquarist need not worry too deeply with the above statistics, as most aquatic plants are adaptable and will make excellent headway in plain tap water and aquarium gravel. Their growth is usually initially slow, but once the balance between themselves, fish, bacteria, etc., is underway, they will usually thrive in this medium. The coarser types of gravel are usually better, as uneaten food will quickly find its way down between the particles and be readily broken down by the bacteria present. The finer grades of gravel make this process slower and tend to collect more sediment upon the surface. This can look unsightly unless regularly removed by means of a

siphon. It should be said, however, that sediment although unsightly in the "living room" aquarium, is beneficial to the plants and provided the aquarist is not too house-proud, a certain amount is best left to nourish the plants.

When washing gravel, the most satisfactory method is to use a hose, thrusting it to the bottom of the container and moving it about. The power of the water moving upwards will quickly force sediment and other matter out from between the particles and away with the overflow. With regard to the source of gravel, it is advisable to purchase it from a reputable dealer rather than attempt to collect it oneself. This warning is given as elements such as calcium and magnesium may be present in such amounts that upon dissolving out from the gravel, an undue hardening of the water may result. Thorough washing of the gravel will not prevent this event occurring. For this reason gravel from the sea shore should be left well alone, as tiny fragments of shells will almost certainly be present and these are largely composed of calcium. This is a mistake all too often learnt the hard way by beginners.

For the keen aquarists or experimenters, there are a number of methods whereby extra nutrients can be made available to the plants. On the Continent and in Holland particularly, where much work has been done on aquatic plants, a planting medium consisting of one-third peat, one-third clay or loam and one-third coarse sand, is strongly favoured. Other media consist of a thin layer of gravel covered by a half-inch layer of leaf mould, and this again covered by gravel. The leaf mould is thus effectively sandwiched between the two gravel layers. The top layer of gravel should be styled

in the traditional manner, sloping from about three inches at the back to about an inch in depth at the front. Sediment will then tend to collect at the front of the aquarium and can be more readily removed. Peat of an acid nature can also be used as a sub-layer for promoting growth and should be sandwiched or just covered with gravel as already described. The peat should, however, be well soaked before incorporation, otherwise it will tend to float up to the surface. The sandwich method allows plants with long root systems to be effectively anchored without undue disturbance to the nutrient layer. A set-up incorporating peat will give a healthy acidic amber tint to the water and many fish, especially tetras, will look at their best when kept under such conditions. Planting media of a richer nature, i.e. incorporating manure should be avoided. Such matter contains massive amounts of nitrogenous material, which will not only promote large plants but those microscopic ones coming under the heading of *algae*. Most aquarists can imagine all too vividly the "pea soup" that will result from the presence of such a medium.

An equally good method of providing extra nutrients for specific plants is to place them in pots containing media such as those described. These can then be buried in the gravel, such that the plants appear to be growing in the normal way. The advantage of this method is that there is less likelihood of promoting algal growth and plants so planted can be removed without disturbance to their root systems. Plant exhibitors, if not already familiar with this method, will quickly recognise the potential of this type of culture.



#### ADVANCE NOTICE

THE FEDERATION OF SCOTTISH AQUARIST SOCIETIES  
are happy to announce

### THE 2nd SCOTTISH AQUARISTS' FESTIVAL

will be held at the CIVIC CENTRE, MOTHERWELL near GLASGOW

on

SATURDAY AND SUNDAY - 13th, 14th APRIL, 1974

FURTHER DETAILS SHORTLY





#### Fish Foods

While your correspondent whose letter appeared in your August issue is entitled to have and air his opinions, his comments would be likely to command more interest were they based on experience of the product he condemns. Undeniably, many "pet foods" are less than are claimed of them, but to classify them all as rubbish before putting them to the test makes for advances not in the right or wrong direction but not at all. Adverse reviews of products which have not been used means as much or as little as effusive praise when it stems only from prejudiced opinion.

R. RUDGEWICK,  
Ashford,  
Kent.

#### Fishless Aquarists in Gibraltar

I've been writing to some of the businesses advertised in your magazine, asking them to send me fishes (tropical) by post and by means of compressed air in a can with little water.

My requests have been refused either because they are very far from the centre or because the press is not very powerful.

Please send me the list of companies who would like to send me fishes. Its really not for me, for I'm the secretary of the small club which has eight or nine members. There are really no kinds of tropical fishes in Gibraltar. Hope I've not wasted too much of your time.

We are willing to pay for P. & P. as we think that it must cost a lot to send fish.

JOSEPH MORENO,  
19/A Line Wall Road,  
Gibraltar.

#### CONFEDERATION OF UNITED KINGDOM AQUARISTS

Member Associations and Federations to date in alphabetical order.

Federation Northern Aquarium Societies

Federation Scottish Aquarist Societies.

Yorkshire Association Aquarist Societies.

This confederation has been set up, by the above organisations with the object of achieving uniformity with regard to show standards and methods of judging, over as wide an area as possible.

The Confederation to date have brought together close on 200 societies and is in negotiation with other bodies who wish to maintain their own identity yet achieve the above objective.

The underlining principle of the confederation is that each member organisation continues to run its own affairs, without interference from any other body, but co-operating in a united judges and standard committee with equal representation from all parties concerned.

Currently available:— New points system for difficulty of breeding. Going to print:—comprehensive list of all families—individual species. Recommended minimum—maximum sizes. Also revised pointings of single fish, furnished Aquaria, and plants.

All these revised pointing systems have been designed to be incorporated in a loose-leaf binder and will be kept under constant review.

Already large strides have been made in achieving the overall aims and objectives of the confederation and uniform show standards and judging methods are now being applied to the largest cross section of aquarium societies in this country to date, and will also be applied to the largest Aquarium show in this country, if not Europe, namely The British Aquarist Festival.

We would openly welcome any other association or federation wishing to assist in achieving uniformity.

Why not join us?

C. WALKER, F.N.A.S., F.S.A.S.,

#### Excellent Show

During my recent holiday in France, I visited "Aquarium 72", an exhibition of fish tanks opened in 1972 in "Musée de Zoologie" in Nancy, Lorraine. This exhibition of over 100 tanks was the best I have yet seen.

Each of the stainless-steel tanks, set into a wooden-pannelled wall, were spotlessly clean and beautifully set up. In front of each display was an illuminated panel giving details of the fish inside. The majority of the tanks were marine, with some specimens reaching over 16 ins. long. There was no sign of disease in any of the tanks which is an excellent thing.

A large 20 foot tank was also in preparation.

An interesting feature of the tanks was a panelled background *inside* the tank, with a space behind it and the back glass. In this space, I was told, were thermometers, heaters etc., as well as unsightly aeration tubes. The airstones simply pushed through holes in the bottom of the background. This gave all the tanks a very tidy appearance.

All the tanks were on the one high level which facilitated easy watching instead of forcing one to crouch down on one's knees to see lower tanks. Steps were provided for young children to stand on to see well.

Altogether it was an excellent exhibition which, on



the day of my visit, was well attended and it is good to see such a fascinating hobby so well presented.

LAURENCE HUNTER,  
86 St Mary Street,  
Kirkcudbright,  
S. W. Scotland.

#### Angels Six

The address below, is my home but being a member of the R.A.F. I have been stationed in Germany for the past two years. I have kept Angel fish on and off for many years but have not succeeded in breeding them.

Early last year, having purchased a 160 litre aquarium of German design which has a tendency to be deeper than ours, I thought it would make an ideal Angel aquarium so I set out to purchase some Angels from my local pet shop. They had only four small Angels for sale so I purchased these. After some time it was very noticeable that these fish had paired off and had taken up residence at opposite ends of the tank. About nine months after purchase, one pair spawned followed soon after by the other pair. Unfortunately one of the males died suddenly.

I had set up an aquarium for a friend who had never kept fish before and as part of the community I had placed two small Angels in his tank. These had grown rather large and were causing him some concern about the safety of his smaller fish. He offered me these two fish which I readily accepted. These, after settling down, spawned, sounds like a fairy tale, purchased six young Angels which turned out to be three true pairs!

After some time the spare female appeared to join the new pair making a trio. As this pair were spawning the spare female became a nuisance by harrasing them! One morning as the pair were spawning, I removed the spare female, unfortunately the eggs were not adhering to the filter tube and were lost. At lunch time I swapped the females and the same male spawned with the spare female that evening. I had noticed that all three fish had been cleaning the filter tube previously.

I would be interested to hear from anyone having had a similar experience with Angels. I am also indebted to Alan Cripps for passing on the third pair of Angels to me.

WILLIAM ROSS,  
15 Falcon Mews,  
Downham Road,  
Ely, Cambridgeshire.

#### Short Leads

I have been a caretaker of council flats for quite a few years and it is very noticeable how many tenants go in for keeping aquariums. I suppose it is the fact that they have no garden, and this turns them to this lovely and intriguing hobby.

I am amazed how cheap the trade turns out such fine equipment for aquaria, but oh! that shortage of lead wire supplied. The power point is usually about two feet from the floor, and you invariably have to join another three or four feet to reach the point.

Rena, with their beautiful, powerful little 101 pump, Springfield with their so reliable thermostats etc, at such cheap prices, and others are all guilty of this one fault of insufficient flex.

By the way, I wonder if any of your readers have ever used silver baking foil placed underneath the tank lid. It really acts as a marvellous reflector, and improves the power of the light to a great degree.

H. J. PRATT,  
20 Shakespeare Square,  
Ilford, Essex.

#### B.K.A. Loyalist

I have read with great interest a letter published in the August copy of *The Aquarist and Pondkeeper*, from a Mr. Stephenson, reference rejoining the British Killifish Association, and undoubtedly many more members of the B.K.A., will put pen to paper to tell you, and all interested parties, that the B.K.A., finished half-yearly subscriptions about two years ago. It would appear that someone was answering for Mr. Devison as they had put p.p. in front of his name. As regards, "the friendly association myth with suspicion," I feel I must answer as a member of the B.K.A. I joined the B.K.A. in November 1969, whilst serving in H. M. Forces in Cyprus I received a most informative reply from Mr. Devison (incidentally the advert appeared in the *Aquarist and Pondkeeper*.) I also received the back numbers of all literature, etc., back to September, 1969, as will anyone else joining at anytime of the year, e.g. if you join in February, you would receive all literature etc., back to the preceding September. The one exception is one would not receive back copies of The Egg, Fish, and Plant list except of course, the current one being issued at the month of joining.

Whilst serving in Cyprus I wrote to many members in the B.K.A. and received informative and friendly advice without exception. Since coming home to U.K. my subscriptions lapsed due to upheaval etc., and therefore it was not until February, 1972 that I was able to rejoin. I sent off the last known sub. fee telling them I would pay the balance if it had increased during my absence, and I posted the letter in the City of Durham on the Monday at 4.30 p.m. I received all back copies of literature etc. except the item as previously quoted, by the first post on Wednesday morning. I have always remembered this when someone asks me how long will they have to wait for a reply. I have now furthered my knowledge of the

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## THE HARDY EUROPEAN REPTILES AND AMPHIBIANS IN CAPTIVITY (Part 17)

by Andrew Allen

### 36. The Green Lizard (*Lacerta v. viridis*)

*Description.*—This noble lizard can grow to 40 cms. or more in length, though more than two-thirds of this total will be due to the long, graceful tail. Dorsally it is a glorious grass or yellow green, ventrally cream or pale yellow. In the breeding season in both sexes the throat and sides of the head may be a vivid blue. Males can be distinguished from females by the small black spots on the back (the females have larger spots and several yellow or white stripes), by their more massive heads, and by the bulkier root to the tail. Juvenile lizards are light brown in colour, often with pale yellow stripes.

*Distribution.*—*L. viridis* is a common lacertid of Central and Southern Europe, including Spain, Italy, the Balkans, South-West Russia, Czechoslovakia, Austria, Switzerland, parts of Germany, Belgium France and the Channel Islands. It frequents most dry and sunny localities within this great range.

*Breeding Habits.*—Courtship and display are colourful and vigorous. The female lays up to twenty eggs in an excavation in the ground.

*Care in Captivity.*—If suitably treated these beautiful and intelligent lizards should live for many years, and be a perpetual joy to their owners. But if sufficient attention is not devoted to them their condition will deteriorate drastically, and they will become drab and sorry creatures.

They can be accommodated indoors, but I do not recommend the practice. An indoor vivarium should be very spacious indeed, and totally escape-proof. It should be placed in the sun, and given supplementary heat and light. Abundant hiding places should be provided, plus a small water bowl, branches for climbing, flat stones for sunning, and appropriate arrangements of carefully chosen plants. In these conditions the inhabitants could do tolerably well, but they are unlikely to live as long, or as healthily, as in

freer outdoor vivaria. Among other disadvantages hibernation poses considerable problems. Overwintering is the simple solution, convenient for the vivarium-owner, but it reduces the life-span of the lizards and may disrupt their reproductive cycles. The alternative is to pack the lizards safely away into a box crammed with dry straw and leaves. The box should be placed in a cool outhouse for the winter, and checked regularly as spring approaches. When the lizards awake they can be transferred back to their summer home, and given an immediate drink and early feed.

It is much fairer to give these large and athletic creatures the running space that only an outdoor vivarium can provide. A spacious reptiliary is ideal in Southern England, but might not give sufficient protection from the weather in Northern climes. It should have high walls and a wide, smooth overhang. Green lizards are escape-artists supreme, so the defences must be maintained in good order, and grasses or bushes should not be allowed to grow too close to the outer walls. A hibernating chamber, or some deep caves or piles of soft soil, should be provided for winter shelter, and the vivarium should have maximum exposure to the sun and protection from the wind.

A greenhouse provides an admirable alternative, and is much preferable where harsh climates prevail. Ventilation must be good, aspect must be to the South, and shelter from excessive heat is imperative. Luxuriant foliage can be established (as long as the atmosphere is kept dry), and the entire arrangement can be aesthetically most pleasing. In either greenhouse or reptiliary these lizards should prosper royally, enjoying conditions very similar to their home habitats.

Variety is the key to successfully feeding *L. viridis*. On a restricted diet these lizards will soon become bored, and their health suffer in consequence. The

range of possible offerings is very wide, and they are voracious feeders, so that a monotonous bill of fare is inexcusable. Almost any palatable small invertebrate will be taken, with spiders and mealworms the firm favourites. Many small land vertebrates are potential prey, whilst minced meat may be accepted—though it should only be offered if live foods are totally unavailable. Most Green lizards have a sweet tooth, and will relish some demerara sugar or a little honey. Fruit is consumed with enthusiasm, and grapes, oranges (both with the pips removed!), apples, bananas and plums are all much appreciated.

Because of its hearty appetite the Green lizard should not be housed with smaller animals. Baby newts, frogs and toads, medium-sized lizards, small Slow-worms and juvenile snakes would all be in peril. For the opposite reason, adult snakes and Eyed lizards should be avoided, as they are very capable of making a meal of *L. viridis*. At the current price of Green lizards this is not at all desirable! But these restrictions still leave us with quite a lengthy list of potential companions, among which we may note land tortoises, water tortoises and terrapins, adult Slow-worms, Schreiber's lizard, Crested and Marbled newts, Fire salamanders, and most adult frogs and toads.

This brief guide can scarcely do justice to such an engaging animal. Perhaps the most beautiful and colourful of the European Reptilia, it is lively and diurnal, longer-lived than its smaller cousins, and readily and rapidly tamed. For those who can give it ample space and a place in the sun, it is an unbeatable species. Those who cannot, should go to Southern Europe and watch and study it on its home ground. This is far more rewarding than confining a few colourless and depressed individuals in some cramped, uninspiring indoor vivarium.

There are a number of sub-species of which it is worth mentioning *L.v.chloronata* from Calabria and Sicily, *L.v.citrovittata* from the Cyclades, *L.v.fejervaryi* from Apulia and Campagna, and *L.v.meridionalis* from South-East Europe. A closely related species is the large Dalmatian lizard, *Lacerta trilineata*. It demands similar conditions, but is somewhat less trustworthy in the community vivarium, and should be housed with larger companions.

### 37. The Sand Lizard (*Lacerta agilis agilis*)

**Description.**—Lengths of 25 cms may be attained, the tail being comparatively short. The body is stout, the tail thick, and the head blunt. Colour is very variable, with brown or grey predominating dorsally, there being a vertebral band featuring black-brown spots with white centres. The flanks of the female are grey-brown, but may be a muted or vivid green in the male. Ventrally the male is yellow or green, females cream or yellow, sometimes liberally sprinkled



Photo

Sand Lizards

Robert Bustard

with black. The most colourful males may fleetingly be confused with the larger, brighter Green lizard.

**Distribution.**—*L. agilis* has a fairly wide range in Central Europe, from the Alps Northwards. It may be found in Central Russia, Northern Yugoslavia, Hungary, Germany, Switzerland, France, Belgium, Holland, South Scandinavia and England. It favours dry, sunny areas where vegetation is sparse, and is the characteristic lizard of the steppes. Dunes, heaths, field borders, hedgerows and gardens are all frequented, and it occurs to altitudes exceeding a thousand metres in the mountains.

**Breeding Habits.**—In June or July the female lays up to fifteen eggs in soft soil, sand, or beneath superficial rocks and roots.

**Care in Captivity.**—Essentially the Sand Lizard requires similar treatment and conditions to *L. viridis*. Being much less active it fares better indoors, for it is far less likely to chafe in a small vivarium of perhaps ten square feet floor area. In such a vivarium there should be only one male, but it could be housed with two or three females.

Though I have kept this species indoors with fair success, it nonetheless does far better in an outdoor vivarium. A reptiliary is again ideal, and will not need to be so carefully guarded, for the Sand lizard, belying its scientific name, is far from agile and only a poor climber. It is probably the least mobile of the European lacertids. A very well ventilated greenhouse will do equally nicely. It will take a similar range of food to the Green lizard, though both its appetite and its cubic capacity are considerably smaller. In the



community vivarium it is a much more inoffensive beast, not to be trusted with Slow-worms or young lizards, but otherwise an exemplary inmate. It can be slotted into a great variety of communities of medium sized Reptiles and Amphibians, and will cause very little trouble indeed. The Sand lizard is comparatively intelligent, whilst its sedate movements will contrast pleasantly with the quicksilver activity of the other lacertids.

Unfortunately *L. agilis* is now on the very verge of extinction in this country, and faring poorly in some other parts of Europe. Stringent and intelligent conservation measures will be necessary to save it here; major steps in this direction are being taken by the British Herpetological Society via its Conservation Committee. Their efforts are obstructed by irresponsible amateur herpetologists and unscrupulous collec-

tors who take this species from endangered sites. So please don't collect any specimens yourself, for there is no locality in England where the species is sufficiently abundant to survive any depletion. In the present situation it is certainly best to refrain from keeping the Sand lizard altogether. Collecting is only one of the threats that imperils its status, probably not the major one. But it is up to us to ensure that this particular threat is eliminated entirely, thus helping to protect this beautiful member of our native herpetofauna.

Among its sub-species are *L. a. boemica* from the Caucasus, *L. a. chersonensis* from parts of Russia and Rumania, and *L. a. exigua* from Central Russia.

The next article will deal with Schrieber's lizard and the magnificent Eyed lizard, largest of the hardy lacertids.

## THE JEWEL DAMSEL FISH

by Huw Collingbourne

As with many other marine creatures, the name, Jewel Damsel is applied to more than one variety of fish. Certainly, I have seen at least two different colour varieties with this name, and possibly two different species. While the basic body colour may vary between deep blue and brown, (and the deep blue in colour are reckoned to change to a brown hue with age) they have in common a very remarkable design of many small highly luminous green or blue spots flecking the body surface.

In any case, according to the reference books, the Jewel Fish is listed as *Microspathodon chrysurus*.

I have kept a Jewel Fish in a large tropical marine aquarium and I found it to be very aggressive and it was very demanding over its territorial rights. Unlike a damsel fish of another species which is content to take a small piece of coral or rock for its territory, the Jewel Fish commandeered several large pieces of coral and more than half of the entire base area of the aquarium, and this it defended with great fervour.

Very soon the other fish in the aquarium, (including two Humbug Damsels and a Picasso Triggerfish) learned to respect the Jewel Fish's self-proclaimed territorial rights, and, indeed, had any of them neglected to show the proper respect for these unseen boundaries, the Jewel Fish would have shown no sympathy and it is certainly not of passive enough nature to allow any infringement by anything, no matter how much larger than itself.



The Jewel can be somewhat ill mannered outside its territory, however, and shows little regard for the territories of lesser creatures.

In small aquaria, I would imagine that this fish would be an impossible neighbour for less capable species, and even in a very expansive setting, it is a merciless bully to small fish and will persistently attack fish with long flowing fins. And when food is introduced into the water, it is almost invariably the first to snap it up and on the rare occasions when it is not first, it wastes no time in snapping up any morsels protruding from the mouths of others.

So, in conclusion, I think it goes without saying that a Jewel Damsel, though very beautiful, cannot be kept successfully with any but the most robust of fishes. However, in the right circumstances, it is an amazing fish to keep and observe and grows remarkably quickly when fed on fresh or dried foods.

# BREEDING THE BLUE ACARA

by Jorgan and Pamela Hansen

IT WAS QUITE BY ACCIDENT that we suddenly obtained a pair of Blue Acara (*Aequidens pulcher*). A friend had been on a tour of various aquarium shops, when he came across in one of them a tank full of cichlids of four or five different species. They were all cheap, but he bought five of the cheapest (which he was informed were called *Aequidens latifrons*) for, in all, 33 new pence. It soon appeared that he had at least one pair as he one day discovered eggs in his cichlid tank. He hurried to move the stone with eggs plus the adult fish to another tank. The fish were not disturbed by this removal, and resumed care of the eggs. Then yet another pair came together and were busy cleaning a stone when he discovered them, and with the idea of presenting us with the pair, separated the male and female so as to delay spawning until they were under our care. Three days later we were able to make room for them in one of our tanks.

In the meantime we had done some research to determine if the fish were, in fact, *A. latifrons* as one cannot always rely on fish being what they are sold as. In Sterba's "Freshwater fishes of the World" (1967) one is informed that *A. pulcher* was described by Gill in 1858, and is found in Trinidad and Northern Venezuela, whereas *A. latifrons* was described twenty years later by Steindachner, and occurs in Panama and Colombia. However, the general description of the two fish is very similar and Schultz and Axelrod (1955) maintain that the two fish belong to one and the same species. The spiny ray, soft ray, and scale count is as follows:

		Spiny rays	Soft rays
Dorsal fin	( <i>latifrons</i> )	XIV	9-10
"	( <i>pulcher</i> )	XIV	10
"	our specimens (male)	XIV	9
"	" (female)	XIV	10
Anal fin	( <i>latifrons</i> )	III	7(-8)
"	( <i>pulcher</i> )	III	8
"	our specimens	III	8
Pectoral fins	( <i>latifrons</i> )	—	14
"	( <i>pulcher</i> )	—	14
"	our specimens	—	14

No. of scales in lateral line:

( <i>latifrons</i> )	23-24
( <i>pulcher</i> )	23-25
our specimens	not counted as we didn't wish to sacrifice the fish.

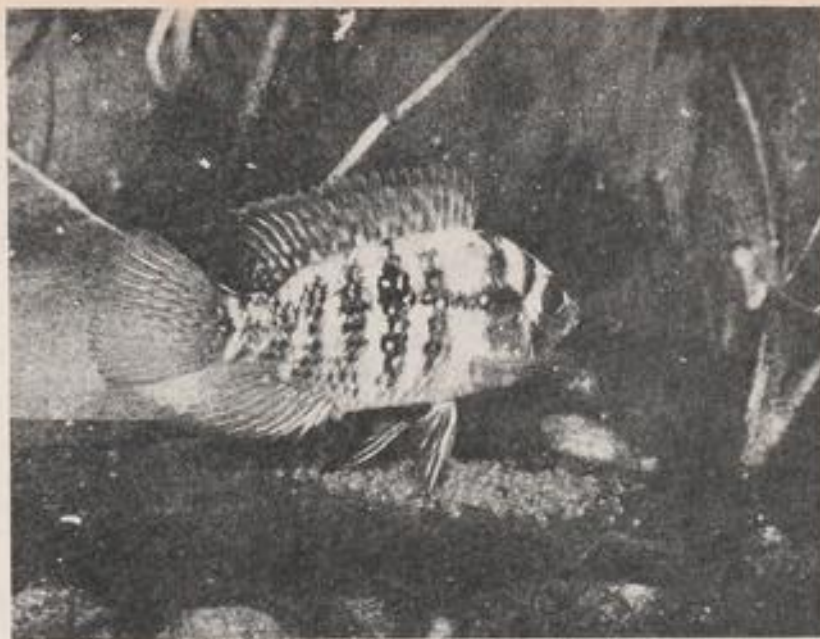
In T.F.H., September 1971, Frederick J. Kerr states that the fish was first named *Acara coeruleopunctata*, then *Acara pulchra*, *Cichlasoma coeruleopunctata*, *Aequidens latifrons*, and finally *Aequidens pulcher*.



The fish can reach a maximum size of 17 cm. but breeds at a considerably smaller size. The male can generally be distinguished by its fins which are more developed and more pointed than those of the female. The basic colouring is greyish with 5-8 dark transverse bands, crossed along the middle by a dark horizontal line. The body is covered by small greenish iridescent spots, which are especially numerous on the lower jaw. The fins are darker than the basic colouring but not as dark as the transverse bands, and the dorsal fin is edged along the tip with a 1 mm. red/orange band.

Our pair each measured 8-9 cm. when they came





Female Fanning Eggs

into our possession, and were placed in a 50 litre (12½ gallon) tank containing ordinary tap water, pH 7, DH 14, and with a temperature of 29°C (84°F). A piece of slate was placed perpendicularly about 10 cm. from the front glass, and another piece was placed flat on the bottom. There were no other suitable sites in the tank for the fish to spawn upon. The tank was planted with small *Sagittaria* and sword plants, and the bottom was covered with gravel about 5 cm. (2 ins.) deep.

The day after the fish were placed in the tank an ovipositor or breeding-tube could be discerned on both. They were fed with as many *Daphnia* as they could eat.

On the following morning, 2-7-73, the female's ovipositor was large and swollen (about 3 mm. long) and pale pink to white in colour. The male's breeding-tube was shorter and thinner than the female's but the same colour. Half an hour later spawning had begun. One lot of eggs after the other were laid on the slate lying horizontally along the bottom; the fish were so involved that they did not object when we removed some plants which obscured the view. The spawning was over in half an hour: afterwards both parents took turn in looking after the eggs, although the female took the longest turns. The eggs were yellowish in colour, sticky, and about 2 mm. in diameter. Eleven hours after the spawning a white spot had developed at the end of each egg.

The parents hovered continuously either over or in

the vicinity of the eggs. We did not feed them at this time, in order not to pollute the water unnecessarily.

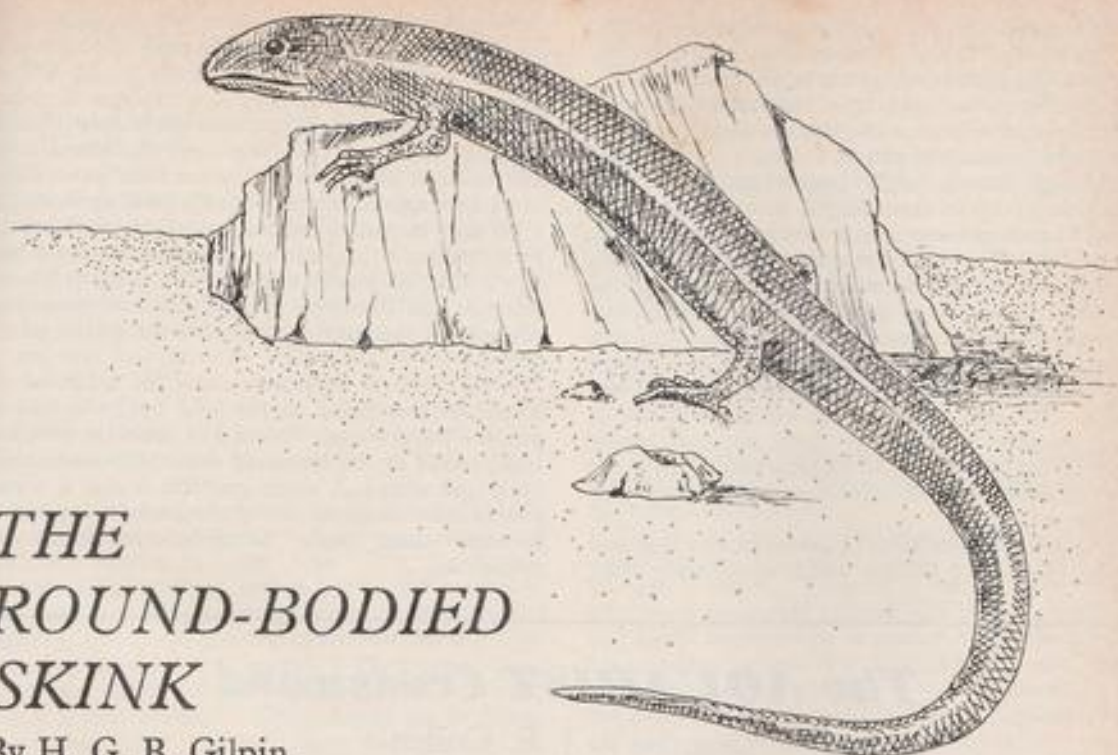
4-7-73. By morning the eggs were hatched but still hung on the slate with tails jerking. In the evening the parents moved them to a hollow in the gravel, hidden in the most obscure corner of the tank. Both parents took part in the removal, which was carried out by each taking two or more babies in the mouth at the one time, swimming over to the new place of residence and there spitting them out.

5-7, 6-7, 7-7-73. The fry were moved on each of these days to a new site. Moving the fry apparently makes it easier to remove fungused eggs and dead young which can either be left behind or eaten.

8-7-73. The fry swam freely, but kept close to the bottom, with the parents directly above. We began to feed with brine shrimp.

Breeding up was not difficult. When already a week old the fry, 111 in number, were able to eat small *Daphnia* and when they were 10 days old we didn't even need to sieve the *Daphnia*. We simply put a teaspoon at a time of *Daphnia* into the tank: the parents ate the largest and the fry ate the rest. They grew at an amazing rate.

In all, the Blue Acara is a very beautiful (hence its name *pulcher*) and peaceful cichlid, which is not hard on the plants, and which should certainly be considered if one is setting up a cichlid tank. It might, however, prove difficult to obtain sometimes.



## THE ROUND-BODIED SKINK

By H. G. B. Gilpin

*Chalcides bedriagai*, commonly known as the Round Bodied Skink, is a rather charming, quietly hued lizard inhabiting the Iberian Peninsula, particularly the more mountainous regions. I imagine it is infrequently seen owing to its habit of spending most of its time hidden under rocks, from which it rarely emerges except to search for food or indulge in an occasional spell of sun bathing.

My own specimen was caught in Benidorm on the east coast of Spain, during early spring. It was found lurking under a stone in the shade of some Locust Bean trees and, surprised by the sudden removal of its cover, allowed itself to be captured.

Like most healthy and well-fed lizards, it stood the journey to England well. It spent the first few days after collection and then travelled, in company with several Geckos, in a small wooden box, packed with soft, dry grass and on arrival was transferred, first to a little all glass tank for examination and then to its permanent quarters. In the glass observation tank it showed no signs of the lethargy it exhibited when first discovered under the stone but flashed around with surprising speed and agility.

The lizard's total body length barely exceeded four inches. The tail, thick at the root and gently tapering to a fine point, accounted for one and a half inches. Its body was rounded and covered with small scales,

all roughly the same size and so smooth as to give the animal a shiny, metallic appearance. The tiny fore-feet carried five delicate toes, the fourth being rather longer than the third. The hind feet supported an equal number of toes and again the fourth was the longest.

The fore limbs fitted into grooves on the sides of the body to facilitate movement underground. This movement incidentally can be extremely rapid, as was demonstrated whenever one wished to remove the lizard from the vivarium. On such occasions it inevitably buried itself in the gravel, two inches deep on the floor of its quarters, and once under this cover moved with such speed that its capture became difficult. The merest touch of the fingers, as they gently groped through the gravel, against the lizard sent it swirling away to the far end of the vivarium.

As a further protection this animal, in common with other skinks, had a transparent central part to its lower eyelid, enabling it to see even when its eyes were closed to prevent damage from particles of sand or soil. The eyes themselves were small and bright and vision was keen, especially when the object viewed was in motion.

In colour my specimen was a uniform, faintly greenish, bronze on its dorsal surface and silvery grey on its under surface. A certain amount of variation



in this modest coloration may be observed amongst Round Bodied Skinks. Some are pale or dark bronze along the top, deepening in colour at the sides. A sprinkling of tiny black spots over the body, distributed more closely over the sides, sometimes occurs and forms longitudinal stripes.

Although lacking bright colours and inclined to spend much of its time buried in the gravel, the quietly handsome appearance and peaceful attitude towards other lizards of this skink make it a desirable vivarium inmate. Mine, which judging from its size was fully mature when first captured, lived for two and a half years in an all glass vivarium, eighteen inches by twelve inches by twelve inches, in company with a varying population of small lacertid lizards and geckos. Its own disappearing tactics protected it from possible interference from an occasionally intractable individual and at no time did it show the least aggression towards other members of the community.

Round Bodied Skinks do of course require heat, and in the absence of Geckos which occasionally cling

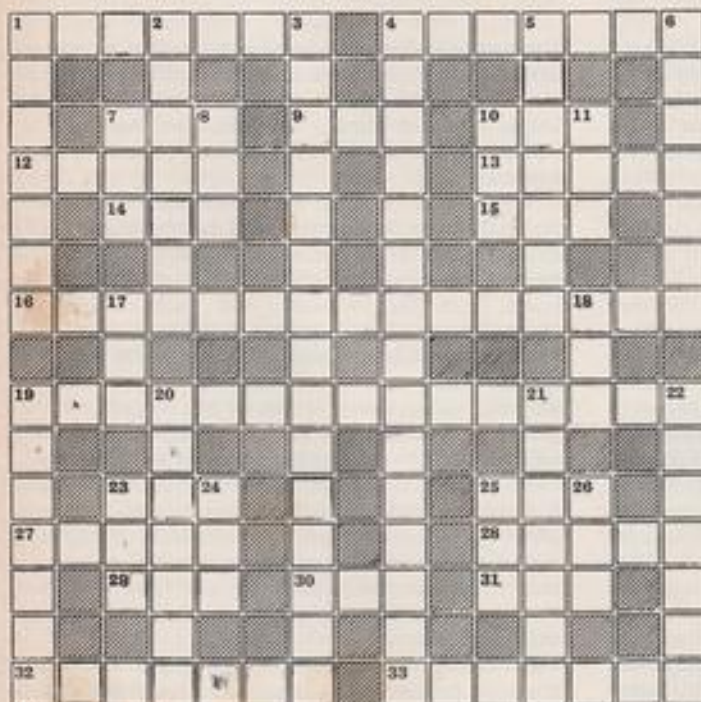
overlong to its hot surface, this may be supplied by an electric light bulb, for preference in conjunction with a thermostat. Bedriagai seems to do well in dry conditions and flourishes in a vivarium furnished with a few large stones, set on a fairly deep layer of rounded gravel. I have not seen this lizard drink nor has it to my knowledge entered the water vessel but I have always provided it with drinking facilities.

Its taste in food is reasonably catholic provided the food consists of live insects. Mealworms, wood lice, newly hatched locusts and blow fly maggots are all accepted and I strongly suspect that mealworms and maggots are frequently taken below the surface of the gravel.

Little seems to be known about the habits of the Round Bodied Skink in the wild but it is said to produce living young. Bearing in mind the breeding behaviour of similar species of skinks, this seems most likely and what also seems probable is that if a true pair of these creatures can be obtained the chances of breeding them under controlled conditions are favourable.

## The AQUARIST Crossword

Compiled by J. B. Cullen



Solution on page 277

### CLUES ACROSS

1. Provides aeration (7)
4. Nourishing worms (7)
7. This grass is *Vallisneria* (3)
9. Famous chairman (3)
10. Salmon do this (3)
12. Pearl or Mosaic Gourami (5)
13. Most fish can make one! (5)
14. Don't keep baby fish in this (3)
15. White garment (3)
16. Home of *Tilapia gulosus* (3, 3, 2, 7)
19. The Bronze Catfish (9, 6)
23. Tonic water for fish? (3)
25. Under (3)
27. Start with a pair of guppies and you'll soon have this! (5)
28. Fish can weather this (5)
29. Useful tube (3)
30. Her Majesty's Inspector (3)
31. Unit of energy (3)
32. They're also lions and turkeys! (7)
33. It's a tetra and a pencil-fish (3, 4)

### CLUES DOWN

1. Useful device for aquarists (7)
2. Scorpion fishes (not to mention 32 across!) (7)
3. *Symphysodon diacas* (9, 6)
4. South American mouth-brooder (9, 6)
5. Young brine shrimp (7)
6. *Nannacara zania* bears this pattern (7)
7. Common Market (3)
8. An aquarium must be adequately . . . (3)
10. Royal Society of Arts (3)
11. Gist (3)
17. The lateral line acts as one (3)
18. Fishy story (3)
19. An Angel, for example (7)
20. You won't catch a dog-fish doing this—nor a Talking Catfish! (7)
21. pH 7 (approx) (7)
22. *Betta splendens* is (7)
23. Does the Clown Loach feel like this? (3)
24. Serpent (3)
25. Compass points (3)
26. You'll find marginal plants here (3)



## BOOK REVIEW

**The Naturalist in Lakeland** by Eric Hardy. Published by David & Charles at £3.50.

What a pleasure it is to be able to recommend a book by Mr. Eric Hardy, whose name will be familiar to readers of this magazine, on the fishes and underwater life in general, amphibians, reptiles, birds, mammals, insects, plants, including the humblest mosses to "arctic-alpine treasures" (that grow at high altitudes among the peat, granite and volcanic ash), fossils, and so on, that may be seen (with some luck or expert guidance) or perhaps unearthed in that area of northern England designated as Lakeland. And what a wealth of useful and little-known information Mr. Hardy has packed into his 181 pages of well-written text.

It certainly came as a surprise to me to learn that the Lakes have 59 out of Britain's 90 copepod crustaceans popularly known as water fleas. The *Lepidoptera* number 1,382 species. Not a few of the butterflies and moths' popular names are music to the ear—for instance, lutestrings, great brocades, marbled coronets, satin carpets and netted carpets. Then again, there are about 2,000 different beetles—"food for bats, buzzards and others." Which brings us to birds. More than 1,800 shelduck have been counted at Duddon Hawes in winter. And as recently as the summer of 1968, 1,560 shelduck were counted in the northern part of Morecambe Bay. This part of the bay is also the favourite haunt of small waders known to ornithologists as *Calidris canutus* but knots to you or me. April flocks of knots (in Morecambe Bay) average 85,000 birds.

Lakeland's rivers and lakes support some twenty different species and sub-species of fish. Of exotic but adaptable species, grass carp from Asia have been introduced into the Cavendish Dock at Barrow to crop the weeds that grow too abundantly in the warm water there. A few miles away, on Walney Island, natterjack toads, palmated newts, weasels, stoats, hares, rabbits, foxes, field mice, shrews, voles and many other creatures continue to flourish. Off-shore a plethora of marine animals may be found. "The scarce warm-water crab *Gonoplax rhomboides* was trawled off Walney in November 1968."

There is something fascinating about fossils, especially those of long-extinct animals that once made their homes where the dwellings of executives sprout and factories, with their attendant pollutants, fester. Near Kendal, a town renowned since the eighteenth century for snuff, the remains of wolves have been uncovered. As, also, they have been brought to light, together with those of the boar, at Merlewood, near Grange-over-Sands.

*The Naturalist in Lakeland* is made all the more

valuable as a reference book by the inclusion of six maps showing the habitats of fish and mammals, the distribution of birds and bird-watching areas, nature reserves, and the like, and thirty-one excellent illustrations in black and white from beautiful photographs. Furthermore, there is a good bibliography and a list of places to visit and organisations to get in touch with if the subject matter of this absorbing book stirs the freshwater or marine biologist, the inquisitive rambler, the botanising rock climber, the aquarist and others interested in nature in general to explore Lakeland, in the remoter parts of which, in the author's words, "... much of the wildlife lives as it did in prehistoric times."

JACK HEMS

**A Guide to Freshwater Tropical Aquarium Fishes** by George F. Hervey and Jack Hems, published by Hamlyn, price £2.75.

This is correctly described as a guide but it is a very comprehensive one while being concise with little wastage of words. The text is not only informative but makes interesting reading with liberal sprinklings of pungent observations *en passant*. For instance, we are refreshed to read that "The chemist knows water as H<sub>2</sub>O; the rest of us know very little about it. To the fishes it is the elixir of life, although against all the evidence of our eyes, they do not drink it."

Later, in describing varieties of parental care exhibited by fishes and pondering upon the purpose behind them, it is reasoned that "any suggestion that these precautions are concerned with the protection of the young for the continuance of the species is largely ruled out by the fact that, among the majority of fishes, as soon as the young become free-swimming the parents will eat them if given the opportunity."

Part 1 (The Aquarium) deals with every aspect of setting up, planting, stocking, heating and lighting the aquarium and finally discourses on the quiddities of the fishes, closing on a sobering note to the effect that decline sets in with all animals, including man, as sexual activities cease. "In civilised communities the old may be looked after. In the wild there is no Welfare State. We rarely see an old animal in nature. With the stagnation of activities and increasing feebleness, the procurement of food becomes a difficult problem, and a violent death from rivals or enemies soon follows. In captivity animals may live a little longer, protected as they are by man. Sooner or later, however, the delicate machinery breaks down. Once it has ceased to reproduce, Nature, ever ruthless, cares nothing for the individual. Mammal and bird, reptile, amphibian and fish, death comes to all: the race goes on."

Competing more than favourably with the recent spate of colourful books on fishes, illustrations comprise both colour and black and white photographs



but these serve to complement the essence of the book—the text—rather than to dominate it as is customary with many of the currently produced picture books with amplified captions.

Part II, comprising ninety per cent of the book, gets down to the business of describing those fishes which are available to and popular with most aquarists, detailing their requirements and special characteristics. The genera and species dealt with are assembled under their respective families which number fifty in this work and which are arranged so that we have the more primitive at the commencement and gradually progress to the most structurally advanced.

Speculation regarding the origins of Koi is eschewed in favour of facing the fact that nothing at all is known:

"Koi appears to be a genus hybrid of *Cyprinus* × *Carassius*. It has been the subject of much crossing and back-crossing. As a result some specimens are scaled, some partly scaled, and some scaleless. Furthermore, some have barbels and some do not. Inevitably, therefore, the pedigree of the fish is hard (if not impossible) to determine, and one can be certain of nothing about it except that in an aquarium it is a very handsome ornament."

As a work of reference this Guide to Freshwater Aquarium Fishes will soon grace the shelves of most discerning aquarists.

**Marine Aquarium Guide** by Frank de Graaf and published by Pet Library price £2.

In his introduction the author, who is curator of the Artis Aquarium, Amsterdam, suggests that the reason for the comparatively small number of home saltwater aquariums stems from the mystery in which the marine aquarium is shrouded, being regarded as enjoyed only by the "exceptionally gifted hobbyist." He goes on to quash this belief by stating that "a saltwater aquarium is certainly not much more difficult to maintain than a freshwater one." What it does require is "a different technique and therein lies the problem."

Describing his book as "presenting the necessary

theory in a form readily understandable to the non-professional aquarist," Mr. de Graaf makes the confident assertion that if the reader will "familiarise himself with the subject matter of this volume, the marine aquarium will keep few secrets from him." Bold words but not written lightly as a browse through this solid little book will quickly testify.

Since it can be fairly assumed that all the problems concerning the maintenance of saltwater aquariums arise out of the composition changes of seawater in aquaria due to the inhabitants, the author enlarges upon this by devoting his first chapter to Sea Water in Nature in which he outlines the environmental factors governing the lives of marine animals from the coral reefs.

When one is reminded of the ceaseless movement of the world's ocean mass and the absence of any stagnation, one can fully appreciate the invariably healthy state of conditions surrounding a coral reef. Adverse conditions are virtually non-existent or, certainly, of short duration so that coral fishes are never subjected to the variety of pressures often put upon them under aquarium conditions—pressures against which they have no defence mechanisms as are possessed by many freshwater fish accustomed in nature to survival under a host of different conditions.

And so, chapter by chapter, the "mysteries" are transformed into matters of logical cause and effect. This is not to say that there is any suggestion that the whole business of saltwater aquaria keeping is child's play as the reader will soon find as he becomes more and more deeply involved in water chemistry, concentration of trace elements in algae and recipes for the concoction of artificial sea water.

The Fish Catalogue takes up only the final quarter of the book so that the lion's share comprises the know-how so widely sought by the tyro marine aquarist. Well illustrated with colour and black and white photographs this neat and solid book is excellent value and the author's desire to make it "fill a long-felt want" should be amply gratified.

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## OUR READERS WRITE continued from page 261

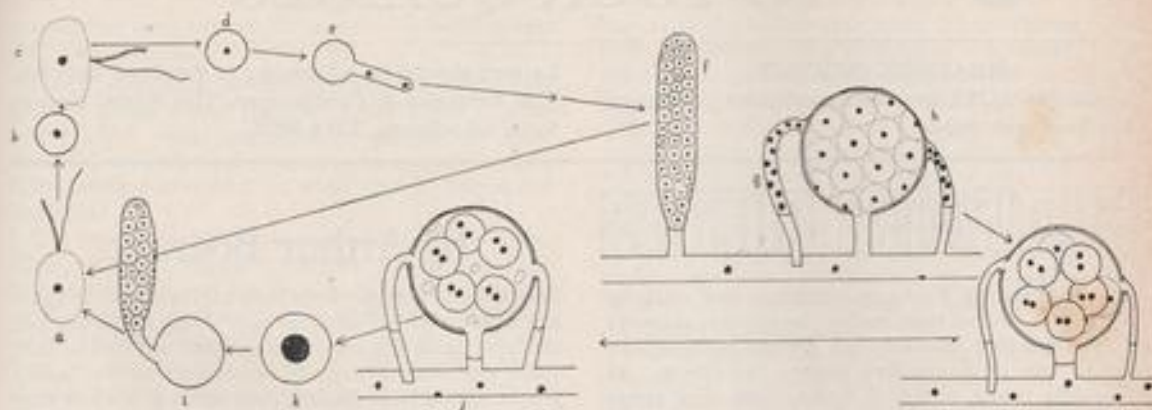
E.L.T.C.s and at present I am writing to members in Australia, Canada and America. We have members at present in 19 different countries, outside the U.K., and I would also like to add that throughout the country we have Groups who are formed by the members themselves to talk, listen and learn about Killies. Anybody who joins the B.K.A. will undoubtedly be able to join such a Group in their area. If there is not one, they could always start one themselves, like we have done in Durham. I can assure Mr. Stephenson that if he wants any advice he will

certainly get it. I can also assure him of a FRIENDLY and a HELPFUL ASSOCIATION. I would also like to add I am not a member of the Management Committee but as I said at the beginning, I feel sure other members will write in defence of the B.K.A.

BOB RILEY,  
32 The Meadows,  
West Rainton,  
Nr. Houghton-Le-Spring  
Co. Durham, DH4 6NP.

# WHITE FUNGUS

by Jorgan & Pamela Hansen



FUNGUS SPORES of *Saprolegnia* and *Achlya* are present in all still freshwater, but can only attack fish when these are ill or run-down, e.g., through attacks of other fishes, overfeeding, chill, sudden temperature change, or general faulty care. The epidermal glands of healthy fish produce a continuous flow of mucus which prevents fungus spores from entering the body, but mucus flows inadequately in unhealthy fish, and attacks of fungus can then occur.

White fungus is distinguished by its cotton-wool-like growth which appears on the mouth, body, gills, and fins. It attacks the mucus membranes of the mouth and the musculature and can eventually cause death. As these fungi do not attack healthy fish, an attack is a clear indication that something is wrong with the tank. If conditions are then improved so that the fish have clean water, adequate oxygen, and a varied diet, this will generally enable them to overcome the fungus. Otherwise one will have to resort to more drastic methods, e.g., euflavin 1 g per 100 litres water, or methylene blue 1 g per 500 litres water, or Potassium permanganate 1 g per 100 litres water, for 30 minutes.

Innes in *Exotic Aquarium Fishes* (1966) suggests a mild salt-water treatment, using 3 level teaspoonsful to the gallon of water, or one part of seawater to 5 of fresh. He advises that one treat for several days at a temperature between 75 and 80°F (24-27°C), preferably with aeration.

*Saprolegnia* and *Achlya* belong to the *Saprolegniales* order of the class *Phycomycetes* which is the most

primitive group of fungi, whose members are generally referred to as moulds. The members of *Phycomycetes* differ from the other fungi in that they lack crosswalls in the hyphae.

The life cycle of *Saprolegnia* is as follows: primary oval-shaped zoospores (a) equipped with a pair of dissimilar flagellae swim about and eventually encyst. Encysted spores (b) eventually germinate and release a secondary kidney-shaped zoospore (c) which in turn encysts (d) and germinates with a hypha (e). Zoosporangia (f) develop from the hyphae and form zoospores which are then released to begin the cycle again. This is vegetative or asexual reproduction.

As the mycelium (the mass of hyphae) grows older and the food supply is gradually depleted, sexual reproduction begins. This takes place through the transfer of nuclei from antheridia or male organs (g) to a spherical oogonium or female organ (h), which contains from 1 to 20 or more eggs, each containing one nucleus. One male nucleus enters each egg (i and j) and fuses with the egg nucleus therein. The fertilized egg then becomes what is called an oospore (k) and goes through a rest period. When the oospore eventually germinates (l) it produces a hypha which in turn produces a sporangium and the cycle then continues as already described.

In *Achlya* zoospores encyst while still at the mouth of the sporangium, whereas in *Saprolegnia* zoospores swim away and are active for some time before encystment.





## 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, TW8 8BN.

## COLDWATER QUERIES

**I am breeding Red-cap orandas and wish to show them. I find that under the show standards of the Goldfish Society of Great Britain, an oranda can only get five points for silver. As these fish have a silver body, how can these pointings cover such a fish?**

The standards quoted do not cover a Red-cap oranda and so far I have not seen any standards for this handsome fish. Obviously, it would be absurd to judge a red-cap under such rules as the fish should have a completely silver (or white, whichever you prefer) body, with a good red cap. If I had to judge such a fish I would assess the body and fin shape as for the veiltail. The fish should have a body deep and round, approaching a sphere. The back and lower contours should be free of any bumps or irregularities. The dorsal fin should be large and erect nearly as high as the depth of the body. The caudal should be completely divided and as straight as possible at the base of the lobes. It should have paired anal fins and the pectoral and pelvic fins should be long and pointed. As for the head of the Red-cap, this should bear the raspberry-like growth over the whole head, covering the gill plates, the better the hood the more points would the fish receive. As for colour the silver should receive about three quarters of the points for colour and the red the rest. Any red on the body or fins or white on the head would be down-pointed.

I do not judge now, but if I did this would be my method. I ceased to judge when the Federation of British Aquatic Societies adopted the Goldfish Society standards for judging. As I did not agree with these I asked that my name be removed from the official list of judges. I had been on this since 1950.

**I have a pond 4 x 3 x 1 ft., and have ten goldfish. Four have died recently and I cannot understand why, I feed them twice every day. What is the cause of their death?**

The pond is small and if you are feeding twice a day

by Arthur Boarder

it is probable that you have polluted the water. Fish do not have to be fed continuously. More fishes are lost through being fed too often or with too much, than from any other cause. If newcomers to the hobby would refrain from feeding their fishes as soon as they put them into a tank or pond, less fish would be lost. Goldfish can live in a tank or pond as long as there are some water plants, for months on end without being artificially fed. I recently found a goldfish which was put into a 60 gallon cold water cistern last September, and this fish had received no food whatever from me, and yet in July this year it was very healthy and had grown well, being a last year's fish.

**I have recently lost a few goldfish from my pond. They appear to have been bruised all along their sides. I have had frogs in the pond and wonder if they have done the damage. I also have many frog tadpoles. What do you think is the reason for the fish dying?**

Frogs are not likely to damage your fish in July. An unattached male frog could injure a fish during the breeding season. This is usually from late February all through March. The damage to a fish which has been so attacked would show as a severe bruising just to the rear of the gill plates and is not likely to run along the body. I think that your trouble has come from the tadpoles. When these are fairly small they are eaten by the fishes but once they get fully grown with their rear legs forming, they can swim very quickly indeed and it would be a good goldfish which could catch them. However, the danger now arises. The tadpoles are voracious feeders and if they can get in reach of a slow swimming goldfish they can attach themselves to it and suck off all the mucus covering. They could soon kill a small fish but a larger one with harder scales might not be killed at once but by losing much of its protective covering, it would be easy prey for any pest or disease. I have known tadpoles strip the mucus from a goldfish in the course of one day.



I have a small pond with a fountain and seven waterlilies. They flowered last year but this year there has been no sign of a flower. Why is this, please?

You have evidently overstocked your small pond with lilies. Once they become overcrowded they are not likely to flower. They must have plenty of nourishment in order to bloom well and they are starving one another out. Reduce the number of plants to two and you should have more success.

I am proposing constructing a *daphnia* pond from a large water trough. I shall line it with heavy duty polythene before filling it. How should I cleanse and prepare the trough before filling with water and on what should I feed the *daphnia*?

The trough should only need washing out before filling, as the polythene should be neutral. *Daphnia* feed on tiny forms of life, such as *infusoria* which you can culture by pouring boiling water on hay, lettuce leaves or other vegetable matter. Leave for a few days and the *infusoria* should be seen as a fine cloud of tiny matter swirling about in the water. It is advisable to have a second tank so that once the first becomes foul and lacking in *infusoria*, a fresh one is ready to start a new lot from the first.

#### How can I breed Bloodworms?

Bloodworms are the larvae of the *Chironomus* fly and occur usually in the mud at the bottom of ponds. It would not be easy to breed these worms as one would have to get the flies to lay their eggs in the water which contained plenty of rather foul sludge at the bottom. I recommend that you forget the idea and concentrate on white worms instead, they are easier to get.

I have a tank 18 by 8 by 8 inches and had two goldfish in, about three inches long. I recently bought a red-cap oranda and a moor. Soon after they were in the tank, not more than three days,

the new fish died. Why do you think this happened?

You obviously overstocked your tank. It should not have more than six inches of body length of fish. You already had this and then when you added the fresh fish, there was insufficient oxygen for all of them and so the newer arrivals died. It is also probable that the new fish had been reared and kept at a higher temperature than you had in your tank. These fish are often bred and kept at almost tropical temperatures and when put into a tank in a living room with no artificial heating, the fish become unwell and if crowded would be the first to die. Get a tank not less than 24 x 12 x 12 inches and you should have more success. Such a tank will hold 12 inches of body length of fish.

For several years now we have bred some goldfish in our pond but always lose them when they are about a month old. We take the eggs and fry from the pond and keep them in a baby bath. We do not feed them at first but later give them sieved dried food.

You should feed the fry on Liquifry for a week after they are free swimming and then on one of the powder-like dried foods on the market. Later they can be given larger pieces of the flake and mashed white worm or mashed small garden worms. I think that the main cause of the fry dying is because the water was not partly changed at least once a week. I find that it is imperative to change a good proportion of the water once a week as it can soon get foul through any uneaten food decomposing and also there must be plenty of waste matter from the fry. Use a fine nylon net and dip from within it with a small saucer or cup to remove the water without taking any fry out. Some fresh water can be added through a rose water can. There is no need to worry if the temperature is rather lower than that in the fry tank, as it never appears to worry the fry at all, in fact they appear to appreciate the cooler water.

## TROPICAL QUERIES

by Jack Hems

I have brown *algae* fluffing up the inside walls of my 2 ft. aquarium. Please inform me what I should do to get rid of this unsightly growth.

Generally speaking, brown *algae* is brought about by inadequate light, that is in regard to its quality or duration or both. If you allow two 40 watt ordinary filament lamps or one 20 watt warm white fluorescent lamp for a 24 in. x 12 in. x 12 in. aquarium you should be able to grow genuine underwater plants very well and see the back of unsightly brown growths.

I have seen a grotesque-looking fish in a dealer's

tank. It looks like a large and rather depressed tadpole, muddy brown in colour, with pale markings here and there and what looks like torn pieces of skin or dirty *algae* adorning the sides. There are a few erect spines just behind the head and a longish dorsal fin which extends to the tail. The eyes are tiny and the mouth is large. Can you please tell me the name, country of origin, and general requirements of this fish?

The fish you have described so well is probably *Coryzichthys trispinosus* popularly known as the



lionheaded stonefish or Siamese lionhead. It is an inactive bottom liver which is found in fresh and salty waters over a wide area of south-east Asia. The spines are said to give rise to pain and inflammation if they penetrate the skin. Obviously a large-mouthed species such as this is not suited to the ordinary community collection. I suspect that in the natural state it feeds on anything alive that comes its way. I also hazard the guess that it would accept meat.

**I have a catfish sold to me as a chocolate or striped *acanthodoras*. What information can you give me about it?**

Very little indeed. According to an American publication, this species has not been identified with any certainty but it is probably a member of the genus *Platydoras*. It is said to reach a length of about 4 in. and is found in Brazil.

**Is it possible to keep discus in a community tank?**

I have seen well-grown discus apparently flourishing in a community tank, but I suspect that every care was taken to maintain ideal conditions in regard to water and general furnishing. In short, water straight from the tap, calcareous stones and gravel and a rather low temperature would be unacceptable.

**I recently purchased a number of mud-skipper (*Periophthalmus barbarus*). Will they eat anything besides baby guppies and various worms?**

Yes, almost anything that flies and crawls. I have also seen them taking swipes at flake food placed on a stone raised just above water level. But I suspect some specimens are more accommodating than others.

**Would you say that two keyhole cichlids would be quite suitable to introduce into a tank housing several *Trichogaster leeri* and a mixed collection of small barbs?**

If you mean *Aequidens maroni*, then the answer is yes. *A. maroni* is remarkably good-tempered for a cichlid and almost always keeps itself to itself.

**I should be most grateful to receive some help with regard to the care, maximum size and breeding habits of the horse-faced loach.**

The horse- or long-nosed loach (*Acanthopsis choirhynchus*) is peaceful by nature but company- and light-shy. It spends a lot of the daytime hidden away in the plants or in fissures in or under rockwork but scuttles about over the bottom in search of prey at night. It demands such things as whiteworms, bloodworms, *Daphnia*, guppy fry, and the like, and

flourishes best at a temperature in the middle to upper seventies (°F). It can reach a length of 7 in. I can trace no record of it having bred in captivity.

**I wish to construct a tank 60 in. × 18 in. × 18 in. What thickness of glass should I use?**

I recommend  $\frac{1}{2}$  in. glass. And make it polished or toughened plate.

**I own a Siamese algae eater that is forever attempting to attach itself to the side of a large female guppy. What is the reason for this strange behaviour?**

The sucker-mouthed fish known to science as *Gyrinocheilus aymonieri* appears to like the taste of the slime on the bodies of certain fish. Therefore I suggest that you remove the guppy from the tank. If the sucker fish transfers his attentions to another species, then it is hardly necessary to say that it has no place in your tank.

**I have heard of a tropical aquarium fish called "Pongo Pongo." Is there such a fish, and from where?**

The Pongo Pongo is a small characin (*Apareidon pongoensis*) native to the Peruvian Amazon. It has the singular habit of swimming madly in small circles, that is in a shoal. I have never seen this fish in a dealer's tank over here and I imagine it is rare in America. All the same, I am indebted to the American loose-leaf edition of *Exotic Tropical Fishes* for the sketchy information about it given above.

**Please give me some information about *Aequidens awani*.**

*A. awani* is from the Mato Grosso region of Brazil. It is a 5 in. fish that, for a medium-sized cichlid, is reasonably well behaved except when courting or guarding its young. It is a ready spawner on stones and should have a temperature of about 75°F (24°C), raising this to 80°F (26°C) or thereabouts for breeding. *A. awani* is easy to feed on live food, meat or dried food and is popularly known as the golden cichlid on account of its golden or light brassy sides. Unfortunately, this golden coloration is less pronounced in tank-bred fish than those collected in the wild.

**I have spent quite a lot of money acquiring different species of *aponogeton* plants only to have them wither away within the space of a year. Can you tell me whether plants of this genus require a special rooting medium and type of water or are they short-lived under any conditions?**

Most plants of the genus *aponogeton* do not flourish if they are kept at a high temperature all



the year round. They need a rest period of several weeks to a few months at a much lower temperature than normal every year. This need is usually heralded by a quickly noticeable deterioration in appearance and slowing up of growth. When this is observed it is recommended that you remove the plants from the aquarium and sink the rhizomes or corms in peat under a few inches of water. Now, store them away for a time, not necessarily in the light, at a temperature in the lower to middle sixties (°F).

#### Will the introduction of fluorine into tapwater kill our aquarium fish?

For several years now certain states in America have had fluorine added to the water in daily use.

### W.Y.O.? *continued from p. 255*

his subject than most of those selling mammals or birds? Just go into the average pet shop and see what your answer would be if you asked the scientific name of the budgerigar or the African grey parrot, or the geographical range of the various gerbils. Obviously, there are some exceptions to this general rule, but they are woefully few and far between. If you use the scientific names of quite ordinary species to the proprietor of an aquarists' shop, he is usually prepared to accept you as someone who knows what he is talking about; but to try it on with a purveyor of mammals or birds, or attempt to talk to him of the behaviour of his wares in the wild, you will run the risk of being dubbed a clever so and so! Have you any ideas why this should be so?" (Might it have something to do with the fact that most good aquarium shops only sell fishes, and don't stock birds or mammals; that many fishes don't have common names, only scientific names; and that many aquatic dealers are also keen aquarists themselves? In answer to your other point, I assume that aquarium shops only have stocks of 'ornaments' because there is some public demand for them; or does the presence of stocks of such 'ornaments' create the demand for them? I must say that I, like Mr. Keeling, consider such "ornaments" to be monstrosities—but we are all, fortunately, entitled to our own opinions on this matter!)

In reply to Mr. R. Prior's query (July 1973 edition) concerning light, water and the growth of *Cryptocoryne* species, comes a letter from Mr. J. Parker, whose home is at 27 Dorchester Road, Northolt, Middlesex, UB5 4PA. He writes: "I have been doing two years' study on aquatic plants on a practical side—mostly on propagation and obtaining flowers for identification. One thing I would say is never buy anything you do not know the name of, or the size to which it will grow. I expect the *Aponogeton* were *crispus* or *undulatus*, these

This has had no adverse effect on the keeping or breeding of freshwater tropical aquarium fish.

#### Would a tank measuring 18 in. × 10 in. × 10 in. be large enough to accommodate a pair of *Apistogramma reitzigi* and is this fish difficult to breed?

This diminutive cichlid from the Rio Paraguay would be quite comfortable in an 18 in. × 10 in. × 10 in. tank, provided it is well-planted along the rear-half and both ends and is kept at a temperature in the upper seventies (°F). The water should be matured and soft rather than hard and giving a slightly acid reaction. The species is not difficult to breed but it is not always a ready or free-spawner.

being the most commonly offered for sale. As to the *Cryptocoryne*, I would guess it was *affinis*. A lot of the *Cryptocorynes* that are imported are grown as bog plants in a very humid atmosphere; once these leaves are put underwater they are lost, and then submersed leaves grow if the plants had a good rootstock to start with. I do not think that water with a pH of 6 would affect *Cryptocorynes*; as to gravel—you do not state grade or whether lime-free. 3/16 in., with lime I find best for most plants." (This is one point over which Mr. Parker and I would disagree. I only use gravel which does **not** contain calcium carbonate in any of its forms—limestone, shells, etc.!) Mr. Parker continues: "Now to lighting—a 15 watt Gro-Lux tube, at 15 in. from the bottom, is of no use to plant growth; it's only of use to floating plants if they are within 3 in. of the tube. The two 15 watt clear tungsten bulbs I would change for two 40 watt clear bulbs, kept on for a shorter time. The only use I have for Gro-Lux is for the germination of seeds in 1/2 in. of water—or was it the heat from the tube? I have been told that ultra-violet tubes, on sale to the public, have a safety standard, and ultra-violet penetration is less than 3 in. through water."

For a future feature, please send me your opinions on any of the points raised above, and on the following: (a) What make of Aquarium 'vacuum cleaner' have you found to be the best on the market, and what are its special attractions? (b) What have you found to be the most effective agent for removing algae from the glass of your aquaria? (c) What are the advantages if any, of keeping aquatic snails in community aquaria, and what species do you consider to be most useful? (d) Let me have details, please, of the largest fish that you have ever kept. (e) Do you have any original tips that would be of use to other aquarists? If so I'll include them in the December feature—and send a surprise prize to the sender of what I consider to be the most useful and original one. The prize should arrive in time for Christmas.



# From a Naturalist's Notebook

by Eric Hardy

HOW RELIABLE, OR complete, are old lists of fauna and flora for particular areas? They may have an appearance of officialdom and authority, but perhaps the major contribution by the modern explosion in bird-watching was the discovery of the inadequate field-experience of previous recorders. Botany perhaps suffered least.

Dr. Ian Spellerberg, a Southampton University biologist working since November 1972 on the reptiles of Britain tells me that he finds the reptile fauna of Lancashire of special interest. Examining the status of the declining sand-lizards on the dunes between Liverpool (Crosby) and Southport (Birkdale), he notes the absence of snakes and slow-worms and asks if they have ever been recorded in this area. Drainage, afforestation and other development since Nicholas Blundell, squire of Crosby Hall in the first decade of the 18th century, recorded frequently "long worms" (by which he meant both slow-worms and grass-snakes) as well as adders, produced a very different fauna today.

I never found slow-worms a feature of the open dunes; but even after the last war, they still lingered in limited areas of the old Cheshire Lines steam railway banks between Liverpool and Southport, as at Maghull. The railway has since been disbanded and much of the bank removed. Railway-banks were its main haunt in south Lancashire, like Westhead near Ormskirk and between Clock Face and Bold at St. Helens. Adders lingered until the 1920s on the drying peat-mosslands just inland of the dunes, as at Simonswood; but records of grass-snakes have too often been confused with escaped or liberated pets, both imported continental varieties and natives from elsewhere. These are commonly liberated in town parks; but specimens killed at Samesbury in the Ribble valley in the early 1920s and at Scarisbrick New Road, Southport in 1932 were probably wild, the latter one of the few lingering on the old mosslands.

Garside, a Southport seedsman-druggist-herbalist probably knew most about their distribution early this century, as he traded in local specimens and paid collectors to provide them. He did not publish any "papers". Members of aquarium societies, and schoolboys, are usually most experienced in our reptiles and amphibians. These people were never included in the old Lancashire and Cheshire Fauna "Committee" which, despite its misleading title, was a

small subscription society, every subscriber being a member of the "committee" without qualification. None of its recorders of reptiles up to a decade ago had any systematic field-experience of these animals. They merely re-recorded other people's reports, just an odd letter from here or there over the years. There was never a planned and complete coverage of the area, or of its most active field-workers who did not subscribe their half-crowns. The reptile notes in the British Association's 1903 Handbook to its Southport Meeting were equally based upon reports rather than experience. This applies to all the other B.A. Lancashire handbooks. Even the Nature Conservancy destroyed a sand-lizard colony on its Ainsdale reserve without knowing it was there. Things are better now.

My recent remarks on crayfish in the West Midlands prompted Mr. R. S. Telford, of Retford (Notts.), to kindly send me evidence of these crustaceans in the brooklets of the Wyre Forest of the Worcestershire-Shropshire border. N. E. Hickin records them in his 1971 book on the natural history of the Forest, with an illustration of one taken near Ford Lane Crossing. The author states they are common in all the streams of the Wyre.

Like other states in the U.S.A., New York is still looking for ways to eliminate the grass-carp or white amur, *Ctenopharyngodon idella*, from its waters. Contrary to what we were told by academic experts when these fish were imported from eastern Asia as the answer to warm water weed-problems here and in the great Cavendish dock in Barrow-in-Furness, eutrophication and weed-production seem to be stimulated by the giant carp's incomplete digestion of vegetable matter. Instead of algae, the fish also prefers coarser vegetation, or rooted aquatic plants, thus reducing this food supply required by more desired fish species.

Apropos my mentioning salamanders, I notice that Wyman and Thrall at Illinois State University recently made an interesting study of sound production by the spotted salamander, *Ambystoma maculatum*, one of the famous axolotl group. At the University of Florida, Campbell and Evans have been studying the vocal behaviour of Chelonians (tortoises, terrapins and turtles). A chirp or "chuck" is uttered as a contact call by *Geochelone carbonaria*. A nocturnal chorus is raised by *G. travancorica* for reasons as yet unknown.



The brightly marked young *Platysternon megacephalon* squeals in alarm, but loses the ability when it grows up and loses its bright juvenile colours. In fact, calling is widespread in this group of reptiles. Turtles listen without external ears, their sensitive skin catching vibrations from water or ground.

Snake-keepers who have any difficulty feeding their pets might take heart from an American who maintains a collection of snakes entirely upon frozen food, using large quantities of packaged and frozen loaches, carp and other fishes, whale-meat, newly hatched white leghorn chicks, newly hatched quail and adult and even hairless newborn white mice and white rats.

Napoleon wasn't the only man who wasted his time on the island of Elba. A German who recently measured the tails of 131 green lizards there, of the subspecies *fejevaryi*, found no difference in length in altitude (up to 600 metres) or between east and west. Other Germans have succeeded in establishing and naturalising the snake *Elaphe longissima* in Upper Hessen. Forty specimens introduced in 1853-54 survived and have become naturalised, their only danger being death from motor cars as they lie on the road.

Most observers have seen male newts circling females in courtship, and fanning her with their tails and it is known that he sometimes secretes a scent. So there is nothing very new in some recent electro-physiological research by two Italian biologists who

announced the "discovery" of smell ("olfactory attractions") in sex recognition by the crested newt. At California State University, an American monitored, by means of a trailing device, the movements of displaced leopard-frogs deprived of both the sense of smell and of hearing, to see how they found their way home. Even on nights of heavy fog and reduced visibility, these deaf and anosmic frogs orientated homeward. So the modern theory of salmon homing by smell up their river of birth doesn't apply to frogs.

Most readers with a garden fish-pool are interested in planting decorative floral shrubs during their dormant winter season. Many books on shrubs are little help at recognition when they merely catalogue long lists or species. Few gardening encyclopaedias give enough photos or technical detail for recognition. The most lavishly-illustrated book to fill the gap is "Shrubs for Your Garden" by Peter Seabrook, just published by Floraprint at the reasonable price of £2.50; or £2.70 post free from Bessingham Gardens, Diss, Norfolk. Over 300 magnificent colour photos illustrate its 144 pages, depicting every genus from Abelia to Wistaria. There is an introduction on planting, pruning and cultivation. *Cornus*, or dog-woods, known by their bark, are particularly suited for a boggy position. Most have red stems and white flowers, but many have striking yellow or pink flowers and leaves. The book is printed in France and has a French edition.

## BOOK REVIEW

**The Successful Fish Hobbyist.** Issued on behalf of TetraMin (U.K.) Ltd., Colley Lane Estate, Bridgewater, Somerset. Available free from pet stores and aquarium dealers.

How to choose a site for your first aquarium, furnish it with a suitable compost and plants, heat it, light it, aerate it, filter it, aquascape it and then stock it with fishes (and give them the right after-care) are described in this exceptionally well-illustrated (in colour and line) booklet. A feature of this publication are tables and symbols giving the temperature required, recommended foods, full-size and so on and so forth of a large number of different fishes. It was a great pity that more care was not taken with the use of the symbol used to denote the suitability of a fish for a happy family tank. Nobody will alter my belief that *Cichlasoma nigrofasciatum*—a spiteful little beast—is not suited to a community tank. And I would never go along with a recommendation that a paradise fish, Cosby gourami or *Pseudotropheus auratus*, among others, should be placed with what we have come to accept as reliable community fish or, put another way, good mixers.

JACK HEMS.

## Crossword Solution

A	I	R	P	P	U	M	P	G	R	I	N	D	A	L
I	T	O	E	A	A	A	A	A	A	A	A	A	A	A
R	E	E	L	M	A	O	R	U	N	T	T	T	T	T
L	E	E	R	I	P	P	S	P	U	R	T	T	T	T
I	C	O	T	A	H	A	L	B	I	I	I	I	I	I
F	I	D	A	I	C	C	C	C	C	C	C	C	C	C
T	H	E	S	E	A	O	F	G	A	L	I	L	E	E
A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
C	O	R	Y	D	O	R	A	S	A	E	N	E	U	S
I	A	F	C	E	I	I	I	I	I	I	I	I	I	I
C	S	P	A	I	U	S	B	A	A	A	A	A	A	A
H	E	A	P	S	S	P	S	T	O	R	M	M	M	M
L	D	I	P	H	M	I	E	R	G	E	E	E	E	E
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D	R	A	G	O	N	S	O	N	E	L	I	N	E	



# A BRIEF SHOW HISTORY OF THE M.A.P.S.

by *T. L. Dodge*

"WHY DON'T we run our own open show?" It was a Committee meeting of the M.A.P.S., back in 1947, and the question was asked by a comparatively new and very naive member. Naive because we didn't possess even one tank, leave alone show equipment, and our credit balance at the bank showed a grand total of 13/7d (old money).

It is true that in 1935 and 1936 we put on an exhibition of aquaria at Bingley Hall, Birmingham's leading exhibition centre, but it was merely 20ft x 20ft. Sideshows in support of the Chrysanthemum Society's exhibition, and actually cost us £10 a time exhibition fees.

By 1937, experience and enthusiasm in "Show Business" prompted us to organise a more ambitious venture at the Botanical Gardens, Edgbaston. We were allocated 100 feet of staging upon which was displayed eight coldwater and one tropical classes. The latter was unique as being the very first competitive class of tropical fishes held anywhere in the Midlands. The combined entry of sixty four coldwater and tropical fishes proved a huge success. The tanks, of course, were provided by the Botanical Gardens Authorities. There was no stopping us at this stage, and for our repeat 1938 Show we catered for ten coldwater and two tropical classes, and had a record 150 entries. We even went out of Birmingham for the Judge, and Mr. C. C. Perkins of Bristol Zoological Society did us the honours. The rules of the exhibition forbade us to charge an entry fee, and even conned us into believing the resulting publicity would be more to our advantage than any monetary accumulation could be.

The outbreak of the second world war put a stop to further activities for a few years, and it was 1945

before the Society became operative again. Two years of the usual society activities followed, and then came the Committee meeting in 1947, with that innocent question "Why don't we run our own open show?"

Well, there was a modicum of organisational experience in the Society but more than enough enthusiasm. After all, we had 13/7d in the kitty—and could make our own tanks—better still, one of our members offered us, gratis, the use of his extensive motor car showrooms for a whole week. The Committee members bought out of their own pockets enough glass, Bostic and angle iron to make one hundred 12in x 10in x 8in tanks. Twelve members split up into pairs and the tanks were completed within three weeks at six different homes. (The idea was to sell the tanks cheaply to Society members, after the Show; the proceeds would re-imburse the Committee Members and also put a few shillings in the kitty). A few more tanks were borrowed from society members, and staging loaned to us by courtesy of the Public Works Department. The Show was very successful indeed with entries from north, south, east and west, and the Midlands. Financially we were made, there was no need to sell the hundred new tanks, indeed, after the Committee had been paid their money back it was decided to purchase another hundred tanks, but this time we'd get them direct from the trade.

Three other such Shows followed at this venue, one each in 1948/49/50, and all were very successful, each succeeding one being better and bigger than the last. The M.A.P.S., were now "On the map" so to speak, finances were on a very firm footing and our membership over the 150 mark. Indeed, the motor car showrooms, which at first seemed so large to us, were now too restricted and some of us started looking

around for more commodious premises. The only exhibition hall large enough to accommodate all our show equipment, accumulated in the four open shows, was Bingley Hall but the rental fee was prohibitive even for our financial resources. However, our Secretary had a very persuasive way and the management was most understanding, so the Hall was booked for a three day show, which meant a week's booking to allow for preparations and breaking down. Even so it was a case of "Make or Break" for the M.A.P.S. and everything depended on how the public would react. The trade gave us excellent support, and so did the aquarists, whilst the local press was worth its weight in gold. The Show went like a bomb and it was a glorious sight to see a permanent queue every evening, several hundreds strong and all curious to witness the enchantment of thousands of exotic fishes.

Every August since that memorable week in 1951 the M.A.P.S. have held an open show at Bingley Hall, and it is still the finest and largest show of its kind organised entirely by an amateur society. Times have dramatically changed since those early days, and

so has the membership, few of the old faces are left but the M.A.P.S., keeps finding members willing and eager to have a bash, and so long as these enthusiasts keep rolling off the production line we can be sure the name of the M.A.P.S., will remain in the top flight of the hobby.

The "Birmingham Show" as it has become nationally known, has also had its share of changes. Commercialism has set in and a lot of the true "old fashioned" amateur enthusiasm is gone; too many members regard it as an opportunity to make a pound or two but they eventually get sorted out and the true amateur spirit prevails. So from small beginnings it is possible, by hard work and enthusiasm to reach the top, as the M.A.P.S., have done—if there is any society contemplating venturing into the world of open show exhibitions let them remember that four ingredients only are necessary, 1 Enthusiasm, 2 The will to work hard, 3 A suitable venue, 4 faith in one's ability. If you have these you have all that's necessary, so have a go lads and lassies, and all the very best to you.

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# THE BLUE-EYED CICHLID

by Roy Young

I HAD served my aquatic apprenticeship with Livebearers of many kinds, moved on to breeding several of the Gouramis, such as Honeys, Dwarfs, Thick-lips, and Pearls, and after two years began to be drawn towards the Cichlids. The non-enthusiasts did their best to put me off, with tales of fights, dirty tanks, eaten spawn and fry, and the "never ending" problem of live foods.

If we believed, and took for granted, everyone else's experiences, we would never advance so, with much enthusiasm, and trepidation, I read every book I could lay my hands on regarding the subject of the kinder Cichlids.

In my usual pig-headed way, I started at the halfway

stage by setting up the tank first, and making all the decisions that go with it; later I would have to find a pair of fish to suit the tank!

There simply wasn't room for one of the bigger tanks so much preferred by many other Cichlidites, so I set up a 30 in x 12 in x 15 in. tank, furnished it with great chunks of Westmorland Stone, and Grey and Purple slate, and about 20 lbs of  $\frac{1}{4}$  in. plain gravel. Somehow flower pots didn't look right, so I bought two ancient coconuts, cut one end off and cleaned them out, cut out a 3 in x 1  $\frac{1}{2}$  in. "doorway," and set them amongst the rocks; "Zulu huts" my long-suffering mother calls them.

I topped the tank up from the local water supply,



switched on light and heat, and at the weekend "prettied" the tank up with three great bunches of *E. densa*, and two Amazon Swords. The water was neutral, DH14, and all that was added to it was a bottle of Blackwater Tonic and three *infusoria* tablets to bring it to "life" quickly. A further week passed and the plants were flourishing and the rocks and the tank walls were acquiring a light coating of *algae* and mini-creepies; the temperature was a fairly constant 79-81°F., so I felt I was ready for fish... at last! I intended to rely on an internal corner filter, filled with gravel and carbon; time would tell if this was good enough.

Off I went, full of visions of beautiful pairs of Curviceps, or Pink Congo's, Kribensis or Cockatoos... What actually happened was something else...! In a back room of my local "Fishtique", sharing a bare tank with three bad-tempered Jewels, were two sad looking little Cichlids, grey-brown in colour, with tatty fins and beautiful Sapphire-Blue eyes. They seemed to be a pair, (not the best of reasons for buying them) and were just under 2 in. long.

They looked to me as if someone owed them a change of luck, (Tch! Tch! say the experts) so with my heart winning out over my head, into a bag they went... Without my handbook they looked, to my inexperienced eye, like *Cichlasoma cutteri*, but I didn't really care; they were mine!

An hour later, in my tank, they looked different... there was a kind of creamy green in their dorsals and caudals, and they were sooty black along their keels; likewise their ventral and anal fins, and the smaller fish had a black spot trimmed with green in the dorsal fin, at the end of the third, and thickest body bar. There was just a hint of orange in the dorsal and anal, where they joined the body... What on earth were they?

A borrowed copy of "Exotic Fishes" supplied the answer.

I was the proud owner of *Cichlasoma spilurum*. "Vegetable lover, one of the kinder Cichlids," said the good book. I felt let down. I'd never heard of them... "Female has spot in dorsal" said the book... well, at least they were a pair... I had visions of my fishy pals asking what they were... Perhaps I should have gone into the red and bought three or four little Discus.

I put in a tank separator, and gave my new acquisitions a good feed of worms, chopped into  $\frac{1}{2}$  in. lengths, (Ugh!) and felt better as I watched them munch away. And so it went on for ten weeks; (when I condition a fish I really do!) Earthworms, *Tubifex*, *Daphnia*, chopped spinach, crushed snails, baby guppies, Tetramin Vegetable Diet, a friend's unwanted Firemouth brood.

How those Blue Eyes rewarded me. They filled out. They grew and grew. Their body bars and few colours deepened, and their black keels set off their

fine and fully restored fins to perfection. Their eyes were large, expressive and the deepest blue, occasionally going black, as they would later on during breeding. The male was now  $3\frac{1}{2}$  in. long, the female an inch smaller, but much fatter.

Out came the divider. Their colours became more vivid and they set off in a mad chase round the tank, but there was no spite in their courting. Their breeding tubes appeared three days later, the female's eventually being 5 mm. long, perhaps  $1\frac{1}{2}$  mm. thick, the male's shorter and thinner. I didn't see a prolonged mouth tug, just quick snatches and pulls, but on 18-6-73, they spawned, the female entering the coconut shell, depositing the eggs, then rushing out as the male went in, this repeated many times. The fry hatched out on the evening of 21-6-73, and I watched the parents scurrying to and fro depositing the fry in a shallow pit dug just outside the shell. They now began to dig tremendous pits all over the place, (which made me glad I hadn't balanced the rock-work) and the fry were moved to and fro over the next five days, until at 6.30 p.m. on 27-6-73 they rose in a tight little grey-brown shoal behind Mum, with Dad in close attendance.

I went two more *infusoria* tablets. Over the next few days in went brine shrimp, Biol, baby Livebearer food, and a regular supply of chopped worms for the adult fish. When the young had been free-swimming a month, (and were still with the parents who were as devoted as ever) I made a first attempt to count them. The total was somewhere between 110 and 120. The young were now getting through huge quantities of *Daphnia* and whole *Tubifex* and were  $\frac{1}{2}$  in long, with all fins complete, and the bars and colours of the adult fish; only the sooty black was missing, and the eye colouring. My non-Cichlid pals had watched all this with as much interest as I had, and suddenly everyone wanted a few *Spilurums*... which I was pleased to supply!

To date, I have retained only half a dozen young, now in a tank of their own, and want to get a new "outsider" to save weakening future broods, but the old couple are still together, and spawning again... I couldn't part with them now.

So if you're an uncertain, would-be Cichlidite, don't be fright! If I can do it, brother, any one can!

I may have been lucky... but I don't think so. Being the beginner I am, I don't doubt that my "Technique" (dare I call it that) can be picked to pieces by the more experienced... but even beginners learn, and if I can give any advice, it's this. Read a good book on the subject... DON'T start with Discus or Dempseys!... and most important of the lot, don't be afraid to be humble and ask someone with Cichlid experience; what they say is based on their own experiences, so it isn't gospel, but advice can save a lot of heartaches. No-one will mind you asking... they'll probably talk your ears off!!





## from AQUARISTS' SOCIETIES

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

**THE East of Scotland Aquarist Clubs Annual Show** was organised by **Aberdeen A.S.** and there were 360 entries, and the event proved a great success. Results Plates: 1, R. Gordon (Arbroath); 2, N. Macdonald (Perth); 3, I. McLeod (Forfar); 4, K. Moit (Arbroath). Swordtails: 1, G. MacRae (Inverness); 2, R. Troup (Aberdeen); 3, E. Davidson (Arbroath); 4, S. Wallis (Kirkcaldy). Barbs "A": 1, J. Davidson (Banff & D.); 2, P. Smith (Arbroath); 3, R. Traham (Glenrothes); 4, S. Blackey (Edinburgh). Barbs "B": 1, N. Macdonald (Perth); 2, D. Strachan (Aberdeen); 3, M. Clark (Perth); 4, I. McLeod (Forfar). Sharks: 1 and 2, J. Kelly (Dundee); 3, J. McPherson (Perth); 4, F. Cunningham (Perth). Egg-laying Toothcarps: 1, G. Ross (Aberdeen); 2, M. Clark (Perth); 3, I. Henderson (Perth); 4, P. Smith (Arbroath). Siamese Fighters: 1, P. Smith (Arbroath); 2 and 4, J. Thomson (Edinburgh); 3, P. Deans (Fintry, Dundee). Gouramis "A": 1, L. Forsyth (Perth); 2, Mr. and Mrs. Gordon (Arbroath); 3, J. Findlay (Banff & D.); 4, G. Law (Arbroath). Gouramis "B": Others under 3 inches 1, N. Macdonald (Perth); 2, P. Smith (Arbroath); 3, L. Forsyth (Perth); 4, J. Macdonald (Moray). Gouramis "C": Others over 3 inches 1, L. Forsyth (Perth); 2, I. McLeod (Forfar); 3, W. Clarke (Aberdeen); 4, J. Milligan (Edinburgh). Large Cichlids: 1, W. Clarke (Aberdeen); 2, P. Smith (Arbroath); 3, W. Davidson (Arbroath); 4, M. Clark (Perth). Rift Valley Cichlids: 1 and 2, D. Morgan (Aberdeen); 3 and 4, G. Ross (Aberdeen). Dwarf Cichlids: 1, I. McLeod (Forfar); 2, J. & E. Hove (Arbroath); 3, G. Forsyth (Edinburgh); 4, J. Milligan (Edinburgh). Guppies: 1, and 3, J. McPherson (Perth); 2, P. Deans (Fintry, Dundee); 4, J. Thomson (Edinburgh). Mollies: 1, R. Troup (Aberdeen); 2, L. Mitchell (Fintry, Dundee); 3, J. Grant (Moray); 4, B. Landis (Dundee). Characins "A": 1, P. Cunningham (Perth); 2, J. Hay (Aberdeen); 3, M. Clark (Perth); 4, A. Paris (Dundee). Characins "B": 1, K. Moit (Arbroath); 2, A. Cunningham (Perth); 3, G. Rose (Aberdeen); 4, J. Davidson (Banff & D.). Characins "C": 1, L. Mitchell (Fintry, Dundee); 2, J. Kelly (Dundee); 3, A. Stewart (Fintry); 4, G. Law (Arbroath). Rasboras: 1 and 2, C. Davidson (Banff & D.); 3 and 4, G. Pratt (Dundee). Danios: 1 and 3, F. Cunningham (Perth); 2, A. Cunningham (Perth); 4, C. Grigg (Moray). Tropical Minnows: 1 entry only 1, F. Cunningham (Perth). Catfish "A": 1 and 2, J. Kelly (Perth); 3 and 4, L. Forsyth (Perth). Catfish "B": 1, P. Smith (Arbroath); 2, G. Law (Arbroath); 3, J. Hay (Aberdeen); 4, J. and E. Hove (Arbroath). Loaches: 1, J. Kelly (Dundee); 2, R. Traham (Glenrothes); 3 and 4, P. Smith (Arbroath). Coldwater Fish: 1 and 3, J. Thomson (Edinburgh); 2, T. Bishop (Edinburgh); 4, J. Hove (Arbroath). Breeders (Livebearers): 1, Mr. and Mrs. Gordon (Arbroath); 2, A. McPherson (Aberdeen); 3, E. Davidson (Arbroath); 4, B. Cunningham (Perth). Breeders (Egg-layers): 1, D. Morgan (Aberdeen); 2, P. Deans (Fintry, Dundee); 3, J. Hopkins (Fintry); 4, J. and E. Hove (Arbroath). Any other species: 1, J. Middleton (Arbroath); 2 and 4, A. Cunningham (Perth); 3, A. McLennan (Arbroath). Best fish in show: J. Kelly's *L. erythronus*. Best Club or Society: 1, Perth; 2, Arbroath; 3, Aberdeen; 4, Dundee.

OFFICIALS of the new committee of the Hemel Hempstead A.S. are now as follows:

chairman: A. Tuff; vice-chairman: A. Dibley; secretary: Ann Graham; assistant secretary: R. Holliday; show secretary: E. Beir; Assistant show secretary: Jan Collins; Treasurer: G. Whitty; social secretary: Mary Whitty; catering Secretary: Ann Tuff; Librarian: S. Collins; press officer: V. Mills; Junior representative: D. Whitty.

**RESULTS of the Bedford Aquarist Open Show** were as follows: A.V. Male Guppy: 1, I. Short (Nuneaton); 2, C. Pratt (Independent); 3, C. Kinsbury (Uxbridge); 4, E. Holmes (Banbury). A.V. Female Guppy: 1, J. Salisbury (Independent); 2, R. Coyle (Independent); 3, E. Holmes (Banbury); 4, Mr. Brockhouse (Gornal). A.V. Molly: G. W. Allen (Independent); 2 and 3, R. Shakespeare (Independent); 4, Mr. Hancock (Spa). A.O.V. Livebearer: 1, Mrs. Crew (W.A.D.A.S.); 2, G. Stead (Tamworth); 3, E. Holmes (Banbury); 4, K. Brooks (M.T.A.). Characins H. and H.: 1, R. Bowes (Independent); 2, J. Salisbury (Independent); 3, Mrs. Crew (W.A.D.A.S.). 4, D. Crutchank. A.O.V. Characin: 1, Mr. Ward (Banbury); 2, D. and H. Tamworth; 3, Mr. Roberts (Independent); 4, T. and M. Hughes (S.A.S.S.). Barbs (named): 1, 2 and 3, K. Dene (Ponall); 4, T. Gould (M.T.A.). A.O.V. Barbs: 1, T. Davis (M.Y.A.); 2, Mr. Roberts (Independent); 3, Mr. Mayle (S.A.S.S.); 4, E. Williams (Chelmsley). Cichlids A.P.N.N.: 1 and 2, T. Davis (M.T.A.); 3, D. and H. Tamworth; 4, J. Charney (Cannock). Angels: 1, P. Watts (Coventry); 2, T. Salisbury (Bedworth); 3, E. T. Cobhill (M.T.A.); 4, G. Allen (Independent). A.O.V. Chichlid: 1, Mrs. Dean (Tamworth); 2, G. W. Allen (Independent); 3, Mr. Kinsey (Independent); 4, J. and C. Stanley (S.A.S.S.). A.V.S. Fighter: 1, and 4, R. Bowes (Independent); 2, Mr. Mayle (S.A.S.S.); 3, G. Nesbit (Goodyears End). A.O.V. Ambantid: 1, R. Coyle (Independent); 2, E. T. Cobhill (M.T.A.); 3, M. Mastin (Hinkley); 4, C. Pratt (Independent). Corydoras and Brochis: 1, R. Dolman (Chelmsley); 2, G. Bastin (M.T.A.); 3, G. W. Allen (Independent); 4, P. A. Mosey (Sudbury). A.O.V. Catfish: 1, Mr. Mayle (S.A.S.S.); 2, C. Pratt (Independent); 3, A. Clark (Hinkley); 4, C. Kinsbury (Uxbridge). A.V. Loach: 1 and 4, P. Hinde (Coventry); 2, R. Coyle (Independent); 3, T. Emma (Bedworth). A.V. Killie: 1, F. Hirst (Coventry); 2, E. T. Cobhill (M.T.A.); 3, G. and S. Noble (Chelmsley); 4, Mrs. Dean (Tamworth). Rasboras: 1, R. Hough (M.T.A.); 2, R. Bowes (Independent); 3, Mr. Richardson (Loughborough); 4, Mr. Phillips (M.T.A.). Junior: Mr. Deans (M.T.A.); 2, K. Brooks (M.T.A.); 3, E. T. Cobhill (M.T.A.); 4, Mr. Wyatt (Banbury). Egg-layer pairs: 1, K. Hookes (M.T.A.); 2, J. Goodman (Gornal); 3, K. Pratt (Bedworth); 4, M. E. Roberts (Independent). Livebearer pairs: 1, E. Williams (Chelmsley); 2, K. Underwood (Spa); 3, C. Pratt (Independent); 4, Mr. Mayle (S.A.S.S.). Breeders Egg-layers: 1 and 2, J. Salisbury (Independent); 2, D. and D. Tamworth; 4, E. Williams (Chelmsley). Breeders Livebearers: 1 and 4, E. Holmes (Banbury); 2, T. Allen (Independent); 3, D. White (Bedworth). A.O.V. Tropical: 1, I. Gould (M.T.A.); 2, R. Coyle (Independent); 3, C. Pratt (Independent); 4, T. and M. Hughes (S.A.S.S.). Single Tail Goldfish: 1, F. E. Watts (Coventry); 2, D. McIntyre (Spa); 3, D. Pennington (G.K.N.); 4, Mr. Harris (Nelson). Twin Tail Goldfish:

1 and 4, R. Shakespeare (Independent); 2, R. Hough (M.T.A.); 3, S. Cooper (Independent); A.O.V. Coldwater: 1, F. Underwood (Spa); 2, P. Watts (Coventry); C. Pratt (Independent); 4, R. Hough (M.T.A.). B.I.S.: F. E. Watts (Coventry). B. Coldwater: F. E. Watts (Coventry). Best Characin: 1, Ward (Banbury). Best Anabantid: R. Coyle. Best Livebearer: M. Crew (W.A.D.A.S.). Best Killie: F. Hirst (Coventry). Best Breeders Egg-layer: J. Salisbury (Independent). Society with most entries and most awards: M.T.A.

**DISPITE** a late change of venue, the **Stroud & District A.S.** held a very successful Open Show in August, with over 460 entries, of high standard fish. As the new premises proved very popular, both with regard to situation and spacious accommodation, and it is hoped to have the use of these for future shows. Results were as follows: Best Fish in Show: N. Gray, of Hartcliffe, Bristol. Guppies (Male): 1, N. Gray (Bristol); 2, Mrs. J. Hawkins (Bishops Cleeve); 3, M. Butcher (Trowbridge); 4, Mrs. J. Hawkins (Bishops Cleeve). Guppies (Female): 1, Mr. and Mrs. K. Press (Bath); 2, B. R. Goll (Evesham); 3, N. Wood (Glos.); 4, N. Gray (Bristol). Mollies: 1 and 2, S. Mason (London); 3, A. Higgs (Glos.); 4, D. Phippen (Bath). Swords: 1, D. Phippen (Bath); 2, K. Williams (Rhonda); 3, N. Gray (Bristol); 4, R. Bond (Bishops Cleeve). Plates: 1, R. Greenwood (Bishops Cleeve); 2, B. R. Goll (Evesham); 3 and 4, Mr. and Mrs. Johnson (Port Talbot). Barbs: 1, 2 and 4, A. Milleard (Whiteaway); 3, R. Hyett (Yate Club). A.O.V. Barbs: 1, S. Mason (London, S.W.15); 2, B. R. Goll (Evesham); 3, J. Rice (Port Talbot); 4, A. Milleard (Whiteaway). Danios: 1, Mrs. M. Butcher (Trowbridge); 2, M. Butcher (Trowbridge); 3, R. Rich (Basingstoke); 4, J. Rice (Port Talbot). Minnows and Rasboras: 1 and 2, Mr. and Mrs. M. Williams (Rhonda); 3 and 4, R. Hyett (Yate Club); 11, and M. and C. Chelmsley; 1, R. Hyett (Yate Club); 2, M. Strange (Basingstoke); 3, R. Jones (Basingstoke); 4, M. Bishop (Bishops Cleeve). A.O.V. Characins: 1, M. Strange (Basingstoke); 2, N. Binding (Bishops Cleeve); 3 and 4, N. Gray (Bristol). Dwarf Cichlids: 1 and 4, M. Strange (Basingstoke); 2, R. Hyett (Yate Club); 3, D. Phippen (Bath). Angels: 1 and 4, Mr. and Mrs. K. Press (Bath); 2, B. R. Goll (Evesham); 3, Mr. Dixon (Newbury). A.O.V. Cichlids: 1 and 2, Mr. Dixon (Newbury); 3, J. Brown (Didcot); 4, Mr. and Mrs. Wilson (Newbury). Fighters: 1, N. Wood (Glos.); 2, D. Lambourne (London, S.W.11); 3, R. Fielding (Whiteaway); 4, Mr. and Mrs. K. Press (Bath). A.O.V. Labyrinth: 1, R. C. Hyett (Yate Club); 2, G. Castle (Trowbridge); 3, R. Peck (Basingstoke); 4, R. Dodson (Goswood). Corydoras: 1, N. Gray (Bristol); 2, J. C. Ferguson (Bath); 3, Mr. and Mrs. Williams (Rhonda); 4, F. Scriven (Bishops Cleeve). A.O.V. Cats: 1, Mr. and Mrs. K. Press (Bath); 2, R. Jones (Basingstoke); 3, D. Lambourne (London, S.W.11); 4, B. R. Goll (Evesham). Botias, Loaches, Sharks: 1, K. Williams (Rhonda); 2, Mr. and Mrs. K. Press (Bath); 3, P. Greenwood (Bishops Cleeve); 4, Mr. and Mrs. Wilson (Newbury). Killifish: 1 and 3, Mr. and Mrs. Williams (Rhonda); 2, Mr. and Mrs. K. Press (Bath); 4, M. Strange (Basingstoke). A.O.V. Tropical: 1, N. Gray (Bristol); 2, D. Lambourne (London, S.W.11); 3, B. R. Goll (Evesham); 4, A. Milleard (Whiteaway). Sexed Pairs (Big Layers): 1, J. Brown (Didcot); 2, N. Gray (Bristol); 3, R. C. Hyett (Yate Club); 4, B. Jones (Basingstoke). Sexed Pairs (Live bearers): 1, Mrs. Pederson (Bristol); 2, R. Onslow (Basingstoke); 3, M. Strange (Basingstoke); 4, R. Peck (Basingstoke). Livebearers (teams

**holamid** A TABLET A DAY, SENDS WHITE SPOT AWAY  
Hillside Aquatics London N12



of four); 1, M. Strange (Basingstoke); 2, R. Onslow (Basingstoke); 3, R. Dodson (Cotswold); 4, C. Whittaker (Stroud). Eggbearers (teams of four): 1, Mr. Dixon (Newbury); 2, Mrs. Pederson (Bristol); 3, N. Gray (Bristol); 4, Mr. Hewitt (Bristol). Furnished Jar: 1, Mr. G. Tindall (Stroud); 2, Mrs. Viner (Bishops Cleeve). A.O.V. Junior: 1 and 2, N. Gray (Bristol); 3, Master K. Daniels (Whiteaway); 4, P. Greenwood (Bishops Cleeve). Common Goldfish: 1 and 3, Mr. and Mrs. K. Press (Bath); 2, D. Phippen (Bath); 4, Mrs. Pederson (Bristol). Shubunkins: 1, D. Phippen (Bath). Fancy Goldfish: 1, K. Burton (Bishops Cleeve); 2, R. Rich (Basingstoke); 3 and 4, D. Phippen (Bath). A.O.V. Pond or River: 1 and 4, N. Wood (Glos.); 2, N. Gray (Bristol); 3, M. Butcher (Trowbridge).

**THE BORDER A.S.** commenced their winter season with a general meeting when they discussed the programme and the planned trip to the Aquarist Festival at Bellevue, Manchester. Speakers are coming from Morecombe, Glasgow, Kendal and Newcastle and a welcome is extended to anyone interested in fishkeeping to come to the meetings which take place on Monday evenings at fortnightly intervals.

**AT THE GAINSBOROUGH A.S.** August meeting Mr. Frank Toyne of the Sheaf Valley A.S. gave an interesting talk and slide show on coldwater fish and what to look for when selecting young fish for showing. He also judged the table show, results of which were as follows: Killifish 1 and 2, Mr. and Mrs. R. Harris; 3, Mr. and Mrs. W. D. Gilding. Pairs of Livebearers: 1 and 3, Mr. and Mrs. R. Harris; 2, J. Barnett. A.O.V. 1 Mr. and Mrs. W. D. Gilding; 2, and 3 Mr. and Mrs. P. Dixon. Pairs of Livebearers, Juniors: 1, J. and M. Brumby.

**DURING August Llantwit Major A.S.** (F.R.A.S. C.N.A.A.) held a table show for A.O.V. Catfish. This was judged by Mr. Peter Jenkins of Port Talbot A.S. and resulted as follows: 1, R. S. Wigg; 2, W. Lambrick; 3, L. Dyson; 4, Master John Edwards.

While the judging was in progress the members were entertained to an interesting lecture given by Mr. Howard Thomas (Rhonda A.S.) on his own fishkeeping experiences over a period of many years.

The club has an interesting and varied programme of forthcoming events and extends to all a cordial welcome. Meetings are held at the new venue Llanfiliad Fawr Comprehensive School, Ham Lane East, Llantwit Major.

**OPEN Show details from Tonbridge and District A.S.**, show that 655 entries were benched by over one hundred competitors from twenty-six clubs. Against this competition Kent Aquarists Mr. and Mrs. Scates of Erith A.S. took the trophy and the Aquarist Gold Pin for Best Fish in show. Results were as follows: Class B: 1 and 4 Mrs. D. Cruickshank (Baling); 2 and 3, J. Bellingham (Tonbridge). Class Ba: 1, Mrs. R. Coyle (Independent); 2, J. E. A. Marshall (Medway); 3, J. M. London (Thurrock); 4, Mr. and Mrs. Hubert (S.L.A.D.A.S.). Class C: Mr. and Mrs. T. Scates (Erith); 2, Mrs. R. Coyle (Independent); 3, C. P. Marsh (Medway); 4, I. Waed (Banbury). Class Ca: 1, Miss R. Coyle (Independent); 2, S. W. Applin (Independent); 3, Mrs. D. Cruickshank (Baling); 4, Mrs. M. J. Wall (Thurrock). Class D: 1, D. R. Purchard (Tonbridge); 2, G. E. Dixon (Newbury); 3, J. W. Hughes (Rochampton); 4, P. Jarvis (Freelance). Class Da: P. V. Brown (Tonbridge); 2, G. E. Dixon (Newbury); 3, P. W. Cottle (N.K.A.S.); 4, J. W. F. Hughes (Rochampton). Class Db: 1, C. P. Marsh

(Medway); 2, B. Newman (Sittingbourne); 3, J. W. F. Hughes (Rochampton); 4, R. C. Burton (Freelance). Class E: 1, Mrs. R. Coyle (Independent); 2, P. O'Bryan (Thurrock); Mrs. P. Sawford (Rochampton); 4, P. W. Cottle (N.K.A.S.). Class Ea: 1, E. McQuade (Int. Betta Cung); 2, S. W. Applin (Independent); 3, G. M. Brazier (Sudbury); 4, J. W. F. Hughes (Rochampton). Class F: 1, B. L. Wright (Thurrock); 2, Mr. and Mrs. Groves (M.S.A.S.); 3, J. H. Jackson (Basingstoke); 4, E. A. Holmes (Banbury). Class G: 1 and 2, B. L. Wright (Thurrock); 3, Mrs. P. Lambourne (Rochampton); 4, D. Lambourne (Rochampton). Class H: 1, Mr. and Mrs. T. Scates (Erith); 2, P. A. Moye (Sudbury); 3, L. J. Brazier (Sudbury); 4, Mrs. B. Purchard (Tonbridge). Class J: 1, P. Coyle (Independent); 2, C. Wood (N.K.A.S.); 3, P. A. Moye (Sudbury); 4, T. A. King (Erith). Class K: 1, T. A. Cruickshank (Baling); 2, Mrs. I. Bellingham (Tonbridge); 3, P. O'Bryan (Thurrock); 4, Mrs. M. J. Wall (Thurrock). Class L: 1, Master T. Coyle (Independent); 2, Mr. and Mrs. Groves (M.S.A.S.); 3, L. J. Brazier (Sudbury); 4, A. Fossell (Riverside). Class M: 1, D. R. Purchard (Tonbridge); 2, Mrs. R. Coyle (Independent); 3, P. A. Moye (Sudbury); 4, Mr. and Mrs. Hubert (S.L.A.D.A.S.). Class N (b-m): 1 and 4, P. W. Cottle (N.K.A.S.); 2, J. Bellingham (Tonbridge); 3, L. J. Brazier (Sudbury). Class N (o-t): 1, C. Elliott (Medway); 2, E. A. Holmes (Banbury); 3, B. Robinson (Lewisham); 4, M. Lewis (Sudbury). Class O: 1, D. Emery (M.S.A.S.); 2, R. J. Chapman (Unattached); 3, J. M. London (Thurrock); 4, L. J. Brazier (Sudbury). Class P: 1, Mr. and Mrs. Murphy (Greenford); 2, E. A. Holmes (Banbury); 3, C. Green (N.K.A.S.); 4, G. M. Brazier (Sudbury). Class Q: 1, D. R. J. Livermore (Thurrock); 2, Mrs. A. M. Adams (Hastings); 3, A. F. J. Scott (Sittingbourne); 4, P. O'Bryan (Thurrock). Class R: 1, P. O'Bryan (Thurrock); 2, Mrs. M. J. Wall (Thurrock); 3, J. M. London (Thurrock); 4, Master G. Elson (Freelance). Class S: 1, 2 and 3, J. M. London (Thurrock); 4, P. Floyd (Sittingbourne). Class T: 1, C. Elliott (Medway); 2, Mrs. D. Cruickshank (Baling); 3, J. H. Jackson (Basingstoke); 4, J. M. London (Thurrock). Class U: 1 and 3, H. C. Juson (Thurrock); 2, V. E. Valley (Baling); 4, R. Parker (N.K.A.S.). Class V: 1, Misses D. and S. Jackson (Basingstoke); 2, Mrs. A. M. Adams (Hastings). Class W: 1, R. Parker (N.K.A.S.); 2, Master J. Mathison (Tonbridge); 3, Mrs. D. Cruickshank (Baling); 4, Master C. Bellingham (Tonbridge). Class X (b-m): 1, G. E. Dixon (Newbury); 2 and 4, T. B. Adams (Hastings); 3, Mrs. M. J. Wall (Thurrock). Class X (o-t): 1, A. Heath (Lewisham); 2, P. O'Bryan (Thurrock); 3, C. Elliott (Medway); 4, E. Stainer (Freelance). Class Z: 1 and 2, H. C. Juson (Thurrock); 3 and 4, J. W. F. Hughes (Rochampton). Class Za: 1, G. A. Marshall (Medway); 2, C. Elliott (Medway); 3, P. O'Bryan (Thurrock); 4, H. C. Juson (Thurrock).

**OFFICERS** elected at the annual general meeting of the **Stockton-on-Tees A.S.** were as follows: Chairman: D. Keithley; Secretary: C. W. Buck, 22 Dansby Grove, Thornaby, Teesside, TS17 8HX; Treasurer: I. Osman; Show Secretary: B. Pipkin; Auctioneer: A. Saunders; Public Relations: B. Urwin; Officers: L. Collins, W. Bowman, Mrs. Bowman. Meetings are held first and third Mondays at the "Tilery Inn," Maritime Place, Stockton. New and old members always welcome.

**RESULTS of the Alfreton and District A.S.** were as follows: 595 fish were benched in 17 sections by 30 societies. Best in show was a Pencil Fish owned by D. M. Laycock, of Sheffield A.S. and the society rose bowl went to Airborough A.S.

Results: Guppies (males): 1 and section winner, Mr. and Mrs. Milne (Doncaster); 2, W. Blundell (Rossington); 3, D. M. Paycock (Sheffield). Guppies (females): 1, D. M. Laycock (Sheffield); 2, Miss M. Thickbroom (Castleford); 3, R. Holmes (Derby Regent). Platies: 1 and section winner: P. H. Mighalls (Hucknall and Bulwell); 2, J. S. Hall (Airboro.); 3, Mr. and Mrs. Copley (Doncaster). Swordtails: 1, M. Darrington (Alfreton); 2, Susan Clarke (Airboro.); 3, R. Jeffs (Jones and Ship-

man); A.P.S. Mollies: 1, J. Igge (Sherwood); 2, T. Smith (Sheffield); 3, Mr. and Mrs. Stephenson (Sherwood). Livebearers A.O.V.: 1, and 3, Mr. and Mrs. Toyne (Sheaf Valley); 2, Mrs. C. Heap (Keighley). Barbs (small): 1, Mr. and Mrs. M. Patterson (Granttham); 2, Mrs. Cohen (Pontefract); 3, Mr. Carr (Doncaster). Barbs (large): 1, 2, and section winner, D. Sewell (Sherwood); 3, Mrs. B. Cohen (Pontefract). Characins (small): 1 and section winner, D. M. Laycock (Sheffield); 2, D. Sewell (Sherwood); 3, M. Allsop (no society); Characins (large): 1, Miss M. Thickbroom (Castleford); 2, D. Sewell (Sherwood); 3, Mr. and Mrs. Stephenson (Sherwood). Killifish: 1 and section winner: T. Smith (Sheffield); 2, Miss A. Hill (no society); 3, Mr. Carr (Doncaster). Minnows and Danios: 1, G. Malpass (Castleford); 2, Mr. and Mrs. Cohen (Pontefract); 3, Mrs. L. C. Heap (Keighley). Sharks and Foxes: 1 and section winner, W. Blundell (Rossington); 2, Mr. and Mrs. Shipman (Granttham); 3, J. S. Hall (Airboro.). Rasbora: 1, R. Harlow (Derby Regent); 2, G. Malpass (Castleford); 3, Mr. and Mrs. Patterson (Granttham). Dwarf Cichlids: 1, Mr. Hans Kuhn (Lincoln); 2, Mr. and Mrs. Sellers (Lincoln); 3, Mr. and Mrs. Toyne (Sheaf Valley). Large Cichlids: 1 and section winner: D. Sewell (Sherwood); 2, Mr. and Mrs. Haefield (Gainsborough); 3, Mr. and Mrs. Gabe (Chesterfield). Angels: 1, Mr. and Mrs. Bailey (Sherwood); 2 and 3, D. Sewell (Sherwood). Corydoras: 1 and section winner, Mr. and Mrs. Bailey (Sherwood); 2, W. Downing; 3, P. H. Mighalls (Hucknall and Bulwell). A.O.V. Catfish: 1 and 2, Mr. and Mrs. Copley (Doncaster); 3, J. S. Hall (Airboro.). Loaches: 1, K. Barrett (Doncaster); 2, Mr. and Mrs. Toyne (Sheaf Valley); 3, K. Tomas (Lucas). Siamese Fighters: 1, Susan Clarke (Airboro.); 2, Mr. and Mrs. Cohen (Pontefract); 3, Mr. and Mrs. Birdall (Airboro.). A.O.V. Anabantids: 1 and section winner: Mr. and Mrs. Sellers (Lincoln); 2, Miss A. Hill (no society); 3, K. Barrett (Doncaster). Tropical Freshwater: 1 and section winner: Miss M. Thickbroom (Castleford); 2, J. S. Hall (Airboro.); 3, Clarke Bros. (North Staffs.). Tropical Marine: 1 and 2, J. Igge (Sherwood). Pairs (Egglayers): 1 and section winner, Mr. and Mrs. Arron (Gainsborough); 2, Mrs. Bull (Derby Regent); 3, K. Barrett (Doncaster). Pairs (Livebearers): 1 and 2, E. Parkes (Sheaf Valley); 3, Mr. and Mrs. Toyne (Sheaf Valley). Junior (Egglayers): 1 and section winner, Master R. Downing (Sherwood); 2, P. Smith (Sheffield); 3, Miss M. Thickbroom (Castleford). Junior (Livebearers): 1 and section winner: Susan Clarke (Airboro.); 2, K. and N. Parkes (Sheaf Valley); 3, Susan Clarke (Airboro.). Goldfish and Comets: 1 and 2, J. S. Hall (Airboro.); 3, R. Harrison (Raleigh). Shubunkins: 1 and 2, H. Brakes (Jones and Shipman); 3, J. S. Hall (Airboro.). Fancy Goldfish: 1 and 2 also section winner: J. S. Hall (Airboro.); 3, R. Harrison (Raleigh). A.O.V. Coldwater: 1 and 2, J. S. Hall (Airboro.); 3, Clarke Bros. (North Staffs.). Breeders (Egglayers): 1 and section winner: Mr. and Mrs. Thomas (Private); 2 and 3, A. Lane (Derby Regent). Breeders (Livebearers): 1 and 2, Mr. and Mrs. Toyne (Sheaf Valley); 3, Mr. and Mrs. Daines (Doncaster). Breeders (Goldwater): 1, 2 and 3, J. S. Hall (Airboro.). Novice: 1 and section winner: Mrs. Hall (Airboro.); 2, A. Feasey (Rossington); 3, J. C. Wagnat (no society). Furnished Aquarium: 1, J. S. Hall (Airboro.); 2, B. Rowe (Alfreton). Mini Jars: 1 and 2 also section winner: R. Harlow (Derby Regent); 3, Mr. and Mrs. Gabe (Chesterfield). Plants (Aquatic): 1, J. Wright (Alfreton); 2, Mr. and Mrs. Milne (Doncaster); 3, Mr. and Mrs. Cohen (Pontefract).

**THE Privateers (Shipley) A.S.'s** August Meeting consisted of a Film Show and talk on Marines, given by Mr. P. Moorhouse, of Hodderfield. It was very informative and much enjoyed.

**OPEN Show results of the Oldham and District A.S.** were as follows: Best Fish in Show: Mrs. B. Booker (Morecambe Bay). Guppies: 1, 2 and 3, Mrs. L. Smith (Castle-

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foed). Mollies: 1, Mr. and Mrs. Perkin (Macclesfield); 2 and 3, C. Beckenham (Oldham). Swordtails: 1 and 3, C. Beckenham (Oldham); 2, J. Brown (Hyde). Platies: 1, B. and C. White (Leigh); 2, Mr. and Mrs. Copley (Doncaster); 3, M. Lennox (Belle Vue). A.O.V. Livebearers: 1, Master D. Marshall (Oldham); 2, J. S. Hall (Aireborough); 3, J. Furness (Castleford). Anabantids: 1, M. Lennox (Belle Vue); 2, Mr. and Mrs. Gullane (Buxton); 3, J. Boardman (Leigh). Fishers: 1 and 2, L. Ratcliffe (Leigh); 3, S. Clarke (Aireborough). Small Barbs: 1, Mr. and Mrs. Daines (Doncaster); 2, Mr. and Mrs. Gullane (Buxton); 3, J. Furness (Castleford). Large Barbs: 1, B. Booker (Morecambe Bay); 2, T. Smith (Sheffield); 3, Mr. and Mrs. B. Marshall (Oldham). Dwarf Cichlids: 1, Mr. and Mrs. Gullane (Buxton); 2, Mr. and Mrs. Copley (Doncaster); 3, Mrs. J. Tonge (Oldham). Large Cichlids: 1, Mrs. B. Booker (Morecambe Bay); 2, D. Grogan (Accrington); 3, F. Mulla (Merseyside). Angels: 1, Mr. Grolan (Belle Vue); 2, A. Axon (Ashton); 3, S. Elton (Independent). Small Characins: 1, N. Lennox (Belle Vue); 2, D. and M. Laycock (Sheffield); 3, Mr. and Mrs. Thorn (Northwich). Large Characins: 1, T. Smith (Sheffield); 2, Mr. and Mrs. Daines (Doncaster); 3, Mr. and Mrs. Gabe (Chesterfield). Rasboras: 1, B. Booker (Morecambe Bay); 2, Mr. and Mrs. B. Marshall (Oldham); 3, A. Barnett (Castleford). Danios and Minnows: 1 and 2, D. Whiteside (B.K.A.); 3, T. Smith (Sheffield). Sharks: 1, J. S. Hall (Aireborough); 2, J. Johnson (Hyde); 3, Mr. and Mrs. Stone (Chesterfield). Foxes: 1, R. Mellaleu (Orem); 2, F. Mulla (Merseyside); 3, C. Goodman (Oldham). Tooth-carp: 1 and 2, T. Sinclair (Northwich); 3, T. Smith (Sheffield). Corydoras: 1, F. Mulla (Merseyside); 2, Mr. and Mrs. Wells (Doncaster); 3, Mr. and Mrs. B. Marshall (Oldham). A.O.V. Catfish: 1, J. S. Hall (Aireborough); 2, Mr. and Mrs. Gabe (Chesterfield); 3, Mr. and Mrs. Copley (Doncaster). Loaches: 1, Mr. and Mrs. B. Marshall (Oldham); 2, D. Grogan (Accrington); 3, C. Beckenham (Oldham). Breeders (Livebearers): 1, J. Furness (Castleford); 2, Mr. and Mrs. Daines (Doncaster); 3, R. Knowles (Northwich). Breeders (Egglayers): 1, S. Wolstenhale (Heywood); 2 and 3, Mr. and Mrs. L. Smith (Castleford). Pairs (Egglayers): 1, B. and C. White (Leigh); 2, Mr. and Mrs. Wells (Doncaster); 3, Mr. and Mrs. Daines (Doncaster). Pairs (Livebearers): 1, J. S. Hall (Aireborough); 2, S. Clarke (Aireborough); 3, Mr. and Mrs. Daines (Doncaster). A.O.V. Tropical: 1, Mrs. Hall (Aireborough); 2, A. Barnett (Castleford); 3, C. Beckenham (Oldham). Fancy Goldfish: 1, C. H. Whitney (Accrington); 2, S. Walsh (Accrington); 3, J. S. Hall (Aireborough). Common Goldfish: 1 and 2, J. S. Hall (Aireborough); 3, Mr. and Mrs. J. Breatley (Belle Vue). A.O.V. Coldwater: 1 and 3, J. S. Hall (Aireborough); 2, L. and P. Graham (H. Lancs.). Mini Jars: 1 and 2, E. Birchwood (Oldham); 3, Mr. Carolan (Belle Vue). Plants (Rooted): 1, 2 and 3, Mr. and Mrs. Milne (Doncaster). Plants (Cuttings): 1, Mr. and Mrs. Milne (Doncaster).

THE South-Western Group of the British Marine A.S. held its August meeting at the home of the Group Secretary, Lewis Doubleday, and members present were able to see the successes of Lewis's efforts with baited drop nets from the walls of Torquay Harbour, main attractions being several *Blennius Gatorginesis* (Tom Potts), *Theogobius Epiphetus* (Leopard spotted Gobey) and *Labrus Mixtus* (Cuckoo Wrasse). The venue for the Bi-annual dinner to be held in mid-November, was agreed upon as the Harbour Lights, Paignton.

ALTHOUGH holidays affected the attendance at the last meeting of the British Marine Aquarist Association, West-Midland Group it was nevertheless quite an eventful evening and enjoyed by all present. A slide show was sent to the West Midland Group by Mr. B. P. Swash, and these had been taken by

Mr. Swash of some very fine marine fish and coral.

AT the last meeting of the Edmington Section of the Fancy Guppy Association the following members were presented with awards that they had won during the previous month: A. James Breeders Diploma; Mr. and Mrs. B. Burnell Gold Badges; P. Bussey Silver Badge. The awards were presented by Don Curry the Section Chairman who congratulated the winners for their achievements in such a short period of time as all of them were comparatively newcomers to the hobby. The principal award winners at the Table show were: Best Male: D. and B. Phillimore (Delta); Best Female: D. and B. Phillimore (Metropolitan); Best Breeders: A. James; Breeders Females Best Exhibit in Show: D. and B. Phillimore (Metropolitan). The section which meets on the first Sunday of every month at The Royal British Legion Hall, Holwhites Hill, Enfield, welcomes all who are interested in the Fancy Guppy and further details can be obtained from the Section Secretary, Don Phillimore 103, Wilbury Way, Edmington, London, N18 1BX. Tel 01-803 3012.

AT the August meeting of the New Forest A.S. Club business was dispensed with due to the full programme of the Inter Club Quiz, between Bournemouth and Salisbury Aquarist Societies and a further round in the Inter Club Competition. Classes in the competition were Corydoras Catfish, Barbs, Danios and White Cloud Mountain Minnows. Results were as follows: Corydoras Catfish: 1, 2 and 4, Bournemouth; 2, Salisbury. Barbs: 1 and 4, Bournemouth; 2 and 3, Salisbury. Danios and White Cloud Mountain Minnows: 1 and 4, Bournemouth; 2 and 3, New Forest.

On the points basis this gave a win for Bournemouth with 18 points, Salisbury being second with 8 points and New Forest third with 4 points. Judging was in the capable hands of F.B.A.S. Judge, Mr. D. V. Jones of Southampton. Questions for the quiz were compiled by D. Harding who acted as Question Master. And was won by Bournemouth.

New members are always welcome to meetings held on the third Monday of the month at Lynton Community Centre.

THE Hastings & St. Leonards A.S. met last month to listen to a talk on Reptiles and Amphibians by J. Webster. Mr. Webster brought specimens consisting of Adders, Grass Snakes, slow worms, newts, lizards and frogs, which were passed round for the members to examine. Mr. Webster spoke of the danger of the native wild life becoming extinct by the clearance of their natural habitat for building sites and by unqualified people who kill for no reason at all. He told how he collects these creatures from the danger areas and places them in nature reserves in Essex. He spoke of the danger of any species becoming extinct and referred to it like a chain and if one link is broken the whole balance of nature could be threatened. The table show was Guppies judged by P. Harbord and won by Mrs. and Miss French.

At the second meeting of the month Mr. J. Forder (F.B.A.S.) speaker, spoke on Aquarium plants. He illustrated his lecture with slides of his ponds. He also brought some Aquarium plants which were later auctioned for club funds. Mr. Forder spoke of the difference between bog and submerged plants and the difficulty of the beginner knowing how to choose his plants.

The Table show was Danios and White Cloud Mountain Minnows and was judged by Mr. Bellingham (Kent Judges Ass., Tonbridge A.S.). The winners being Mr. and Mrs. Adams.

AT the last meeting of the Hounslow and District A.S. members spent an enjoyable evening listening to a talk given by F.B.A.S. judge and speaker Mr. Ray Fox. The subject was Cichlids with particular reference to the genus "Archidens" and "Cichlasoma" a slide show accompanied this talk as each fish was projected on the screen Mr. Fox gave a description of its natural environment and its requirements in the home aquarium and the need for some of the more aggressive species to

be segregated from the smaller and more peaceful members of this large and varied family. Mr. Fox had several questions put to him from the members, many of whom are cichlid enthusiasts.

The table show for the evening was Barbs and Coldwater fish judged by Mr. H. Towell, due to the holiday season entries were not numerous, particularly in the coldwater class. After the presentation of card awards, Mr. Towell gave a rundown on the banded fish. A vote of thanks was proposed to Mr. Towell by the chairman also to Mr. Fox for a very enjoyable and instructive evening.

Visitors are always welcome at the meetings which are held at 8 p.m. on alternate Wednesdays at St. Stephens Church Hall, Whitton Road, Hounslow, all enquiries to the secretary Mr. Hugh Parrish, 18 The Barons, Twickenham, Tel. 892 5091.

FUTURE meetings of the Sandgrounders' A.S. will be held at the Mount Pleasant Hotel, Manchester Road, Southport, on alternate Thursdays at 8 p.m. The Society is having a very successful year, their third annual Open Show being a tremendous success, and the membership at the half-yearly stage being 58 and steadily growing. It is hoped that with the move to larger and more suitable premises they will now be in a position to invite local societies along for table shows, quizzes and film evenings.

Anyone in Southport and district wishing to join an active aquarist society, particularly beginners, will receive a very warm welcome at any meeting. The secretary is Mr. S. Hooton, 81 Radnor Drive, Churchtown, Southport, Lancs. Tel: 24743 (0704).

A MEETING of the High Wycombe A.S. was held in August to elect officers to several vacant posts. Vice-chairman: T. Hall; Three Counties delegate and F.B.A.S. delegate: D. Lym; Show Secretary: R. Leslie; Committee member: Olive Leslie; Publicity officer: T. Green. Another proposal has led to the club offering junior membership to those between fourteen and eighteen years of age at reduced subscription. Prospective members (junior or senior) should contact the secretary at Penn 3825 for details or attend the next meeting (alternate Thursdays), at the "White Horse," High Wycombe.

IN July, members of Bracknell A.S. were entertained by Herndon who gave an excellent slide show on Cichlids of the African Continent. The table show results were: Seniors: 1, 2 and 3, Len Lurie; Novices: 1 and 3, J. Nicholls; 2, R. Norris. At the first meeting in August it was Bracknell's turn to be host for the Three Counties Quiz League. The results were: Basingstoke, 69; High Wycombe, 65; Didcot, 53; Reading, 48; Bracknell, 33.

THE programme of Amersham and District A.S. for October is as follows: 3rd October, a three-way match with Hemel Hempstead and Beechamwood, 17th October, Members' Evening, a discussion on gadgets we use in keeping fish, 7th November, the society has arranged for a speaker from the Thames Conservancy Board. Visitors to this meeting or any other meetings will be very welcome.

RESULTS of the August table show of the Weymouth A.S. were: A.O.S. Egglayers: 1, Mrs. V. Worth; 2, J. Hodder; 3, J. Brooks; 4, M. Cleall. Loaches and Botia: 1, J. Fancy; 2, G. Fitzgerald; 3, D. Kelly; 4, N. Fry.

The main event of the evening was a talk by F.B.A.S. "A" Class Judge, Mr. Matley, who gave a very interesting talk on Fishkeeping.

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Hillside Aquatics London N12



The society thanked its chairman, D. Rogers, and G. Fitzgerald for setting up the display tank at the "Big Aftair" held in July in Weymouth. The tank attracted a lot of attention and there were several enquiries about joining the Club. Meetings are held on the second Tuesday of the month at the Ratcliff Hall, Queen's Road, Radpole Spa, Weymouth, at 7.30 p.m.

OPEN show results of the Valley A.S. were as follows: Guppies: 1 and 2, Mrs. Kennedy (Valley); Mollies: 1 and section winner, D. Buckley (Heywood); 2, J. Pitt (Valley); Swordtails: 1, M. Berry (Valley); 2, J. Carolan (Salford); 3, Mrs. Kennedy (Valley); Platies: 1, P. Armstrong (Heywood); 2, M. Chapman (Valley); 3, D. Hough (Valley); Barb (up to Rosy): 1 and 3, section winner, M. Goodchild (Valley); 2, C. Quinton (Valley); Barb (over Rosy): 1, Mr. and Mrs. Shaw (Morecambe Bay); 2, J. Quinton (Valley); 3, D. Hough (Valley); Characins (up to Bleeding Heart): 1, D. Richardson (Valley); 2, F. Chaburn (Heywood); 3, Mrs. E. Jones (Valley); Characins (over Bleeding Heart): 1 and 2, section winner, R. Walker (Morecambe Bay); 3, L. B. Booker (Morecambe Bay); Angels: 1, Mr. Axon (AUL); 2, Mrs. Stone (White Lake); 3, J. Carroll (Salford); Dwarf Cichlids: 1, Mr. and Mrs. Graham (East Lancs.); 2, M. Berry (Valley); 3, Miss A. Gregory (Nelson); Large Cichlids: 1 and section winner, D. Grogan (Accrington); 2, D. Buckley (Heywood); 3, Mrs. Armour (Sutton); Fighters: 1, Mr. Axon (AUL); 2, Mrs. Kennedy (Valley); 3, M. Chapman (Valley); Small Anabantids: 1, G. Holt (Valley); 2, S. Quinton (Valley); 3, Miss A. Gregory (Nelson); A.O.V. Anabantids: 1 and section winner, Miss A. Gregory (Nelson); 2, P. Armstrong (Heywood); 3, Mr. Axon (AUL); Sharks: 1, R. Walker (Morecambe Bay); 2, Mrs. Armour (Sutton); 3, D. Bower (Valley); Loaches and Eels: 1 and section winner, D. Grogan (Accrington); 2, Mrs. B. Booker (Morecambe Bay); 3, R. Walker (Morecambe Bay); Danios and Minnows: 1, M. Goodchild (Valley); 2, R. Walker (Morecambe Bay); 3, M. Chapman (Valley); Toothcarps: 1, 2 and 3, F. Chaburn (Heywood); Rasboras: 1 and section winner, Mr. and Mrs. Shaw (Morecambe Bay); 2, L. B. Booker (Morecambe Bay); 3, K. Smith (Midd.); Corydoras: 1, Mr. and Mrs. Graham (East Lancs.); 2, D. Hough (Valley); 3, S. Quinton (Valley); A.O.V. Catfish: 1 and section winner, Mrs. Armour (Sutton); 2, D. Buckley (Heywood); 3, G. Holt (Valley); Pairs (Egglayers): 1, Mrs. Kennedy (Valley); 2, P. Craddock (Bell Vue); Pairs (Livebearers): 1 and section winner, P. Armstrong (Heywood); 2, H. Baldwin (PGA); A.O.V. Tropical: 1 and section winner, K. Smith (Midd.); 2, P. Armstrong (Heywood); Breeders (Egglayers): 1, 2, 3 and section winner, Mr. Wolstenholme (Heywood); Fancy Goldfish: 1, 2 and 3, S. Walsh (Accrington); Native and Common: 1 and 3, B. G. Holdroyd (Morecambe Bay); 2, S. Walsh (Accrington); A.O.V. Coldwater: 1 and section winners, Mr. and Mrs. Graham (East Lancs.); 2 and 3, S. Walsh (Accrington); Juniors (Egglayers): 1 and section winner, W. Booker (Morecambe Bay); 2, Master Armour (Sutton); 3, S. Quinton (Valley); Juniors (Livebearers): 1, Master Holdroyd (Morecambe Bay); 2, D. Hough (Valley); Valley Members (Egglayers): 1, Mrs. E. Jones; 2, Mrs. Kennedy; 3, Mrs. Hough; Valley Members (Livebearers): 1, Mrs. Kennedy; 2, M. Berry; 3, Mrs. Hough; Valley Juniors: 1, M. Chapman; 2, C. Quinton; 3, S. Quinton; Best Fish in Show: D. Grogan (Accrington), 83 pts.

THE Dorchester and District A.S. held their Annual Tropical Fish Show in August and once again this proved to be a success, the entries this year being up on last year.

The show was split into the following categories: Seventeen Tropical Fish Classes; three Coldwater Fish Classes; a Breeders Class and a Furnished Aquaria Class. The results were as follows: Tropical Fish—Barb: 1 and 2, G. Fitzgerald; 3, Mrs. L. Norman; 4, P. Jefferies; Characins: 1, R. W. Taylor; 2, R.

Voss; 3, Mrs. H. Cleall; 4, A. Billington; Angels: 1, R. W. Taylor; 2, R. Christopher; 3, D. Norman; 4, Mrs. H. Cleall; Cichlids: 1, R. W. Taylor; 2 and 4, G. Fox; 3, A. Worth; Siamese Fighters: 1, M. Cleall; 2 and 4, Mrs. G. Worth; 3, R. Christopher; Labyrinth: 1, R. W. Taylor; 2, N. Derrick; 3 and 4, A. Worth; Catfish: 1, H. W. Coenick; 2, R. W. Taylor; 3, A. Worth; 4, R. Voss; Corydoras: 1 and 2, D. Norman; 3, R. Christopher; 4, A. Billington; Rasboras: 1, R. Christopher (Best Tropical Fish); 2, D. Norman; 3, Miss R. Fitzgerald; 4, M. Cleall; Danios and W.C.M.M.: 1, Mrs. H. Cleall; 2, M. Cleall; 3, A. Billington; 4, G. Fitzgerald; A.O.S. Egglayers: 1, M. Cleall; 2, Mrs. J. Christopher; 3, Mrs. G. Worth; 4, Mrs. M. Fox; Pairs of Fish: 1, M. Cleall (Swordtails); 2, Mrs. G. Worth (Hemigrammus Pachter); 3, R. Voss (Kribensis); 4, G. Fox (Sulfur Mollies); Male Guppy: 1, M. Cleall; 2, 3 and 4, Mrs. G. Worth; Female Guppy: 1, Mrs. M. Fox; 2, R. Christopher; 3 and 4, M. Cleall; Swordtails: 1, A. Worth; 2, R. Christopher; 3, A. Billington; 4, Mrs. G. Worth; Platys: 1, R. Christopher; 2, P. Jefferies; 3 and 4, R. Voss; Mollies: 1, R. W. Taylor; Coldwater Fish—Common Goldfish and Comets: 1, R. Christopher; 2, Mrs. H. Cleall; 3 and 4, Mrs. M. Fox; Shubunkins: 1 (Best Coldwater Fish); 2, R. Christopher; A.O.S. Coldwater: 1, G. Fox (Golden Orfe); 2, G. Fox (Golden Rudd); 3, R. Christopher (Golden Linch); 4, G. Fox (Nymph); Breeders: 1, P. Jefferies (Best Junior entry); 2, A. Worth; 3, Mrs. L. Norman; 4, R. Christopher; Furnished Aquaria: 1, Mrs. W. Voss; 2, Mrs. G. Worth; 3, M. Cleall; 4, H. W. Coenick.

THE Suffolk Aquarists and Pondkeepers Association at its August meeting were given a lecture by Mr. M. Burch from the Mickfield Fish Centre, on the subject of water gardens. Slides of the development of a water garden together with plants and planning were shown to the interested members. Mr. Burch then answered questions and altogether created a successful, informative and entertaining meeting. Results of last month's table show: Labyrinth: 1, Mr. Auffret; 2, Mr. Hudson; A.O.V.: 1 and 2, Mr. Auffret.

THE Birmingham Section of the Fancy Guppy Association meet on the fourth Sunday afternoon of each month at The Glebe Farm Community Centre, Stechford, Birmingham. At last month's meeting the show secretary D. Beacham entertained the section with a slide show of photographs taken of the overseas and home Guppy exhibits at this year's F.G.A. World International. Members were also shown slides of most of the preparatory work for this show such as the collecting of overseas entries from London Airport and the arriving of them in Malcolm DeLingpole's Alvechurch fish house. New members welcomed at this meeting were Mr. E. Black, Mr. R. Howard, both from Leamington Spa, and Mr. Ian Sadler of Wolverhampton. We congratulate Mr. R. Jones on winning at this meeting of his first two silver cards. The major honours card awards were as follows: Best female Wedge-tail: B. Beacham; Best male Cofertail: Mrs. J. Croft; Best Breeders: Best in Show with Breeders Pair: R. Jones.

MEETINGS of the Riverside A.S. are held on the first and third Mondays of each month at St. Saviour's Church Hall, Cobbold Road, off Askew Road, Shepherds Bush, W.12. Details from Secretary D. W. Armour, 12 Kelmocott Gardens, Askew Road, W.12, Tel: 743 0953.

DURING the month of August the Derby Regent A.S. staged two very successful exhibitions at the British Rail Carriage and Wagon Works and British Rail Locomotive Works, Derby. The exhibitions were part of the British Rail Open Days which attracted many thousands of people.

The Derby show stand comprised of a cottage with pond and fountain surrounded by plants and shrubs and many tanks of tropical and coldwater fish.

THE Manchester Section of the Fancy Guppy Association report a growing interest in the breeding and exhibiting of Guppies with new members enrolling at the last few meetings. They have been kept interested with slide shows, lectures and various talks and discussions. The 4th November meeting is the Open Show at which all interested guppy breeders are invited. The meeting is at the usual venue, Longsight Hotel, rear entrance to Belle Vue, Manchester, commencing at 2.30 p.m. All enquiries to the secretary Mr. D. Glen, 16 Nuttall Avenue, Whitefield, Manchester, M25 6QA.

FOR the third successive year the Gloucester Fishkeeping and Social Club have taken part in the Ideal Homes Exhibition during the Gloucester Carnival. This year the display featured a Rock garden complete with fish pond and waterfall and masses of flowering plants. There were also tanks of tropical fish so that visitors to the stand could see a selection of the various types of fish that can be kept in home aquaria. During the week the tent was visited by well over twenty-five thousand people and club members on duty were kept very busy giving advice and answering questions on all aspects of our hobby.

At the August meeting of the club the guest speaker was one of the most popular visitors, Mr. Chris Partridge, whose very interesting talk dealt with the most popular plants for home aquariums and the large audience found his talk very instructive. He also judged the table-shows and once again the lady members were successful in winning the first place in both sections. Mrs. M. Mitchell was first and fourth in the coldwater class with F. Palfrey second and third. The tropical section was for Egg-laying pairs, Mrs. H. Adlam being first, Mrs. J. Burke second, C. Dyke third and D. Merrett fourth.

The Society will shortly be starting a series of lectures for beginners which will consist of eight talks during which it is hoped to cover a wide range of subjects concerning tropical fish. The meetings are held the last Thursday in each month at the Hucclecote Community Centre at 8 p.m. and visitors will be welcome.

#### NEW SOCIETIES

A SECOND Society has recently been formed in Scunthorpe which has been named Scunthorpe and District Aquarist Society. New members are always welcome to attend the Society meetings which are held at the St. Paul's Church Hall, Ashby High Street, Scunthorpe, on the second and fourth Mondays of each month at 7.30 p.m. The present officials are: Mr. A. Shucksmith, Secretary, 3 Salmonby Road, Riddings, Scunthorpe and Mr. D. Caldwell, Treasurer, 7 St. Martins Road, Scawby, Nr. Scunthorpe.

THE Catfish Association (G.B.) has recently been formed to promote more interest in these fishes. It is the intention of the Association to provide the information that is lacking through the media of a quarterly magazine, plus bi-monthly meetings. It is further intended at these meetings to run a table show plus lectures on Catfish and general discussions.

In March, 1974, an Open Show is being held and with the approval of the Federation of British Aquatic Societies classes G and H will be split into 18 different sub-classes.

Anyone requiring more information should write to the Secretary, Mr. N. Sawford, 65 Burlington Road, New Malden, Surrey. Tel: 01-949 1707.

THE Sunderland and District A.S. Would anyone interested in helping to re-form the society please contact R. Snail, 13 Wingrove Avenue, Fulwell, Sunderland.

#### DISBANDED SOCIETY

THE Rossington A.S. of Doncaster has been disbanded with effect from 6th September.



#### SECRETARY CHANGES

**Catfish Association (G.B.):** Mr. N. Sawford, 65 Burlington Road, New Malden, Surrey. Tel: 01-949 1707. If you would like further details please write.

**Llantwit Major A.S.:** S. Nelson, 48 Vere Street, Cadoston, Barry.

**Sherwood A.S.:** Mr. Brian Bailey, 22 Cedar Lane, New Ollerton, Nr. Newark, Notts.

#### CHANGE OF VENUE

Future meetings of the Llantwit Major A.S. will be held at Llanilltud Fawr Comprehensive School, Ham Lane East, Llantwit Major, commencing on 2nd Tuesday of each month at 7.30 p.m.

#### AQUARIST CALENDAR

**6th October:** East London Aquarist & Pondkeepers' Association Annual Open Breeders Show. Schedules available from The Show Secretary, F. Vicker, 13 Irons Way, Collier Row, Romford, Essex.

**6th October:** Cardiff A.S. 7th Annual Open Show to be held at the St. Margaret's Church Hall, Waterloo Road, Roath, Cardiff. Schedules available from Mr. C. Turner, 146 Arran St., Roath, Cardiff.

**7th October:** Eboracum Aquarists First Open Show, Acomb Church Hall, Front Street, Acomb, York. Show secretary: W. A. Bunnage, 22 Heathcroft, Fulford, York.

**7th October:** Hinckley and District A.S. second Open Show at Heathfield High School, Belle Vue Road, Earl-Shilton, Leicestershire. More information from show secretary: T. Saunders, 29 Browning Drive, Hinckley.

**7th October:** Redcar A.S. first Open Show. Hon. secretary, D. Nagle, 59 Charlotte Street, Redcar, Teesside.

**7th October:** Edmonton Section of the Fancy Guppy Association Annual Open Show at The Royal British Legion Hall, Holbrookes Hill, Enfield, Middlesex. Benching will take place from 2.00 p.m. until 3.30 p.m. Details from The Section Secretary, Don Phillimore, 103 Wilbury Way, Edmonton, London, N18 1BX. Tel: 01-903 2012.

**13th October:** Anson Aquatic Club.

**13th-14th October:** British Aquarists' Festival, Belle Vue Zoological Gardens, Manchester.

**21st October:** Sherwood A.S. Open Show, Thoresby Miners Welfare Hall, Edwinstowe, Nr. Ollerton, Mansfield, Notts. Schedules from Show Secretary, Mr. J. Igoe, 25 Marples Avenue, Mansfield, Woodhouse, Notts NG19 9BY. Tel: Mansfield 32249.

**28th October:** The Newcastle Guppy and Livebearer Society's Open Show will be held at the Gosforth Central Hall, Newcastle-upon-Tyne. Schedules will be available shortly from: Mrs. J. Ranton, 128 Dunstan Tower, Garth 18, Killingworth, Newcastle-upon-Tyne, NE12 0TX.

**28th October:** Doncaster and District A.S. Annual Show at Brodsworth Miners' Welfare, Welfare Road, Woodlands, Nr. Doncaster.

**3rd November:** G.S.G.B. Quarterly Meeting, 2.30 p.m., Conway Hall, Red Lion Square, Holborn, London. Goldfish for Beginners, Part Four. R. Whittington, The Bristol Shubunkin, L. Emery. Choosing next year's breeders. Panel. Table Classes. Refreshments available.

**4th November:** Mixenden T.F.S. Open Show Mixenden Community Centre, Clough Lane, Mixenden. Halifax schedules Mrs. J. Poole, 18 Chester Terrace, Halifax, Yorks, HX3 6LT.

**11th November:** Hartlepool A.S. Annual Open Show will be held at Longcar Hall, Seaton Curlew. Show Secretary: Mr. J. Watson, 42 Sydenham Road, Hartlepool, Co. Durham TS26 9BW.

**11th November:** Walthamstow and District A.S. Open Show at Chingford Junior High School, Wellington Avenue, Chingford, London, E.4. Show secretary G. Smith, 22 Ardleigh Road, Walthamstow, London, E.17.

**17th November:** K.D.A.S./S.P.A.S.S. third Combined Open Show will be held at the T.A. Centre, Surbiton Road, Kingston, Surrey. Show schedules are obtainable from D. J. Mackay, c/o 51 Mount Road, New Malden, Surrey. Tel: (Day) 01-572 0632; (Night) 01-942 9021.

**18th November:** British Killifish Association (Durham Group) Open Show for E.L.T.C. only. Details and schedules may be had from R. Riley, 32 The Meadows, West Rainton, Houghton-Le-Spring, Co. Durham, DH4 6NP. This show is open to non-members of the B.K.A. as well as B.K.A. members.

**24th November:** Hendon Congress.

**2nd December:** Hornforth A.S. fourth Open Show, New Civic Hall, Stanningley, Pudsey. Show secretary, C. Corns, 15 Thornleigh Grove Leeds, LS9 8QR.

**8th December:** The Bury St. Edmunds and District A.S. will be holding an Exhibition of fish at the Oddfellows Hall, Whiting Street, Bury St. Edmunds. Doors opening from 10 a.m. to 5.30 p.m. Refreshments available.

#### 1974

**31st March:** Catfish Association (G.B.) are holding their Open Show which consists of eighteen classes of Catfish (G. and H.). Venue to be announced later. Show secretary, Mr. D. Lambourne, 7 Wheeler Court, Flogh Road, London, SW11 2AX. Tel: 01-223 2630.

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#### THE AQUARISTS' BADGE



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The actual size of the badge is shown above and can be obtained from:  
**The Aquarist & Pondkeeper  
The Butts, Brentford  
Middlesex, TW8 8BN**  
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