

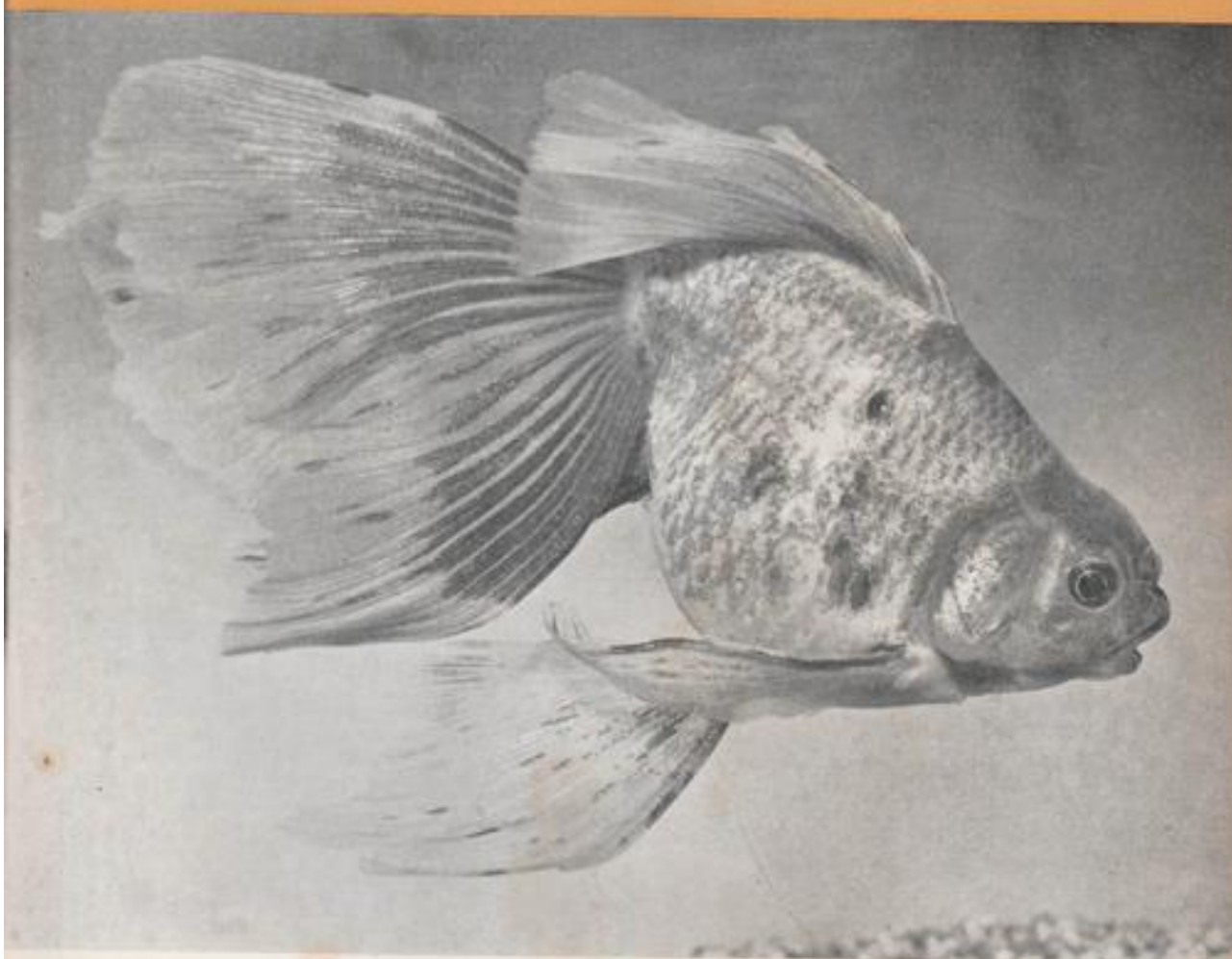
September  
1969

*the*

# *Aquarist*

*and Pondkeeper*

**2/6**  
monthly



**“The Aquarist & Pondkeeper” Fishkeeping Exhibition**

Report and pictures in this issue

# the Aquarist

and Pondkeeper

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Veiltail Goldfish

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The Editor accepts no responsibility for views expressed by  
contributors.

Editor: Laurence E. Perkins

September, 1969

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The Mayor & Mayoress of Haringey at the "Aquarist" stand with Mr. A. Boarder on left.

## THE AQUARIST FISHKEEPING EXHIBITION

By A. Boarder

*The Aquarist* Fishkeeping Exhibition sponsored by the Aquarist and Pondkeeper and organised with the co-operation of the Federation of British Aquatic Societies was held from 10th-13th July, 1969. This was the first time such an exhibition had been sponsored by *The Aquarist* in the London area and it proved a great success.

Since 1951, the well known British Aquarist Festival has been held each year and sponsored by *The Aquarist* at Belle Vue, Manchester, and many aquarists had often asked when one would be held in the London area. Having decided that the time was ripe for such an experiment, it was thought that the best type of show would be one which not only interested the experienced aquarist but also to make a great appeal to the general public. For so long many people think of fish-keeping as having a goldfish in a bowl. With the advent of the plastic liner types of garden ponds, which make the construction so much easier, many more people are keeping fishes today.

With the general idea of interesting more people it was thought that the usual run of society shows, with rows of tanks containing one fish in each, would not be of sufficient interest to promote further enthusiasm. A few aquarists

were rather critical of this idea and no doubt would have preferred such rows of tanks, but when it was explained to them the real reason for the mainly furnished tank competition, they agreed that it was the correct manner to promote such an exhibition. As all genuine aquarists are aware, there are dozens of society shows throughout the year where they can exhibit individual fishes in the numerous classes.

On Friday, 11th July, the exhibition was visited by the Mayor and Mayoress of Haringey, and they showed considerable interest in all the exhibits, and expressed their appreciation to the proprietors of *The Aquarist*, who entertained them afterwards.

The Palm Court, Alexandra Palace, made an excellent venue for the exhibition and a very fine aquatic display opposite the entrance, with fountain and waterfalls, made a very colourful attraction. There were about sixty furnished aquaria which had been set up in new stainless steel tanks of a uniform type. Many of these furnished tanks were very well set-up and proved a great attraction. I thought that for the most part the tropical tanks were better than most of the coldwater ones. Some of the latter



showed the odd failing of very poor attempts to match the compost with the rockwork used. To see a tank with almost black compost but with white rocks looks very incongruous and vice versa. The water plants were well supported and were so displayed as to make recognition by beginners an easy task.

The only classes for species of fishes were the ones for pairs of Swordtails; Platies and Mollies. Although these three classes were fairly well supported it appears that many more entries in these classes could have been expected from the London area at least.

Even if some of the experienced aquarists did not find the rows of individual fishes, they could not have been disappointed with the grand array of dealers' stands. It is doubtful if a comparable show of these had been seen in London in one place before, and visitors could see thousands of fishes, many types of tanks and appliances, fish-foods, plants and literature on display.

Although many people visited the exhibition on the Thursday and Friday, it was on the Saturday and Sunday when the hall was comfortably filled with visitors. On the Sunday it was rather difficult to get to some of the dealers' stands to purchase anything for the rows of people, but all seemed satisfied by closing time.

Apart from the twenty firms with stands there were also four firms giving a display of ponds, reptiles and fishes. A very fine display of tropical marine fishes was one of the most attractive displays at the exhibition and the wonderfully coloured fishes appeared to be similar to some tropical butterflies under water. I feel sure that this display was an eye-opener to many visitors. Besides thousands of tropical fishes for sale, were to be found many fine Koi carp, in varied colours. One little coldwater fish took my eye and this was just a three inch Pike, perfect in colour and hovering action. I think that if given the chance, this would have been my pick from the whole exhibits.

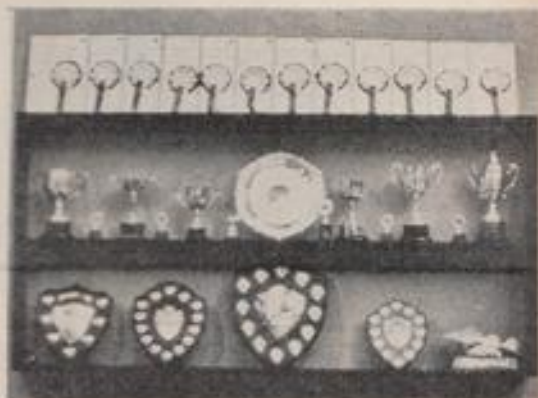
The Specialist Societies put up very good exhibits and they included the Goldfish Society of Great Britain, the Guppy Specialist Groups and the British Killifish Association. A great deal of interest was displayed by many visitors in these stands and the attendants at them were kept busy with many questions. The Federation of British Aquatic Societies had a stand with several experts ready to answer any questions pertaining to the work of the Federation. I feel that at this point I must personally congratulate the Show Secretary, Mr. Sean Mooney, for the great job he had performed. I would also like to include the Show Committee, Show Judges and Stewards for the excellent manner in which their various tasks were carried out.

On *The Aquarist* stand Jack Hems and myself were kept busy with many questions on fishkeeping and many visitors were met from many miles away. Mr. Lightcap, the Secretary to the American Goldfish Society, visited the stand and many visitors from overseas were also present. One couple from Brazil had flown over especially for the show as had many from Northern Ireland. A number of clubs and societies came by coach on Saturday and Sunday and their families found plenty of space in the pleasant surroundings of the Palace in which to picnic and laze.

I feel sure that the many people who worked so hard to organise this exhibition must have felt proud of this, the first effort of its kind to be put on by *The Aquarist* in the London area.



Part of the attractive stand by Aquapets



The trophies



The Mayor and Mayoress inspecting one of the trade stands

## Some of the visitors and exhibits at the "Aquarist" Fishkeeping Exhibition

Alexandra Palace,  
London.

July 10 - 13, 1969.







MEET THE ELITE  
of the fish-of-the-year at the  
**BRITISH AQUARISTS'  
FESTIVAL, Belle Vue,  
Manchester**

18th, 19th October 1969



● *The third exciting year of the*  
**“Champion of Champions” Contest**

**AN URGENT REMINDER . . . .  
to Secretaries and Contestants**

Closing date for entries in the “Champion of Champions” Contest is

**30th September 1969**

It is open to winners of “Best Fish in the Show” awards won at an Open Show, i.e., open to any member of the public and not by invitation only and where show schedules are available. Winners at Table Shows and Table Shows open by invitation are not eligible.

Entries for the Contest must be single fish, not pairs, etc.

Secretaries who have not yet advised details of their “Best Fish” winners are asked to do so promptly; winners who have not received an acknowledgment should contact us. All correspondence to: “Champion of Champions”, *The Aquarist and Pondkeeper*, Half Acre, The Butts, Brentford, Middlesex.

One of the most outstanding attractions at the British Aquarists’ Festival in the past two years has been the “Champion of Champions” Contest, and this year’s event promises to be an even bigger target for attention. Sponsored by *The Aquarist and Pondkeeper*, the Contest brings together winners of “Best Fish in the Show” awards during the year, to compete for the premier honour in fishkeeping. The winner of the National Championship will receive an inscribed plaque, a 9-ct. gold lapel pin, and a cash prize of twenty guineas; winners of second and third places will be presented with similar plaques, and cash prizes of thirteen and seven guineas respectively. For the thousands of visitors to the B.A.F. the “Champion of Champions” Contest provides an unrivalled opportunity of seeing and studying some of the finest fish in the country, representing the highest levels of aquarium skills.

The Festival as a whole is one of the great events in the fishkeeping world, and the 1969 show at Belle Vue promises to be better than ever. Striking and often ingenious entries by Societies, together with extensive displays by commercial exhibitors, will provide a panoramic view of the modern world of aquaria—the rare and the popular species, the latest in equipment and accessories, and access to advice from many of the greatest authorities. This is an occasion not to be missed by anyone with an interest in fishkeeping.

# FROM A NATURALIST'S NOTEBOOK

By Eric Hardy

SWEEPING generalisations can be very misleading. Particularly with the sort of public whose education is limited to newspaper or magazine headlines that give very little detail beneath them. It is the basis of a good deal of unnatural history.

"He turns a tap—and out come the shrimps" read newspaper headlines in the Northwest in June, when an Anfield (Liverpool) man found *Asellus aquaticus*, the common water-hog louse, in his tap-water. "Small shrimp-like creatures" was a reasonable enough description of his find, even though the man wasn't correct in saying they were "exactly like shrimps". "They are what we call freshwater shrimps", said a Corporation medical officer.

*Asellus* has been called the freshwater shrimp in similar identifications before, for fear of scaring the ratepayers with its correct name of water hog louse. It is an Isopod crustacean of course, not a louse; but the freshwater shrimp is an Amphipod crustacean, *Gammarus pulex* or the rarer *G.javanicus* and in brackish water *G.tigrinus*; people with a medical degree should at least use the correct name, even if only to avoid undoing the work of the city biology teachers. In 1938 the B.E.N.A. "Naturalist's Diary" used the title "Garden Shrimps" for a page article on the various wood-lice, relatives of *Asellus*.

*Asellus* has long been an occupant of our Liverpool watermains. In my schooldays when I used to tie butter-muslin across the main tap at home I collected several to present to the city water-engineer, because the old mains in our part of Wavertree needed flushing. A wealth of old algae and other vegetable debris, collected in them, fed these scavengers from the reservoirs. Incidentally, *Asellus aquaticus* has greatly increased its range in Estwaite Water, Rydal Water, Ullswater, Grassmere and other lakeland waters in recent years because of the increase of waste food and humus remains from the increased number of anglers (ground baiting with bread) and of trippers. It was apparently seldom recorded there previously, though far from absent. As it will eat fish-ovae, its presence in fish-breeding tanks and aquaria is not all beneficial as a scavenger and fish-food. The amazing part of its success story is that it is unable to swim.

The late Dr W. E. Collinge enumerated a list of new species of wood-lice in a now-defunct Northwestern natural history magazine, which were all later refuted and disclaimed in the Proceedings of the Zoological Society!

Anyone reading the recently-issued 1968 Annual Report of the Dee and Clwyd River Authority might think we have a new British fish species. Under its list of unusual fish in the Dee during the year, it includes the Californian Sea Robin, a species that has no natural means of reaching the Atlantic let alone British waters. The sole source of the claim was a colourful unsigned story in a popular newspaper with eye-catching headlines about a "Fish With Legs" "walked up the bank" when an angler caught it at Shotton. There was no specimen preserved for proof, and no



Red Gurnard

biologist named as examining it. It has been identified by the angler from a picture in one of the unpopular "popular" encyclopaedias that give smatterings of incomplete information, and insufficient for a layman to distinguish British let alone Pacific fishes. The Californian sea-robin gained its place from its reputation to "walk". Nobody thought that we had fish nearer home, like a gurnard, swept up the Dee's fast tide, whose long front rays enable it to run on the seabird. Indeed, as I have seen it run along the deck of a trawler in Liverpool Bay when the cod-end of the trawl has been opened, but neither its fin-rays nor those of the sea-robin are "legs".

To avoid the introduction of infectious pancreatic necrosis a virus disease which appeared in some Danish trout-breeding farms in 1968, Norway and Sweden have forbidden the import of rainbow trout eggs from Denmark. Norway alone cancelled an order for 300,000 eggs. Disease is not the only unexpected importation with consignments of fish used for restocking. I've known consignments of fish introduced from Yorkshire to Lancashire waters result in the discovery a few years later of barbel and unwelcome ruffe which aren't Lancashire fish that slipped through unnoticed. This is apart from invertebrates like the North American amphipod crustacean or freshwater shrimp *Eucoragonyx gracilis* which has been spread northwards from its original introduction into southern canals. Even the smallest bits of most pondweeds will regenerate and colonise waters into which they are accidentally introduced.

Finally a report I received from the White Fish Authority shows that their technique for hatching and cultivation of plaice, soles and other flatfish under ultra marine-aquarium conditions in floating tanks and 5 enclosed acres of sealoch at Ardtoe in Argyll, can now be used at their fish-farming site at Hunterston, Ayrshire. Its success depended on the discovery of the nauplii of *Artemia*, the brine-shrimp as food to rear plaice beyond the larval stage before starting with fertilised waters. At the Scottish Electricity Board warm-water tanks at Hunterston, they are experimentally hatching turbot and lemon sole. With the concrete-enclosed sealoch waters, they overcame sudden drops in salinity from rain water off the hills, and an influx of predatory crabs, birds and otters, rapid deoxygenation, etc.



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## THE LEOPARD DANIO

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BELONGING to the family as Cyprinidae, and coming under the sub-family Rasborinae, are the minnow-like fishes whose natural habitat is the inland waters of India, Ceylon, Indonesia and Thailand. The larger members are called Danios, the smaller species Brachydanio, from the Greek brachys—meaning short. Into this second category comes our friend *Brachydanio frenski*, the Leopard Danio. This fish is quite a recent introduction into this country but seems to be gaining popularity because of its favourable attributes—not only being a good-looker, but having also a placid temperament, and a hardy constitution.

Like other members of its family, the Leopard Danio delights in swimming in shoals in the upper regions of the tank. The fish do well in ordinary aquarium conditions preferring neutral water; they are very lively, and usually not scary. Their diet is the same as most community fish but they prefer dried food which tends to float on the water and allows them to use their natural way of feeding by bobbing along the surface.

The Leopard is the smallest *Brachydanio* to be seen in our tanks in Britain. The male measures  $1\frac{1}{2}$  in. in length, and the female is slightly larger at  $1\frac{3}{4}$  in. The males have a silvery body which, when viewed in the correct light, radiates a brilliant golden sheen, the whole body of the fish being flecked with tiny navy-blue spots which are liberally distributed without any distinct pattern being apparent.

The females are slightly deeper bodied and although they have the same golden sheen, it is not quite so prominent as that of the male. In common with other Danios, they scatter non-adhesive eggs in shallow water among plant thickets—but although prolific breeders they are also avid egg-eaters.

For spawning, a suitable sized tank would be the normal 24 in. x 8 in. x 8 in., the bottom of which should be covered with a clean, coarse gravel and stocked with any feathery type of aquatic plant and young Indian Fern. Some breeders prefer to use breeding traps in unplanted tanks. These traps enable the non-adhesive eggs to fall through slots or openings small enough to prevent the parents from following and devouring the eggs. There are various forms of traps. Some are merely clean pebbles or marbles laid on the floor of the tank. Sometimes, however, a spawning fish will wriggle down and become lodged, making the use of this form of trap rather inadvisable. A better method is to use fine wire or nylon mesh ( $\frac{1}{4}$  in.), cut to fit the tank. The trap is then lowered on to pieces of slate, one at either end of the aquarium, so that it is raised about 1 in. above the bottom. Care must be taken to ensure that a fish does not try to squeeze its way down between ill-fitting sides. Another advantage of mesh is that the odd plant stalks can

be pushed through and made to stand upright thus giving a more natural look and making the fish feel more at home than they would be in a bare tank. Even with these ingenious methods, however, a high proportion of the eggs fungus and fail to hatch. So in the long run the natural method is most probably the best.

To continue the original method, the tank is then filled to a level of 3 in. with water of an approximate pH value of 7.0. The reason for such a shallow depth is to prevent the fish upending and nuzzling around the gravel for the eggs. The pair intended for spawning should be kept in separate quarters until mating is required. Then, in the late afternoon, the expectant female is placed with the desired male into the breeding tank. The water temperature should be at 78°F (22°C). The pair rarely fail to spawn the following morning but the aquarist should be up early to remove the parents before they can devour the eggs.

At a temperature of 78°F, the eggs (a normal batch being between 150-250) will take three or four days, or perhaps even longer to hatch. The fry hang on for two days and are free-swimming on the seventh. They are so small when first hatched that they must be fed on infusoria for the first week, followed by infusoria and sifted brine shrimp for the second. They reach maturity at six months, and can quite easily be sexed at this age.

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### Complete New Diet For Small Fish

AQUARISTS will welcome news of two new tropical fish foods which provide a complete and balanced diet and prevent the appearance of deficiencies which may accompany exclusive feeding with freeze-dried food including mosquito-grubs, bloodworms and brine shrimps.

The new foods, TetraTips and Tetra FD-Menu, from the TetraMin Division of Herb-Royal Ltd., are only now coming on sale following exhaustive tests in the company's laboratory.

These tests established that fish, even delicate species like *Boria macracantha*, not only like TetraTips but thrive on it, while fish fed on FD food alone are very little at first and refused it altogether after two or three weeks.

For aquarists who keep only small fish, Tetra FD-Menu will be found just right—including the handy container in which it is packed.

Both products are most suitable for small fish as large fish such as *Scalare*, *Discus* and large Cichlids tend to swallow the tablets whole, the particles being too small for them.



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# BREEDING GOLDFISH

## Tank management

By A. Boarder

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If GOLDFISH have been bred in a tank and not in a garden pond it is probable that far more difficulties will have been encountered than if a garden pond had been available. Unless one has quite a large number of tanks few young fish are likely to be reared. The ideal method is to have a garden pond for the spawners and then to hatch and rear the fry in tanks. Success with tank breeding can be very hit and miss as if goldfish spawn in a tank unless either the eggs or the parent fish are removed, few fry are likely to be reared. The better way, if tanks must be used for breeding, is to remove the parent fish as soon as they have spawned and many eggs can be seen. This means that the eggs are still in the position in which they were laid, adhering to the water plants and so have a good chance of hatching out. On the other hand, if the eggs are removed with the plants it means that there is not only bound to be a certain amount of disturbance but there will also be a change in the water. This might not be apparent to the aquarist, but any change in water conditions can have a bad effect on the eggs. This change might not only be that of temperature but it is not always easy to reproduce the same type of water in a fresh tank as that in the tank where the fish spawned.

If one had several tanks in which to spawn the fish it would be possible to obtain many more fry than would have been possible under the pond spawning procedure. For instance, if several tanks were set up with plenty of water plants, once the spawners had produced many eggs in one tank they could have been moved to another tank where spawning would again take place. The parent fish could then be moved to another tank when more eggs could be laid. It is almost certain that if proper precautions are taken this method would be the better one for obtaining the most fry. In the constricted area of a tank more eggs would be fertilised than if the fish had spawned in an open pond where many of the male sperms could be lost.

When tanks are used for breeding I think that it is essential to use a form of heating and aeration. Normally no aeration is necessary for keeping goldfish in tanks unless of course they are over-crowded. When fry are being reared, and even when the eggs are incubating, plenty of oxygen is essential. A good temperature for the hatching tank is 70°F, and if it varies slightly from this degree it will not

matter. The aeration should be kept on whilst the eggs are developing and this will ensure that there is always plenty of oxygen present which is so important at this stage. The temperature of about 70°F, can be kept up whilst the fry are small and then as they grow a gradual lowering can be obtained so that the tanks are at the usual summer warmth. Once the fry are about a month old it is possible that they will have to be thinned out, either by taking out any which may not be likely to make good specimens or to remove a number to give the rest more space. This space is so very important.

The usual number of fish for a 24 × 12 × 12 in. tank is a dozen inch fish, ignoring the tail when measuring. However, this number can be exceeded greatly with very young fish as long as the other conditions are right. The water must remain pure and aeration must be used. Even with these conditions the fry will not grow as quickly as they would have done had they had more swimming space. If fry are crowded in the early days it is probable that many will be stunted in growth and may never grow on at a natural rate thereafter. As an example, if six fish are kept in a tank the size mentioned and twenty-four in a similarly sized tank, it will be found that after a month the fry in the tank with more space will have more than doubled the rate of growth of those in the crowded tank, although the latter may appear quite healthy.

When moving any of the fry to another tank it is possible to sort the youngsters out at an early age if certain kinds of fancy goldfish are being bred. The ordinary common goldfish will present difficulties here, as there is very little to go by at this early stage. However where any of the double-tailed varieties are concerned it will be found quite easy to sort them out when they are three or four weeks old. When viewed from above the single-tailed ones will show up quite plainly and the double-tailed ones will have a spade-shaped tail, very different to the single ones. This may be the only feature which is noticeable at this stage and one must wait for a time before the final sorting is possible. With shubunkins it may be possible to sort out many undesirables at an early age as these fish change colour much earlier than the scaled types of goldfish. It may not be possible to make a final decision as to which to keep

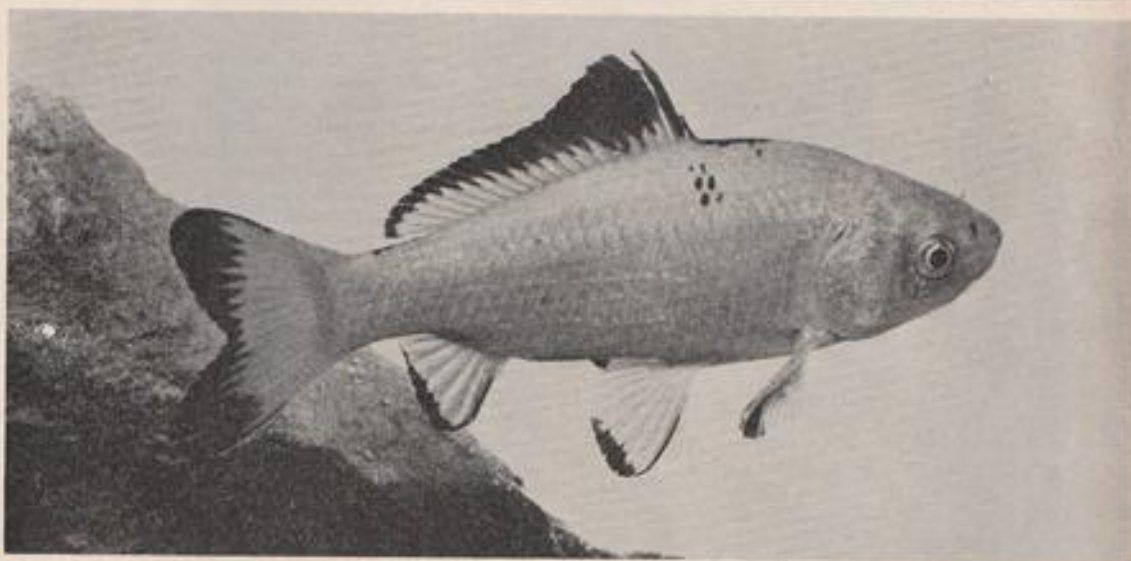
but if any of the fry remain very light in colour, such as silver or even white, these fry are never likely to come to any good colour *e. all.* Usually the best coloured fish among a hatching of shubunkins are those which are very dark when young and it is from these that the lovely blue ones with varied colours are to be found later on.

If the youngsters are kept in a glass-fronted tank it is possible to sort out the good ones from the chaff as they develop. The double-tailed varieties will also need a good deep body and this feature can be checked quite easily, as can the shape of the dorsal fin. It will take some weeks to sort out the specimens which are the ones for exhibition as so many develop slight faults such as a bent fin, especially the caudal. The scaled types of goldfish will not get their proper colour for some time. The time is controlled by several factors. The foremost one is the strain from which the fish have been bred. If the parents changed colour from the original bronze at an early age it is probable that their

the rate of growth of the fish subsequent to the space and feeding, together with warmth which it has had.

Once the best fish have been sorted out they should have the maximum treatment so that they can be grown on well. The percentage of good fish from any hatching will depend on the strain of fish from which they have been bred. One would be very lucky to get really good fish from a bad strain although it is possible under certain circumstances. For instance if a pair of fish had been put together to spawn and one was from a very good strain and the other from a poor one, it is probable that some of the fry would take after the good one and so look fine. However, if they in turn were bred from, it is possible that they would never produce good fish again, but a lot of useless runts.

The genes of inheritance in a fish are so very important and one should consider this seriously when purchasing any breeding fish. Even fish which would never win a prize at a show could breed very good youngsters if they had come



youngsters will also change when young and vice versa.

Moors will remain dark and should then develop the soft, sooty-black which is one of their distinguishing features. I still find many people calling these *black moors*. The black is quite unnecessary as the fish would not be moors if they were not black. One of the faults often found among moors is that they tend to be bronze in colour instead of black and once a fish shows this fault it is probable that it will never change to a good black again.

With some of the scaled types of fish it is a fact that if the gold ones start to show white markings, these will never change back to gold but it is more likely that the fish will gradually show more silver each year. One of the more difficult types to sort out when young are the hooded ones, such as orandas and lionheads. This is because the bison-like growth on the head and gill plates does not develop until the fish is perhaps two years old. It is not possible to give any time for this development to happen as a lot will depend on

from a well established strain of winning fish. Slight faults might have been caused in a fish especially in the finnage if the fry had been bitten by others. This is quite possible if there are many fry in a tank and they have not enough food. I have known a young fish to try to eat a smaller one from the same hatching. Of course if any such fault was seen in a fish this would not make any difference to the quality of its fry.

The tanks in which the best youngsters are being grown on must have a weekly servicing when some of the mulm is removed and part of the water changed. As a rough guide about three gallons can be removed from a 24 x 12 x 12 in. tank each week, to be replaced by fresh. Remember that the waste matter from the fish can soon pollute the water. Plenty of growing water plants can help to keep the water pure but even this may not be enough to keep the water in a pure enough condition for the correct development of the fish.



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# The *Apistogramma ortmanni* and us...

By Bob Gardiner

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Most articles dealing with the breeding of a particular species of fish, are usually chronicles of a well ordered sequence of events, such details as water hardness, PH, water temperature etc. etc., all carefully noted. This article dealing with the breeding of *Apistogramma ortmanni* is somewhat different and an alternative title could well be the 'Lack of Foresight Saga'.

The story begins some time ago, when fellow aquarist, Jim Weir, and myself acquired a collection of fish from another aquarist, who for personal reasons was giving up the hobby. Pride of the collection was a pair of brown Discus who had spawned for their previous owner on twenty-odd occasions, but unfortunately had also eaten all their eggs on twenty-odd occasions!

As can be imagined the challenge of a successful spawning of Discus, brown, blue or any other colour for that matter being the most exciting possibility, the significance of the rest of the collection, which included an adult pair of *ortmanni* faded somewhat. Consequently these other fishes were dispersed round various tanks while all our attention was devoted to the Discus.

The *ortmanni* were put into a 24 in. x 15 in. x 12 in. tank on their own; this particular tank was being used at the time to grow on some *Echinodorus martii* which had been raised from seed. These seedlings were in pots of loam which provided obviously welcome hiding places, for the *ortmanni* promptly disappeared from view and were equally promptly forgotten about by us except for feeding.

One day I happened to look into the tank and I noticed the female lying in one of the pots on top of the compost, and from her appearance came to the conclusion that her days were numbered. As it turned out, this conclusion, hastily jumped to, was proved to be wrong when Jim making one of his inspections, (more discerning than mine) informed me that in fact the female was guarding eggs, laid round the inside rim of the pot just above the compost. Our surprise and delight were short-lived when the female eventually ate the eggs. Disappointed we decided to leave the fish alone and see what happened when and if they spawned again. Spawn again they did about ten days later and once again the eggs were eaten.

By now our interest in the *ortmanni* was thoroughly aroused and we checked through our reference books to find out more about them. We did not get much help from these sources however. Frey and Sterba, agreed that *ortmanni* in appearance resembled *Apistogramma conon-bras*, but whilst Frey stated that their spawning procedure resembled that of *Apistogramma reitzigi*, Sterba compared it with *Apistogramma agassizi*.

As neither Jim or myself have bred either *reitzigi* or *agassizi* this information did not prove to be of much help. It was obvious, however, that whatever they looked like or

spawned like, something had to be done . . . the question was What?

You cannot train a fish not to eat its eggs; in fact I have never had much success in training a fish to do anything in particular. Dogs—yes, fish—no! The only solution, therefore, appeared to be to hatch the eggs artificially should any more spawnings take place.

The artificial hatching of a batch of eggs was a method we never had to use before, but we had a fair idea of the procedure involved. Briefly, the idea was to remove the eggs to a suitable container full of the water in which the spawning had taken place. The important point here was that the eggs had to be laid on something that was removable, a plant leaf, a rock, a slate, or a flower pot. Methylene blue would then be added to the water in the container to prevent the eggs becoming fungussed and a diffuser stone would then be placed in a position where it would send a stream of fine bubbles over the eggs.

There did not appear to be anything very complicated about all this rigmarole and I could only foresee one snag. If the *ortmanni* spawned on one of the flower pots containing one of my precious *martii* seedlings, as on the two previous occasions, I wasn't too happy about dumping the whole caboodle into a container of methylene blue! I had waited long and patiently to get those tender seedlings to the stage they had reached and *ortmanni* or no *ortmanni*, I was not having them messed about.

We had two alternatives; either move the fish to another tank, furnished with rocks and/or empty flower pots, or remove the plants and replace them with rock and/or empty flower pots. We decided that we would remove the plants but agreed that there was no immediate need as it was unlikely that the *ortmanni* would spawn again for some time; after all they had spawned twice in rapid succession and would probably now have a rest. We would leave things as they were for a couple of weeks and then get ourselves organised. However, more as a gesture than anything else I did put one empty flower pot into the tank.

Our attentions were by now concentrated on the Discus once more, because from their behaviour another spawning appeared imminent, we reckoned without Ma and Pa *ortmanni*, however, who had no intention of giving up the limelight for anyone . . . they spawned again! By the greatest of good luck the female laid her eggs on that one solitary empty flower pot that I had placed in their tank.

It would be natural to assume that, in view of all the discussions we had had, Jim and myself would have had all the necessary and essential equipment for an artificial hatching ready and waiting—not a bit of it! With the bell for panic stations ringing loudly in the fish-house we started getting in each other's way. What for example constituted a 'suitable container?' Jim conjured up a 5,000

## ...or the "Lack of Foresight Saga"

ml. glass beaker of the type used in laboratory work and it seemed to fit the bill admirably. He also rummaged through what laughingly passes for a fish-house medicine chest and unearthed a bottle of methylene blue of uncertain age and dubious quality. The diffuser stone was no problem and so it seemed we were ready to go. An upturned flower pot was placed on the compost in the breeding tank, the glass beaker was then filled with water from the breeding tank until it rested on the upturned flower pot; this prevented the whole contraption floating all over the place. The flower pot containing the eggs was now carefully transferred into the beaker, the diffuser stone was placed in position and the methylene blue added.

How much methylene blue? A carefully measured amount . . . not on your life! In went the methylene blue in a manner best described as haphazard, and as it was dispersed round the beaker by the diffuser stone, and as we stared into the beautiful midnight blue until we were nearly cross-eyed to locate the flower pot and its precious contents, I had a funny feeling we had overdone it. Good fortune, however, smiles on fools and drunks and there appeared to be no great harm done. With a magnifying glass we kept a close watch on the eggs and within the space of seven days we watched the eggs hatch and the fry become free swimming. They stayed mostly at the bottom of the beaker at first, sometimes on their backs, sometimes on their sides, sometimes on their backsides and sometimes right way up.

They gave the impression that they were all as drunk as little lords, their behaviour was so erratic that I began to wonder if instead of methylene blue we had added some kind of blue alcohol to the beaker!

We were still playing it by ear and consequently the question of feeding was a bit of a problem. Before the yolk-sacs were used up we added Liquifry and hoped for the best, but as we had 25 young fry who seemed to be doing fine it seemed we were still on the right track. A few days later we added micro-worm and then brine shrimp and with the aid of our magnifying glass we watched our young *ortmanni* feed quite happily.

Well, we had made it and one week after the fry became free swimming and we were congratulating ourselves on our success, the parent fish spawned again . . . the rotten devils! We began to feel like two direct descendants of Ethelred the Unready and I was mentally referring to the *ortmanni* as "The Catch-us-with-our-pants-down-cichlids."

We hurriedly half filled an 18 in. x 10 in. x 10 in. tank with water from the breeding tank and emptied the beaker containing the first batch of fry into it and then went through the whole routine with the second batch of eggs as we had with the first. When this second lot of eggs hatched successfully, we decided that as the fry from the two spawning being so close together and consequently

with little difference in size we could put both lots, totalling about fifty odd, all together in the 18 in. x 10 in. x 10 in. tank and this proved to be an ideal solution.

By this time we had also decided that enough was enough and in anticipation of another spawning we carefully prepared our artificial hatchery so that we would not be caught napping again, but our unpredictable *ortmanni* did the most predictable thing any living creature can do . . . they died! For no apparent reason, (possibly over exertion), we lost first the female and then the male, so now we will have to wait patiently until our young *ortmanni* are large enough to try and breed them again.

It is difficult to believe from the foregoing that Jim and myself are not beginners at fish-keeping but have, in fact, quite a few years experience between us. To sum up, we know there are aquarists in the Glasgow area who have bred *ortmanni* but as yet we have not been able to compare notes with them so our observations may only apply to the particular adult pair we had, but I note them for what they are worth.

*Apistogramma ortmanni* are native to Western Guiana and the central Amazon basin. Though not spectacular in colour, they are quite attractive fish, the general impression being of various shades of yellow and brown. Our male was about 3 in. long, the female slightly smaller; the finnage followed the usual cichlid pattern, being long and pointed in the male and shorter and more rounded in the female. We found them to be extremely shy, particularly the male and in fact we never actually witnessed the spawnings taking place. Whether this shyness is normal in the species or peculiar to our particular pair we do not know but the young fish which we now have do not show the retiring habits of their parents. Water hardness and PH do not appear to be critical, the PH in their tank was 7.4, hardness unknown, but like *Aribensis* they do seem to prefer a temperature of 80 degrees Fahrenheit.

Our young *ortmanni* appear to be very slow growing, whether this is due to lack of parental care and the substitution of artificial hatching is difficult to say. It is interesting to note, however, that the fry of *Aribensis* which we bred several weeks later and which were looked after by the parent fish grew and are still growing much more rapidly. Incidentally, we find, our breeding pairs of *Aribensis* so prolific that we tried to repeat the experiment of artificial hatching with them with no success whatsoever.

If we should succeed in obtaining more breeding pairs from our young *ortmanni* it will be interesting to compare them with our original pair, if only out of curiosity, because though attractive enough in their own quiet way, they are not my favourite Dwarf Cichlids, but I would like the satisfaction of having a pair of *ortmanni* that raised their own family instead of having it done for them!



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# Thank you, blue-green Algae!

By R. C. Mills

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It's NOT OFTEN that such a nuisance as algae can be anything but a pest in the aquarium, and yet on one occasion I was thankful for it, and for what it helped me to achieve and consequently encouraged me to try.

Let me set the scene: there was my community tank, with the usual selection of fish and plants. All very ordinary you might say, there was one blot on the aquascape however; the plants were slowly becoming overgrown with algae, and the slimy blue-green variety at that. Although the fish community contained the usual proportion of livebearers, which I hoped would help keep the algae in check, and the mollies did their best, the nuisance still remained and continued its relentless march over the plants.

During a visit to the public library, where I usually have a quick look along the fish book shelf to see if any new additions are evident, I read that one species of fish was very expedient in clearing blue-green algae. This was a stroke of fortuitous luck, and I proceeded to read on! The fish referred to was not one of the usually recommended algae munching types, i.e., *Otocinclus*, *Ayamori* cats, etc., but was the American Flag fish, *Jordanella floridae*; there only remained the problem of tracking some down, and putting them to the test. Luckily my usual dealer had some in, so I bought a couple of pairs and soon had them installed in my algae laden tank.

*Jordanella floridae* is a member of the Cyprinodontidae family, the egg laying toothed carps, and comes from N. America. Strictly speaking, it is not really a tropical species and should be kept at slightly lower temperatures, 65°-70°F being quite suitable; however, the average aquarist treats everything the same, particularly in the community tank, and all take their chance at 75°! I was not unduly worried about shortening my new fishes' life span, by prolonged exposure to higher than normal (to them) temperatures, I wanted to shorten the life span of the algae! (Incidentally, has anyone done any conclusive experiments on whether or not, or by how much the life span is decreased by higher than normal temperatures? Is it a matter of months or only a few days?).

The American Flag fish gets its common name from the resemblance of its colour pattern to the national flag, the Stars and Stripes. The scales are green or yellow in general colour, with a light blue centre and edged with red. This composition gives the sides of the body a yellowy green background with a blue tinge, particularly in reflected light, and the red edgings of the scales provide a reticulated pattern of rows of red stripes. The general impression is of a thickset body, a powerful swimmer with a fairly large tail. The female has a blotch of dark brown ringed with white on the posterior part of the dorsal fin, whereas the male's dorsal fin is covered with a reticulated pattern of red dots. Both sexes have a dark blotch on each side of the body, about midway, although the female's is more noticeable. The bluish tinge to the body, becomes more intense in the males at breeding time, and extends into the caudal fin also, as do the red patterning similar to the dorsal fin. Both fish

reach approximately 2½ in., and as usual, the male may just have the edge over the female for size.

This fish has a reputation of being pugnacious and aggressive; I never found this to be the case with the four I had, and they were in the company of both large and small fish. There were one or two scuffles between the two males, but this was natural enough. If thought necessary, more females could be provided to help keep the peace. As to their algae eating habits, they did munch away at the accursed growth and seemed to thrive on the diet; they took all other offered food, both live and dried, but seemed to favour a vegetarian diet wherever possible.

At this time, I was quite satisfied with my algae eaters, and would have been content to let matters rest there, if I hadn't seen a pair of Flags paying close attention to each other! I had never intended to breed them, they were acquired solely as green vacuum cleaners, and up to that time I had never spawned any egg layers at all. However, I decided that if the two fish were really keen, I might as well try and accommodate them.

Accordingly, an 18 × 10 × 10 in. tank was set up, planted with a few bushy thickets, the female was introduced and left to fatten up. The water was ordinary tap water and the temperature was the standard 75°F. During the next two weeks, the female was fed on tubifex, daphnia, algae scraped from other tanks and tinned peas, a source of green food that was readily taken. Also during this period, I took the opportunity to read up the breeding habits of this fish.

The Flag behaves similar to Cichlids during breeding, in that it digs a depression in which to lay the eggs, cares for the young, the male performing these functions. After a fortnight, the female was appreciably fatter so the male was put with her. (In case it is wondered whether or not the male may have previously spawned with the remaining female still in the other tank, I can put minds at rest because unfortunately she had died, after an attack of Pop-Eye). Upon seeing the female, the male spread his fins, intensifying his colours and became suffused with a blue overcast. He followed the female closely and pressed against her flanks, forcing her into the plant thickets where with much trembling, a single egg was expelled. The egg was quite large, easily seen, like a small oil bubble except that it wasn't bouyant, but stuck to the plant leaves. All this rather surprised me, as I had been expecting excavations to take place, still, I decided to give the fish the benefit of the doubt, and trust to their judgement! Spawning activity continued for a whole day, after which I removed the female, still following the advice of the book, and also because the male began to worry her. (This species will continue the spawning activity over a period of a few days, single eggs being laid, but because the male became aggressive, or was still intent on spawning whilst the female was depleted of spawn, I thought it wiser to remove her). The male took no notice of the laid eggs, no unhealthy



interest anyway, but after three or four days all the eggs had turned white, and could all be seen like small hailstones amongst the plants; I wondered if they had been fertile, and if so whether they were victims of bacterial attack.

When the female was ready for spawning again, she was re-introduced to the male, and again the same spawning procedure was followed although this time, possibly as a concession to me and my books, some eggs were laid on the gravel at the bottom of the plant thickets! This time, at the end of spawning I removed both fish, and added a few drops of methylene blue, enough to tint the water a definite blue colour. There now followed a period of waiting; the hatching took quite a time. Reference to the books had revealed a period of anything from 7 to 14 days, and as a compromise mine were out in 10 days. Because this was my first egg-layer, I was very interested in the development of the eggs, and the long incubation period, coupled with the fact that the eggs were large enough to see comfortably, assisted me in this respect. First the eyes appeared, followed by a coiled round body with its yolk sac.

After hatching, the fry clung to the glass, or sat on the plants, like tiny splinters. Liquid food was given as a starting food, plus some green water. Another factor, due to the long incubation period, the methylene blue had time to clear under the action of light, daylight in this case, so that by the time the fry were really free swimming, infusoria

would be forming in the otherwise bacteria-free water.

The fry progressed quite quickly and were soon able to take brine shrimp, sifted daphnia and larger sized foods; after a fortnight, their tiny bodies had a bit of colour, with the dark blotch on the sides becoming visible, as was the spot on the dorsal fins (on both sexes, although it faded later on in the males). No further problems were encountered, and I believe that the first batch of eggs was attacked by bacteria which the application of methylene blue to the second batch successfully precluded.

The American Flag, included with the Killies at Open Shows, is a colourful fish, often overlooked and is quite a nice 'different' fish to try, without being too exotic or difficult. Because of its temperature tolerance, it can be kept in unheated tanks during the summer months; this is ideal for them, the sunshine brings out the algae which they eat with relish, and it also produces green water for the fry.

If it wasn't for the algae getting me annoyed, I may have stayed contented with my community tank and its occasional extra livebearer fry, whereas having broken the ice, I was encouraged to try some other egg-layers. That algae has a lot to answer for, but it shows how investigating one aspect of aquarium keeping can lead to another, one of the fascinations of the hobby. So if you're plagued with algae, my advice is 'rally round the Flag, boys'!

## Equipment Review

"HYKRO TANK SEPARATORS", made by Hykro of Denmark, and distributed by Joe Grassby, The Hykro Depot, Moberley, Cheshire.

There are three sizes of tank separators available in the Hykro range, and each costs 9s. 0d. The sizes of each of the tank separators are given on the box in both cms. and ins., and the peculiar sizes in inches would suggest that the separators were designed for the continental market. The small size is 7½ in. × 9½ in. (19 cm. × 24.5 cm.), the medium size is 9½ in. × 11½ in. (24.5 cm. × 29 cm.), and the large size is 11½ in. × 11½ in. (29 cm. × 29 cm.). These separators are most useful if one needs to divide an aquarium into two (or more) sections to provide a separate compartment for breeding, for separating adult fish, or for keeping adult fish and baby fish apart. The separators are designed so that heating and filtration are not affected.

A single tank separator consists of a thin, white, perforated plastic sheet, rigid yet pliable, a set of four green transparent plastic edging pieces, and two stainless steel clips to hold the structure firmly in place in the aquarium. Having been designed to fit continental sizes of aquaria, it may be necessary to cut the plastic pieces to fit standard British aquaria. It suggests on the box that the partition plate be cut with a hot knife, but I found that a pair of old scissors would cut the plate easily and neatly—as easily as one could cut a sheet of thin cardboard. The tougher green plastic side and edge pieces were not as easy but a cheap junior hacksaw soon made a neat job of these. It is necessary to measure the inside dimensions of the aquarium to get a neat fit. On the first cut it is better to cut the parts a little larger than is required, as one may, by trial and error, remove a little more until a good tight fit is obtained. The unit is held in place with the two stainless steel clips

which are easily clipped over the edge of the tank's frame. I tried the one under review in a tank without gravel and obtained an excellent fit—good enough to keep baby guppies from finding a way through to the other side. Its use in an aquarium with gravel would be just as simple as the base of the partition could be buried in the gravel. In a planted aquarium it would be necessary to ensure that one did not trap any plant leaves between the edges and the glass. In test there is no noticeable difference in temperature of the two halves of the aquarium, although the thermostat and the heater were on different sides of the separator. If a filter were in use in the aquarium it would, naturally, be placed on one side of the separator. There being free access to the water to flow through the small perforations in the divider, the water on both sides would be filtered but more solid waste would not be able to travel through the small holes. It would thus be necessary to move the filter from one half of the tank to the other, after a few days on one side.

If you are in a position where you find it necessary to partition off part of a larger (or even smaller) tank, then I would recommend you to try the Hykro Aquarium Separator, after making sure from the above measurements that you can obtain one which will fit, or which may be cut to fit, your particular aquarium. It's certainly a useful piece of apparatus which can, after it has been cut to fit the aquarium, be removed or fitted in a matter of seconds, giving a good separation of the aquarium, and 9s. 0d. is a small price to pay for such a separate compartment if one considers its usefulness, and the cost which would be incurred if one wanted to buy a small tank and fit it out with a separate heater and thermostat etc. B.W.

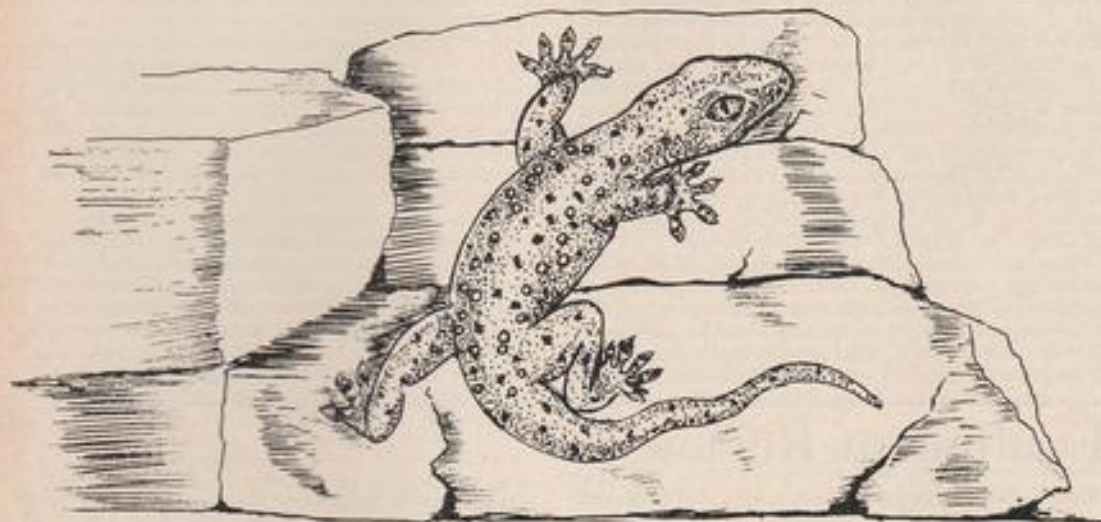


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# *Hemidactylus turcicus*

By H. G. B. Gilpin, B.Sc.

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TOWARDS the end of April this year, I received a large cardboard box from a friend of mine who had spent some weeks in Spain. Cautiously raising the lid, I found it contained eight geckos. All too conscious of the activity of these little lizards and the speed with which they will escape from even a properly constructed vivarium, I viewed the prospect of moving them from the too spacious box with its inadequately protected top with some trepidation. However I need not have worried and the transference to their permanent quarters was effected without the loss of either a gecko or a tail!

They were placed in a thirty inches by fourteen inches by fifteen inches high vivarium, floored with rounded gravel, in which several large flatish stones were half embedded. A row of potted plants along the back had the pots partially concealed by strips of rough bark and irregularly shaped stones. At one end of the vivarium a single, smooth surfaced flint, rich in hollows and small, rounded "promontories," stretched from ground level to within six inches of the domed, metal cover. This cover was equipped with two electric light bulbs, one 25 watt and one 40 watt.

Occupying the vivarium when the geckos were introduced were two young female ocellated skinks and two wall lizards, *Lacerta campestris*, also females. The skinks and wall lizards were roughly the same size and could be relied upon to live peacefully together for several months until the former grew too big for the safety of the others.

Immediately after their installation, the geckos were given an ample supply of locust hoppers, stick insects and meal-

worms and then left severely alone to give them an opportunity to recover from their journey and acquaint themselves with their new and unfamiliar surroundings.

On examination the next day they proved to be Turkish, or as they are sometimes called, disc-fingered geckos. Characteristically these geckos are three and a half inches long and vary quite considerably in colour from pale, pinkish cream to brown, grey or almost black on the upper surface. Their heads are large in comparison with the body but smaller, more oval and less broad across the eyes than those of the wall gecko, *Tarentola mauritanica*. The scales on the back of the Turkish Gecko are very small and flat and give the surface of the skin a much smoother appearance than that of its larger relative. In addition it has a number, some 40-50 of large, raised, rounded tubercles particularly on the sides and the base of the tail. The tail itself is fairly broad at the base, slender and terminating in a fine point. The scales covering its upper surface are smoother and much smaller than those of the wall gecko.

The underside of the body is a translucent, pinkish white and in the case of breeding females the shape of the eggs can be seen through the skin. The abdominal scales appear hexagonal to the unaided eye but under low power magnification are ovoid and overlap like tiles on a roof. Four to ten anal pores are observable in the males which again serves to distinguish *turcicus* from *mauritanica*, none occurring in the males of the latter species.

The toes of many species of geckos are specially modified for climbing. Those of *turcicus* widen more gently



towards their extremities than those of *mauritanica* and the tips form less saucer-like pads. The undersides are covered with a double layer of laminae which are interspersed with numerous minute hooks enabling the animal to grasp imperceptible irregularities even in a substance as smooth as sheet glass. Each toe ends in a tiny claw.

On arrival there was a considerable difference in size and coloration amongst the members of my little collection. The smallest was one and a half inches long and the longest three and a half inches. The smallest was a pale cream colour with dark brown blotches on the upper parts of the body and brown rings along the tail, the underparts being light flesh colour. The largest was brownish grey with darker patches, no rings on the tail and a white under surface. Of the intermediate sizes, most were pinkish and fairly heavily dotted with irregularly shaped brown spots, which extended along the body to the tip of the tail.

They settled into their new quarters remarkably quickly, indeed coition was observed between one pair within the first few days, but true to the nature of most of their species, proved, as one would suspect from the lidless eye and slit-like pupil, largely nocturnal and somewhat shy. Most of the day they hid behind the rocks, flattening themselves against the surfaces. Towards evening they became more visible, basking on the rocks in the heat of the electric light bulbs, or clinging, often upside down, to the warm lid. Any sudden movement however sent them scurrying to some safe retreat. Their movements were extremely rapid and less predictable than those of the other inhabitants of the vivarium, consequently extreme care was necessary when removing the cover at feeding times.

The geckos fed readily from the start. One would be seen, lurking, immobile, beneath a overhanging stone, until an insect came within range, when it rushed out and sized its victim in its jaws. A few vigorous masticating movements and the prey would be swallowed and the lizard back in its "den".

Although these animals prefer dry conditions in the vivarium, they require water to drink and this can be supplied in a small pot. The vessel should be kept filled to the brim, otherwise insects will inevitably fall into it, and being unable to get out, drown. The geckos will not eat the dead insects and, apart from the loss of the food, the water becomes fouled.

A week or so ago a gecko was seen clinging to the glass side of the vivarium, presenting a clear view of its pink under-surface. On closer observation the presence of eggs in the abdomen was indicated by two relatively large ovals. Subsequently a white, delicately shelled egg was found attached to the vertical glass at the back, about eight inches above floor level. Hopes of it ultimately hatching were dashed by one of the *campesstris* which, in the course of an exuberant dash around its terrain, a form of activity to which it was somewhat addicted, managed to dislodge it. So far a second egg has not materialised.

Geckos are renowned for their vocal accomplishments and these Turkish Geckos are considerable performers in this respect. They have been credited with the loudest squeak of all the European species and judging from the efforts of my specimens this claim is quite justified. They have also been described as quarrelsome but so far I have not found them so. On the contrary, they have shown no inclination to bicker amongst themselves, neither have they attempted to interfere with the other species in the vivarium.

My specimens were actually caught in Benidorm and its islands and were found under stones and in fissures in rocks. The species is generally distributed in all the Mediterranean countries and S.W. Asia and has been carried by man to the New World. *Turcius*, like several other geckos, often lives in close association with man, invading his houses and performing a useful function in feeding upon the insect population.

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## THEY'VE GOT RHYTHM

By Stanley Fox

THE LIFE rhythms of tropical water-plants are different to those possessed by other life-forms and may appear strange to us. One way that they diverge from other forms of life; is their non-dependence on sleep.

Plants do not require to sleep as we do, (although plants do indulge in a recessive or resting period, after reaching their annual peak of growth). The plants are therefore active 24 hours per day, performing the various functions necessary to their mode of life.

To survive, tropical water-plants must achieve excess photosynthesis/carbon assimilation during the day, this allows the plant-cells to survive during the night. Under poor light conditions the plants cannot attain this excess of photosynthesis; when subjected to prolonged poor light conditions, the plant-cells die, causing death of the plants.

Plants in common with other forms of life respire; their breathing is unaffected by exposure to light, under normal light conditions. Normally respiration takes place at a much slower rate than photosynthesis.

The plant leaves also exhale large quantities of water vapour, this process is known as transpiration.

Therefore the plants ability to live is dependent on these actions; photosynthesis, protein formation, respiration, excretion and water intake. The collective name is metabolism. These actions are further divided into two processes; the building-up of the plant-cells and the breaking down.

Photosynthesis, protein formation and the intake of water, are responsible for the building-up of the protoplasm of the plant-cells, this is named Anabolic activity. Excretion and respiration break down the protoplasm, this is called Katabolic activity. Therefore for plants to grow, Anabolism must at all times outpace in activity, Katabolism.

The sequence of day and night/light and darkness are important to the plants rhythm of life. We all know that light is extremely important to plant growth but, how often do we realize that darkness is of almost equal importance in their life cycle? This is subject to the proviso that tropical water-plants are presented with light for a sufficient number of hours that at least equal, if not exceed, the hours of darkness; excess photosynthesis depends on the duration of light.



# OUR EXPERTS' ANSWERS TO YOUR QUERIES

## COLDWATER QUERIES

By A. Boarder



Please enclose a stamped addressed envelope when writing to our experts or to the Editor for advice on your problems.

**Would it be any advantage to filter the water for pond through peat. I have a water fall and could have the peat in an upper pool?**

I do not see that there would be any use to let the pond water filter through peat. For some of the tropical fishes a peaty or acid water is essential but the type of fishes you keep in your pond do not require this acid water. It would however be beneficial to use some granulated charcoal in the upper pool as this could help to keep the water clear of sediment which was floating in the water.

**Is it too late to introduce small Koi carp in an outside pond?**

You could put the Koi in your pond as long as you know what temperature they have been kept at before you purchased them. If warmer water was used than that of your pond you will have to gradually reduce the temperature to that of the pond.

**Why should some fish in a tank rise to the surface frequently whilst others in the tank do not do so?**

Fish rise to the surface usually to get more oxygen. The sign is that the water does not contain enough oxygen for the fishes. It is usually the larger fishes which do this as they need more oxygen than the smaller ones.

**I made a concrete pond in my garden and painted the concrete with a primer for Aluminium paint. When I put the fish in they came to the surface in distress but when removed to fresh water they soon recovered. Why was this?**

You should not have used this paint on the pond. It is probable that the water was poisoned by this and the fish would have died if they had not been removed.

**I took some plants from a reservoir in which were Trout. After a time I found the goldfish were infested with leeches. How can I kill them with a chemical in the water?**

I do not know of any chemical which you could put in your pond water which would kill the leeches and not harm the fishes as well. These leeches are very tough and could not be killed by anything which would not also kill your fishes. You will then have to catch the infested fish and rid them of the leeches. Once you dab a leech with a paraffin-soaked rag they will leave go of the fish. They

can then be crushed. If any wounds have been caused on the fish you can deal with them in the usual way with a salt bath. Any free leeches still in the water can be trapped by tying a piece of meat on a string and lowering it into the water at night. In the morning any leeches adhering to it can be killed. You will have to surround the meat with a piece of fine wire netting to prevent the fish from eating it.

**I have sprayed my pond with D.D.T. to rid it of midges and their larvae. How long will it be before I can return my fishes to the pond?**

The D.D.T. could remain dangerous to the fishes for some weeks, depending on the proportion of it to the amount of water in your pond. I recommend that the pond is emptied and washed out before it is refilled. You should not have used D.D.T. as this is very fatal to fish of all kinds. If you had played a strong jet of water from a hose on the plants the fish would have eaten the larvae when flushed from the plants. You should not feed the fish artificially when doing this of course.

**We are in the process of making a concrete pond in the garden. What kind of cement could we mix with the compost to make it water-proof?**

If you use good clean cement and clean sharp sand at the rate of one of cement to three of sand you should be able to make a water-proof mixture. There are several types of cement on the market which are recommended for the purpose under various trade names. I have always found that a correct mixture is water-proof without any additive. I have several concrete tanks half an inch thick which have held water for at least twenty years and the outsides are always dry.

**I have had a lot of trouble with my goldfish in a tank, all sorts of remedies have been tried but I do not seem to succeed with fishkeeping. What is the trouble?**

Get the book, 'Coldwater Fishkeeping' and study it. You should then be able to keep your fish healthy always.

It is regretted that the advertisement from Johnson's Aquarium and Fish-&-Quip in the June issue, reference to the British Killifish Association was made without prior permission of the Association's Management Committee having been obtained.



*Tetraodon fluviatilis*

## Tropical Queries

I cannot obtain a calcium-free aquarium grit locally and I wonder whether you could suggest a neutral or lime-free substitute (coarse) to spread over a peat base?

Fine granite chippings, well washed to get rid of all dusty particles, will suit your requirements very well.

I have bought two elongated and large-eyed catfish which swim up and down in the middle and upper layers of the water. They are yellowish silver in colour with a gun-metal sheen on the head and flanks. Two or three blackish bands extend along the sides. The fins are blackish and the caudal fin is deeply forked. Have you any idea what these fish are called (my dealer cannot help me) and whether they will prove a satisfactory addition to my community tank?

The fish you described so well is, we believe, *Pangasius sutchii* from south-east Asia. This species is a member of the family *Schilbeidae* and attains a length of 5 in. and more. It is not to be trusted with much smaller fishes.

Please can you supply me with the formal name of the black piranha?

The trouble with common names is that they are often applied to more than one species of fish. However we have read that the fish usually referred to as the black piranha is known to science as *Myleus setiger*.

I should be grateful for any information you can give me about *Capoeta hulstaerti*.

Some authorities describe this small barb (about 1½ in.)

under the scientific name of *Barbus hulstaerti*. It was first introduced to aquarists some twelve years ago. It is native to the Lower Congo. It is one of the most beautiful of the African barbs but takes some understanding if it is to stay alive in captivity. Its essential requirements are peace and quiet in a well-planted aquarium and a temperature in the middle to upper seventies (°F.). We do not think it has been bred in captivity.

How many gallons of water is contained in a filled 4 ft. aquarium?

This all depends on the depth and width of the tank but the regular four-foot tank holds about 40 gallons of water.

Is it true that the puffer fish called *Tetraodon fluviatilis* has bred in the aquarium?

*T. fluviatilis* has bred in captivity. It is said that the eggs are deposited on the bottom after which the male guards them against molestation for about a week, after which the fry hatch out and grow apace on the regular microscopic and small live food.

I have some pieces of quartz stone. Would they do any harm to my fishes or change the chemistry of the water if I introduced them into my tropical aquarium?

Quartz is non-toxic and makes no difference to the pH or DH of the water. In a word, it makes a most satisfactory aquarium decoration.

Is the cardinal tetra as reliable (in disposition and hardiness) as the neon tetra in a community aquarium?

The cardinal tetra has all the desirable qualities looked

Continued on page 179



# BLACK LINE TETRAS

□  
A GOOD BEGINNER'S  
FISH TO BREED

□  
By B. J. Abbott



BEGINNERS, and indeed, old hands who want to be sure of getting results for once, should try their hands at spawning what is probably the easiest of all egg-layers, the black-line tetra (*Hyphessobrycon scholzei*).

Black-line tetras are not exactly the most beautiful fish in the world, but they are very smart with their silvery flanks and the black horizontal stripe extending along the lateral line from behind the gill case right along to the base of the caudal peduncle, where it enlarges to a diamond shape.

All the fins are colourless except for a slight white line on the anal, and they have no difference in size between the male and female to assist in establishing the sex of specimens, although the tail of the male seems more deeply forked. With ripe adults, however, sexing is not usually a difficult task at all as the females are very noticeably deeper in the body, and when full of roe are visibly distended in the belly region.

Black-line tetras are not big fish, and settle in quite well in community tanks, not being aggressive or timid but holding their own with almost all species in competition for food. These fish are not showy in colour but by their almost constant activity at or about mid-water they call a lot of attention to themselves.

Like other small characins from time to time they flash about at each others flanks with lightning-like rapidity apparently indulging in mock fighting. It would appear from this that they are biting each others fins, but no

damage to each other ever seems to be done. However, they are somewhat suspect in company with larger, slower moving fish. Angel's trailing ventrals and Leeri Gourami's feelers are particularly tempting to them, but they are no worse in this than any other fish often recommended for the community tank, and they can certainly be trusted as far as can, say, Black Widows or Flame Tetras.

Actually, it is generally a good idea from an aesthetic as well as a practical view to keep small characins to themselves or with other species of similar size and temperament. A tank full of black-line tetras, if space can be provided, is really a delightful sight. There should certainly be no difficulty in obtaining a tank full of them if a pair of them is purchased initially. However, since these fish are usually offered by dealers at a very small size, it is probably safer to purchase four youngsters and grow them on, when at least one pair should be obtained.

Having ascertained that a true pair is selected they should be brought into condition by as frequent feeding as possible. Of course, live food is quite definitely preferable if available, but they can be got to breeding stage by the judicious and frequent use of one of the better dry foods, and some scraped liver or horse flesh. Black-line tetras, whilst they have comparatively small mouths, have a useful set of dental equipment and they can cope with fairly bulky food if it is friable and they are given sufficient time at it.

Conditioning of the sexes is best carried out separately if tank space will allow, as males will tend to harass females if

kept together, prolonging the build-up of good roe.

The breeding tank should now be set up. One of the beauties of this little characin from the breeder's point of view, is their almost total indifference to water conditions for reproduction.

Water hardness in my part of the world is high, (about 150 P.P.M.), yet black-line tetras will spawn in it readily. It usually gives a highly alkaline reaction. These conditions must be totally opposed to those normally enjoyed by the fish in the wild, yet to see them driving it would appear to suit them down to the ground. It really doesn't appear to matter at all. Provided water that will support fish life is supplied, black-line tetras will almost certainly spawn in it.

Best results, in terms of prolific results at least, are obtained in my experience by packing three-quarters of the breeding tank with fine-leaved plants such as *najas*, *myriophyllum* or *cabomba*. If these are not available, however, almost any plant in fair profusion, *vallisneria*, *hygrophila*, or what have you, will serve as a spawn receiver. If even these cannot be obtained, a spawning medium of nylon floss or even teased out balls of nylon knitting wool will serve almost as well.

Water temperature is not very critical, either, and should be in the upper seventies to the lower eighties, with eighty probably being the optimum figure.

Depth of water should be about six inches, as shallow water is definitely stimulating to most egg-scatterers. Probably they would spawn in a brim-full tank, but some effort must be made. Select your female, or the fattest one if you have a choice, and put her into the breeding tank. Give her a couple of days to settle down to the unaccustomed surroundings and lack of space. This is one rule that does seem necessary, as the only time I have ever known black-line tetras fail to spawn was when they were introduced simultaneously to the new breeding tank. They can be nervous in these conditions although I expect some aquarists have had success with this method. The male fish is best put into the tank last thing at night, when spawning will almost certainly take place next morning at first light. Spawning is not usually very prolonged, some three or four hours, and if things have been arranged so that it occurs on a day when the aquarist is at home the parents should be removed as soon as the female looks noticeably slimmer.

The eggs are quite surprisingly large for a small fish and usually quite a few can be seen. If you can see six to eight eggs you can count on a spawning of at least one hundred, probably considerably more. They hatch out quickly, about twenty-four hours depending on temperature, and the fry hang on for another couple of days. Once they are free-swimming they can take copious feeding. Great care must be taken however, if the usual tubed liquid food is used, as the fry seem very sensitive to pollution. Moderate aeration is quite definitely a considerable advantage in this respect. However, if possible, infusoria for first feeding, for about a week gives a better and safer start to life for the tiny fish. One week after free-swimming they should be able to handle newly hatched brine shrimp, micro-worm and dust fine dry food, and will be well on the way to adulthood.

To those hobbyists whose total success in breeding is a few livebearers the black-line tetra is the absolutely ideal first egg-layer and their ease of breeding has established them as firm favourites for all time.

## Tropical Queries

continued from page 177

for in a tropical community fish: it is hardy within its fairly wide range of temperature (from the upper sixties to the middle eighties °F.); it is not faddy about its food; it is active; it does not hide away in corners or thickets of plants; and, all being well, it usually lives for several years.

### Can you tell me anything about the breeding procedure of *Pseudotropheus auratus*?

This fish goes in for some chasing and display (on the part of the male) before spawning, and after the eggs are laid the female takes them into her mouth. About a fortnight elapses before the youngsters emerge from their place of incubation.

### Is it necessary to have a thermostat wired in the circuit of an electrically heated aquarium?

Not if the aquarium is a large one and the temperature of the water is not likely to move up and down like a yo-yo. But the beginner or rather inexperienced aquarist is strongly advised to include one in his set-up or else he will be obliged to keep a frequent watch on the thermometer and do something when the temperature starts to rise too rapidly or fall to near danger level.

### I have had a snakehead (*Chauna*) in my aquarium for the last few days but I have not seen it take any food. Please can you tell me what to do to break this fish's fast?

Snakeheads are voracious predators and should be given live fish, aquatic larvae, and the like. Raw meat can be tried too. We do hope your snakehead is a small one because when it starts to eat again, and grows, it will soon make short work of any small fish it comes across—that is to say if you have placed it in a community tank.

### What tropical plant would you suggest for the dark rear corners of a heated tank?

Java moss (*Vesicularia dubyana*) will stand a lot of shade and once settled down it will form horizontal spreading and ascending hummocks of enchanting lacey looking foliage.

## Aquarium for Eel Migration Study

AN ITEM in the Soviet newspaper *Pravda* of March 11 described the construction at Minsk of an aquarium which will show the migration of eels.

The first of its kind in the USSR, this aquarium has been designed by zoologists at Minsk and is being built with the help of workers from the Institute of Heat- and Mass-Exchange of the Academy of Sciences of the Byelorussian S.S.R.

It will consist of four inter-connected tanks, in which the scientists will reproduce artificially the cycle of salinity and temperature prevalent in the Sargasso Sea, to which the eels migrate annually to breed. It will help scientists to discover certain secrets in the life cycle of the eel.



# MIMICRY IN FISHES

By B. J. Abbott

Junior  
Aquarist

MIMICRY IN INSECTS, particularly the field of camouflage mimicry, is very well known to most people with even a cursory interest in Natural History. Practically everybody knows the Stick-insect of schoolboy pet fame. Other well-known examples, even less exotic and nearer at home, are the little green caterpillars that dangle from their threads in dense woodland, and become nearly invisible on their food leaves. Other phenomena of a similar nature readily come to mind, including several kinds of moths, whose coloration closely resembles the bark of the trees on which they live.

It is not generally realised, perhaps, that many fish have evolved over the millennia to achieve mimicry in various forms. Camouflage is not unusual and the usual colouration of shoaling fish that swim in mid-water or the upper strata is a silvery belly and a darker back. This enables the fish to merge into the light when viewed from below, and into the darkness of the bottom when viewed from above. Even some of the more colourful of fishes do not appear so in their own natural environment. Like the poetic "Tiger, tiger burning bright", the common perch which looks so bold and piratical in a lighted tank will practically vanish in a river full of heavy water-plant. Many flatfish can achieve even better results than this by camouflaging themselves by changing their colouring to merge with their surroundings. Soles and plaice, particularly, can adapt themselves from very dark to very light colouration in a matter of minutes. A very interesting exhibit in the Aquarium at London Zoo shows this extremely clearly. In a special tank the bottom is deliberately marked out into definitive areas of dark gravel and light sand. Fish moved from one bottom shade to another rapidly adjust to become practically invisible. Occasionally specimens stopping half-way between dark and light areas will even adopt a piebald effect.

Other mimicry in fishes is related not to camouflage but to specific adaption for purposes related to either their survival or to obtaining their food. Many cichlids, as well as other fishes, show large conspicuous "eye-spots" in the tail. These act as a distraction to predators aiming for the head of their prey, and the spots in fact mimic eyes. The well-known Angler fish is also an example of mimicry. In this case the front ray of the dorsal fin of the fish has evolved into a long thread, with an appealing appendage at the end. This is waved, whilst the angler-fish remains submerged in the sand. Small fish investigating the "lure" are swallowed with a mighty implosion. This is a case of aggressive mimicry.

Another case of aggressive mimicry in fish is that of a tropical marine fish, called the sabre-toothed blenny (*Aspidontus taeniatum*). This fish resembles to an incredible degree another fish known as the cleaner wrasse (*Labroides dimidiatus*). The cleaner wrasse is an aid to other larger fish. It feeds on tiny parasites that infect other fish. The fish to be cleaned remain in an almost trance-

like stationary position, whilst the cleaner goes over them, from head to tail, and even in their mouths and gills. This is a true symbiosis since both parties benefit, the cleaner by receiving food, and the fish being cleaned by being rid of its parasites. However, the sabre-toothed blenny is a very different fellow indeed. This is exactly the kind of specimen we aquarists can do without, since it lives exclusively by fin-nipping and biting other fish. This is where the mimicry comes in. The sabre-toothed blenny approaches bigger fish openly, and in a similar fashion to that adopted by the cleaner wrasse. The fish being approached imagines itself confronted by a cleaner, spreads its fins, and adopts a somnolent attitude expecting a delightful experience. What it gets is a nasty shock, as the blenny takes a large bite out of the nearest fin. The amazing thing is that the fish being "cleaned", immediately upon being bitten, whips round ready to do battle, but the blenny stays its ground and quietly pretends to be a cleaner fish and is left unmolested again. Of course, if the same fish is repeatedly attacked it eventually reacts unfavourably, and then it becomes suspicious of even the genuine cleaner fish until some more good experiences have been met with. The two fish (i.e. cleaner wrasse and sabre-toothed blenny) are totally unrelated and yet look identical to any but the most intensive examinations, and this is one of the most remarkable examples of mimicry in the whole animal kingdom.

Mimicry in fish sometimes has another attribute, and this is in the field of reproduction. One of these cases I have previously reported in my description of the breeding habits of *Haplochromis wingatti* (*Aquarist*—January 1968). In the case of this interesting fish, which is a dwarf African cichlid, the male actually mimics its own eggs. The fish is a mouth-breeder and the female picks up her eggs almost immediately after laying them. To ensure their fertilisation the male spreads his anal fin. This has orange spots on it which very closely resemble the fishes' eggs. The female attempts to pick up the "eggs" on the anal fin and at the same time inhales the sperm being ejected by the male. The eggs already in the female's mouth are then fertilised and remain in the mouth until hatching.

Another case of mimicry in fish reproduction is that of the Swordtail Characin (*Corynopoma ritteri*). This very interesting but uncommon fish is remarkable mainly because of the very long filaments on the fil-plates of the male. These resemble to some extent the appendages of the angler fish, and they are normally kept close to the body. At spawning time, however, the filaments are extended from side to side and they act as dummy prey to attract the female. She investigates the lure, sometimes even biting it and the male performs the necessary fertilisation at the same time. Spawning takes place shortly afterwards.

It can be seen from the above that mimicry in fish is highly developed for many purposes, and further study in this field would be well worthwhile.

# Astilbes at the Pondsides

By Jas Stott



ALTHOUGH the Astilbe is often referred to as Spiraea, a plant it closely resembles, it does, in fact, belong to a different natural order. While the Spiraea belongs to the Rosaceae the Astilbe is distantly related to the Saxifrage (Saxifragaceae). The Astilbes, which are hardy perennials like the Spiraeas, are essentially moisture loving subjects requiring deep, rich, moisture-holding soil for maximum results whereas the Spiraeas in the main, apart from one or two species such as our native wildling Meadow-Sweet (*Spiraea ulmaria*) generally to be found growing beside a shallow stream or in moist meadow land, are plants which will thrive in almost any reasonable soil.

The species of Astilbe and their hybrids, thanks to the plant breeders, now offer an attractive range of colour, height and foliage variety making delightful and natural pondside subjects which, apart from the beauty of their floral plumes also possess distinctive foliage. Starting with the smaller growing varieties suitable for the side of the small pond or alpine garden pool there is the dainty little white flowered *A. simplicifolia* and its variety *rosea* which is, as the name implies, an attractive shade of rose-pink both of

which grow to around nine inches tall. Slightly taller at twelve inches is *A. chinensis pomila*, a lovely shade of mauve-pink. All three are usually in bloom during late July or early August as are most of the Astilbes. Growing some fifteen inches high is *A. congesta* producing sprays of flowers creamy-white in colour which is equally attractive as the flowers fade and die for they turn to a pleasing shade of russet with pale buff-coloured tints.

For the side of the somewhat larger pond where a height of from two to three feet would be in keeping with the size of the layout, a very charming selection can be found among the hybrid varieties. A rich crimson colour is available with *A. Gertrude Brix*; a pure white from *A. Prof. van der Wielen* and a rose-pink with *A. Rhineland*; Producing not only bold clusters of white flowers but also most attractive foliage is *A. astilboides*, an excellent species for planting close to the water edge for it appreciates really moist conditions. Two varieties which have very dark red flowers are *Fanal* and *Etna*, both growing to a height of three feet.

For the really large pond where their size of four or five feet would blend and magnificent subjects for group plantings are two varieties worthy of consideration. *A. Davidii* with its huge sprays of rose-red flowers in late August and *A. grandis rosea magnifica*, a lovely deep pink flowering a little earlier. They require very deep, rich, moist soil where there is no fear of it drying out during the growing and flowering period and yet not getting waterlogged in Winter.

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## ARTIFICIAL SEA WATER FOR NEW AQUARIUM

ARTIFICIAL sea water will be made in the laboratory at Leeds City Museum for a new aquarium which will display sea life from Yorkshire coastal waters.

The aquarium will be a feature of the city's new museum which, it was decided by the Leeds Corporation Museums Committee yesterday, will be opened fully on November 7.

Two temporary galleries dealing with geology and natural history have been opened since February.

Mr. C. Maynard Mitchell, director of Leeds City Museums, said the water will be made by a new process using mineral salts and fresh water.

The aquarium will also display fresh-water fish found in Yorkshire rivers and ponds and a few examples of tropical fish and static displays.

Yorkshire Post



## OUR READERS WRITE



### Ducks in a Garden Pond?

Yes, that's right, ducks in a garden pond! For four consecutive years now, a drake and duck have visited our neighbour's ornamental pool. You might say to yourself: "Well, perhaps he owns a small lake out in the country," but this is not so as will be seen in the accompanying photographs.

The ducks, much to everybody's surprise, as you can imagine, first visited the pond in April of 1966. For the last two years, including 1969, they visited the pond in March. Wherever the duck went the drake followed. Only once or twice did one of them fly off without the other, but not for long because it would soon return. The period they stayed averaged about two months.

They completely cleared the pond of animal life, i.e., newts, daphnia, snails, the lot. The plants were none too healthy when the ducks left, either. All that remained was a muddy, lifeless pond with uprooted vegetation floating on the surface.

One of the photographs depicts the ducks wandering around the crazy-paving at the back of our house—as you can see they are quite tame.

Luckily for me, however, they have not been on my pond, which is fully stocked with some "prize" fish. I took precautions from the very start, and in case anyone else has "duck trouble" I suggest you do what I did, and that was to stretch a pea and bean 6 in. mesh string net across the pool at about 6 in. above the water surface.

D. SHARMAN (Aged 15 yrs),  
Worcester Park, Surrey.

See letter "Ducks in a Garden Pond"



### Giant Clarius?

I have recently come upon some information that, at first, I found difficult to understand. It concerns a strange phenomena which occurs, to my knowledge, in the 'Rio Jacare' or 'Alligator stream', in Paraguay.

Apparently some type of catfish of immense proportions, weighing up to half a ton or more resides in this particular stretch of water. Some say they grow to a length of 18 feet, but catfish of these lengths have never been established to live there.

The natives in this part of Paraguay know these fish as the "manguruyú" and many reports have been received of these fish attacking bathers.

One incident which was witnessed by several people occurred when a Labrador dog swam a river near Asuncion. He was paddling across to retrieve a duck, when suddenly he was dragged beneath the water and devoured. On this occasion the tail of a great fish broke the surface of the water, thus revealing the cause of the death.

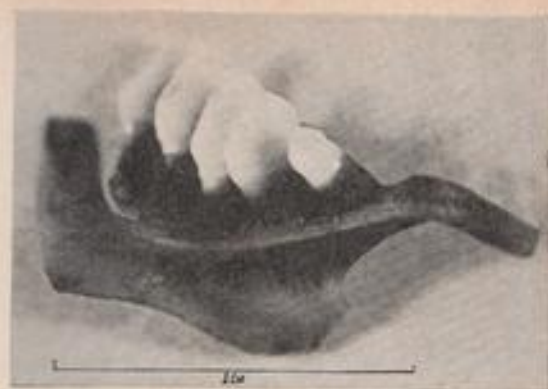
Some believe this fish is a gigantic armoured catfish because armoured 'cats' about 30 ins. long are frequently seen on land in that area. Possibly clarius "cats" or related species.

Can any *Aquarist* reader help solve the mystery of the manguruyú?

Yours faithfully,

HUW COLLINGBOURNE  
Glamorgan, S. Wales. (Age 14).





See letter "Diminutive Dentures". Note 1 cm comparison.

#### Diminutive Dentures

I was intrigued to find this minute set of teeth on the banks of the river Avon at Warwick. I wonder how many of your readers can identify them?

They are apparently pharyngeal teeth of a fish of the carp family. I've been teaching biology for years and this is the first time I have come across them. Can anyone tell me what exactly the fish uses them for?

H. L. K. JONES.

Warwick.

#### The Algae Question

I have been reading the views on algae put forward by my fellow aquarists and was amazed to find how misleading and confusing they were. For instance:—

Mr. Gray (March issue) states that he believes brown algae to be an early stage of green algae which has died due to a decrease of light. True, Green algae does go brown when it dies, but have you ever seen dead algae growing, and covering your plants and walls of your tank? Then, Mr. Fox (June) states that brown algae contains no chlorophyll. This may be true for a few remote species but in general it is wrong. Thus I have put pen to paper in an attempt to clear the air, as it were. Green algae contains four main types of pigment. These are:

- (a) Chlorophyll 'A'
- (b) Chlorophyll 'B'
- (c) Caratene
- (d) Xanthophyll

The last two named are yellowish brown and the first two green. The simple fact is that in green algae there is more of the first two and not so much of the second two. Thus blue and red light is absorbed and the green reflected is responsible for the green coloration. Brown algae also contains all these although here there is more Xanthophyll and Caratene thus the coloration is brownish.

The reason that brown algae and green algae are seldom found together (at the same depth) is because both require their own type of habitat in order to thrive. It so happens that brown algae may live in low intensities of light whereas green requires a high intensity (duration) of light. Although people may disagree with this I believe that blue green algae is simply a form which happens to

survive when water conditions do not permit green or brown algae to prosper. In my own tank I have green algae everywhere in the first 13 or so inches of the tanks' depth (15 in.). The inch or so above the gravel provides a layer where some brown algae has been found although it has never taken hold. (Lighting—2-60 watt pearl for 1½ hours). I hope this has enlightened some people on the subject but I know many may disagree with me. I would be most pleased to read their views and would also welcome information about other algae. (eg.; Marine).

J. WATSON (15),  
6 Medhurst Cres., Gravesend.

#### Picture Postcards Required

As a regular monthly reader of your "mag" I wonder if you could put my letter in one of your issues, a request to any of the readers at home or abroad who have used picture cards of the countries lived in or had sent to them that they no longer have use for. I collect these cards and started the hobby when answering a request for pen-friends from Ceylon from which I had some beautiful views of that country. I have got a few others since but I would like to get a good collection going. I would answer all letters sent and refund the stamp value of sending to me. I hope this request will bear fruit.

I am most gratefully yours,

I. MULLENDER (Mrs.)

1, Pike Street,  
Deeplish, Rochdale, Lancashire.

#### Thermostats and Short-circuits

A question arose at our last meeting which perhaps you could include in your magazine. Some of our members wanted to know why manufacturers must put the break in the thermostat for connection to the heater, so close to the top of the thermostat where there is a danger of shorting through condensation, etc. It was felt it would be better just to leave a complete wire.

P. GROVES (Hon. Sec.),  
Norwich and District A.S.,  
35, Folly Road,  
Wymondham, Norfolk.

Readers letters continued on page 184



# OUR READERS WRITE

continued from page 183

## Behaviour of artificially introduced Fish

I was amused at the article "The catfish and the dog" by P. F. Capon in your number for May 1969. *Clarias farrachus* is a common fish of this region and is esteemed by many Malaysians as a food fish. However, since it is a carnivore and will devour small fish, we rigidly exclude it from our fish ponds, which are stocked with herbivorous fish. Since it is an air-breather the catfish can wriggle overland, provided the body is kept moist, and the fish have been known to travel at least  $\frac{1}{2}$  mile in this way. However, there seems a possibility that in highly oxygenated waters, particularly eutrophic (or enriched) waters with dense algal plankton the fish may become "gill breathers" and a sudden deficit of oxygen can bring about mass mortality. This has happened several times in Malaya, catfish succumbing when other fish such as *Tilapia* have survived. We certainly need to know more about the physiology of *Clarias*.

*Gambusia affinis*, although it has been introduced to control mosquitoes, in many countries ceases to do so and eats fish larvae instead. It has been indicated for the disappearance of native fish species in many countries of the world and is on the list of banned species. Certainly those accidentally introduced with grass carp fingerlings into some of our ponds have ignored mosquito larvae and have had a feast on *Tilapia* and *Puntius gonionotus* hatchlings. We have systematically eradicating *Gambusia affinis* from our ponds and now *Tilapia mossambica* has a chance of controlling mosquito larvae. *Poecilia (Lebistes) reticulata* is to be preferred to *Gambusia* since it does not seem to touch fish larvae, at least of other species, although it is not so tolerant of the wide range of conditions.

Incidentally, what is the true identity of the *Tilapia* sp. in the San Antonio River? I had always understood it was the true *Tilapia mossambica*, originating from Mozambique and southwards, and that the fish were derived indirectly from the Singapore stock. *Tilapia morrimeri* is a related species from Zambia, although I am not sure the specific name is still valid. Whatever its correct name it is distinct from *Tilapia mossambica* as the researches of Dr. Trewavas of the British Museum have shown.

Movements of fish have been taking place for a long time, and some dreadful taxonomic tangles have resulted, as well as the occasional disastrous effects on the native fish fauna. For some time I have been agitating for a central register of all fish movements, perhaps at F.A.O. headquarters in Rome, with all the information available as to the habits and advisability or otherwise concerning introduction.

On the question of Grass Carp, this has been tested in so many countries and co-exists happily with other fish. Experience here indicates that insectivorous and crustacean eating fish do better in the presence of grass carp, largely

because the partly digested faeces act as an excellent substrate for zooplankton and bottom fauna. We have not found that grass carp removes all the vegetation and it usually leaves a mat of short growth which can regenerate. However, for fishes needing long and dense weed beds for spawning, it might be disadvantageous to have grass carp. Spawning of grass carp has to be induced artificially, and outside the West River, China and Amur River Russia, the fish has spawned naturally in only one very short stretch of the Tone River in Japan and one reservoir in Taiwan and nowhere else. It has been planted all over Taiwan and Japan and throughout all the major river systems of Asia, and Eastern Europe without any sign of spawning. It has also failed to spawn in U.S.A. Thus provided there is careful control of the number stocked the fish should create no danger. Trout have been found to thrive in the presence of grass carp in Japan, U.S.S.R., Eastern Europe and U.S.A., while here we are even finding Oscars (*Astronotus ocellatus*) doing better in the presence of this grass eater. Nevertheless, there should always be thorough experiment before fish are generally released.

DR. G. A. PROWSE, DIRECTOR,  
Tropical Fish Culture Research Institute,  
Batu Berendam, Malacca, Malaysia.

## Fungus and Catfish

It may be of interest to your readers to read the following observations with regard to fungus and Catfish.

At present I have a five foot by 16 in. by 16 in. stainless steel tank which houses a half dozen catfish, (*Corydoras*) and Kuhli Loach, plus one 4 in. to 5 in. *Myxus tengara*.

Due, probably to a savage beating up by a 12 inch Red Snakehead, since removed to another tank, the *Myxus tengara* was infected with a brown fungus. Almost the entire body and fins being practically covered with this unusual fungi. Through neglect or overwork, the *M.t.* was not treated with any chemical preparation for some few days. However, when I did have time to do something for the poor fish, I was surprised to see two Kuhli Loach very busily nibbling the fungus from the fins and body of the infected catfish. This treatment has gone on for over a week now, occasionally a *Corydoras aneus* giving a helping hand. No fungi is visible and the *M. tengara* is obviously a much healthier, happier and vigorous fish once more.

Comments welcomed.

Yours faithfully,  
R. CARRICK.  
Wirral, Cheshire.

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*Readers are invited to express their views and opinions on subjects of interest to aquarists. The Editor reserves the right to shorten letters when considered necessary and is not responsible for the opinions expressed by correspondents.*

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# MONGRELS AMONGST FISHES

By Henry Tegner

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MAN has experimented freely in the hybridisation of birds, beasts and plants. His object has been, nearly always, to improve the strain. The mule, the offspring of a stallion and a she-ass, was widely produced in the Mediterranean countries and the East because it was a hardier animal than the horse, and a bigger beast capable of carrying heavier loads than the little donkey.

In the world of fishes man has done his experimental work in the creation of mongrels, but his work on the whole has so far brought about singularly insignificant results. Hybrids created under domesticated or confined conditions are not so rare, but in a full-feral state they are generally very unusual. Considering the vast number of wild birds there are, you seldom see a hybrid and the same applies to all wild animals and to the fishes.

The artificial cultivation of fishes has developed enormously during the present century. Fish farms abound and fish culture is now undertaken in a big way in many parts of the world. The marine scientific establishments, like the research station at Torry in Aberdeenshire, are deeply concerned with the possibility of breeding marine species under sea-farm conditions. Some of this research has naturally touched on the problem of the hybridism in the world of fishes. Men have experimented in this sphere, but it would seem that so far their explorations in this direction have not proved particularly rewarding. Some years ago I came across a strange looking, trout-like fish in the old aquarium at the London Zoo. This was, I think, one of the earlier attempts to produce a fish of high sporting quality. The fish in question was the result of a cross between an American brook trout and our own common British brown trout. The result of this mating was a rather ugly specimen having neither the lithe grace of the British parent nor the virile look of its American progenitor. As a potential new sporting quarry for the angler it just was not on. Another attempt to get a bigger and better member of the family *salmonidae* by the utilisation of parents of different varieties has recently taken place in Ireland. This event was greatly publicised by one of our national Sunday papers. The troutlet was artificially created by mingling the sperm of a salmon with the ova of a sea-trout. Great things were claimed for this bastard. It was to be a livelier fighter than either of its ancestors, it was to be more succulent and above all it could be bred *en masse*. Something happened and nothing ever came of this experiment in hybridisation; perhaps the troutlet like most other hybrids was to prove infertile.

The aquarist who keeps tropical fishes in captivity has, with some success, been able to cross small tropical fishes in

their aquariums. Such specimens may be seen in the zoological gardens at London and Edinburgh. In this sphere as in others, where confinement and strict control are always present, bastardy may be successfully created but amongst free living fishes, both of the marine and freshwater kind, they are nearly always very, very rare.

In the natural, free state British coarse fish—as they are generally referred to—appear to have contributed a meagre number of hybrids to history and the majority of such crossbreeds seem to have been amongst the cyprinidae or carp family. Here again carp and their kind are largely restricted fish living in comparatively confined waters and the carp, in so far as Britain is concerned, is not an indigenous species but one introduced to these islands, originally, by man. However, other coarse fish, such as the roach and the bream, have come together in a natural state to produce hybrids. The chub and the bleak have also mingled, and this latter mongrel is certainly somewhat surprising because of the marked difference in size of its respective parents—the chub may weigh up to 8½ pounds, whilst the little bleak seldom exceeds a weight of some 5 ounces.

Some excellent examples of freshwater fish hybrids may be seen in the Natural History Museum in Cromwell Road, London. When I was last there I made a note of some of these hybrids. There was a bream-rudd, a roach-bream, a roach-rudd, a chub-bleak and a roach-bleak. All these specimens, I would mention, appeared to differ very little from one, or other, of their parent's characteristics, and to the lay-eye they were not easy to distinguish as mules. Nevertheless, to the keen freshwater angler, or amateur ichthyologist, these exhibits are well worthwhile inspecting. Whilst on the subject of freshwater fish hybrids, it is perhaps worthy of mention that the so-called pike-perch is certainly no mongrel at all, but a species introduced here from Europe some years ago which has a superficial resemblance to its two namesakes.

Amongst marine fish, hybrids are even more unusual than among their freshwater brethren, but there is, on show, in the form of a plaster cast in the British Museum, a so-called Turbot-Brill.

There is no doubt that hybridism amongst free-living fishes is quite as unusual as it is among the birds of the air and the wild beasts of the countryside although there are known to be well over 20,000 different species of fishes.

Nature, they say, abhors a vacuum; she would also appear to dislike mules for in the natural state intermingling between different species is usually an exceedingly rare event. But it evidently does happen—sometimes.



## Products Review

"FANTASY PELLETED KOI FOOD", distributed by Fantasy Pet Products, Ltd., 13 Nutley Lane, Reigate, Surrey.

This new pelleted food has the advantage that it floats, thus being an improvement on foods which sink quickly, before the fish have time to eat them. It thus helps prevent the pollution of pond and aquarium water by uneaten food. The new food comes in three sizes of pellets: large grade, for fish of 6 in. and upwards, sold in 4 oz. drums; medium grade, for fish from 2 in. to 6 in., sold in 4½ oz. drums; and small grade, for fish up to 2 in., and retailing in 4 oz. drums. The contents of the food are not given on the drums, but it is said to supply an ideal staple diet for Koi, goldfish, and other pool fish. Pool fish will soon learn to surface at one's approach, and will even be heard eating the food.

Fish should be fed sparingly, with only as much as will be eaten in five minutes, but feeding should be done often for rapid growth. Japanese breeders will feed their fish about twelve times per day to ensure maximum growth and vitality. Although fish should be fed often in spring and summer, feeding should be reduced in colder weather. "Fantasy Pelleted Koi Food" is also useful for larger indoor fish, kept in aquaria. Larger coldwater and tropical fish will eat the food greedily, and, with a little grinding between a couple of sheets of newspaper, the food can be rendered small enough to be suitable for smaller tropical fish. My own smaller tropicals are certainly very keen on the ground up food, and it can be used as a change from the more common tropical fish foods. Although I do not know the prices of the foods, at the time of writing this, these should soon appear in advertisements. These new foods, from T. F. H.—Miracle—Fantasy, are well worth a try, especially to those who keep larger tropical, or coldwater fish. B.W.

KING BRITISH AQUARIUM PRODUCTS are produced by Keith Barraclough of Bradford.

The King British range of aquarium products covers a wide spectrum of needs for the aquarium keeper. There are about twenty-four items on the market at present, and many more are in the pipe line. Each product has undergone thorough tests by the manufacturers, over a period of twelve months, on over half a million fish in the manufacturer's own aquaria.

Of interest to the aquarist with a garden pool is the King British "Garden Pool Filtration Plant", costing £3 5s. 0d. This unit is for use in conjunction with almost any waterfall pump or fountain pump. It gives "crystal-clear" pond water and is sold with a money-back guarantee. The unit is suitable for ponds up to 200 gallons in capacity, and for larger ponds, two units may be used. It is made from high-density polystyrene, is tough, and can stand temperatures down to freezing point. Easily installed, the container has its foam filtration pad saturated, and covered with about 7 lb. of aquarium gravel. The unit is then sunk in the deepest part of the pool, and its pipe is connected to the intake on the pump to be used. Needing little attention, the filtration plant will probably only need cleaning once per week. This is simple as the gravel and filter pad only need to be washed under the tap, and then replaced in the unit.

Three other items which I was able to test were concerned with the p.H. value of the aquarium water. The first is K.B. "p.H. Tester", price 7s. 9d. It is used for finding the

acidity/alkalinity level of the aquarium water, and consists of a plastic dropper bottle containing 56.8 ml. of a greenish indicator solution. Also supplied is a small glass testing bottle with a plastic cap. A sample of aquarium water is taken and two drops of indicator solution are added. After shaking, the colour of the water and indicator are compared with a colour chart on the carton of the outfit. A p.H. range of from 6.2 to 7.4 can be read off. Two other items for use in conjunction with the tester outfit are the K.B. "p.H. Adjuster—Alkalinity", and "p.H. Adjuster—Acidity". Each costs 4s. 9d. Although the names are rather confusing, the acidity adjuster is used to lower the p.H. of aquarium water, i.e. to render it more acid, and the alkalinity adjuster is used to raise the p.H., i.e. to render the water more alkaline. Each contains a white chemical which is added in small amounts to the aquarium water, and allowed to sit for twelve hours. The p.H. is again read, and if necessary, more of the appropriate compound may be added. This process should be done gradually until the desired p.H. is reached. Sudden changes in the p.H. of the water in an aquarium can be very harmful to both fish and plants, and care should be taken to see that any changes which are made are done gradually. It is often difficult to maintain a fixed p.H. in aquarium water, and adjustments may have to be made at certain intervals. Although most fish and plants can tolerate a fairly wide p.H. range, each has an optimum level, and each will do best if this level is applied. I hope to review other items in this range when I obtain them. B.W.

**Grolux Fluorescent Tubes:** Smart & Brown Lighting Limited, Mitcham, Surrey, are pleased to announce three new additions to their range "Grolux" Fluorescent Tubes: 21 in. 13 watt—½ in. dia.; 15 in. 14 watt—1 in. dia.; 12 in. 8 watt—¾ in. dia.

The above tubes are ideal for the smaller Aquaria and suitable control units are also available. Supplies are obtainable through your normal Wholesale/Retail Stockist.

## Book Review

"KEEPING MARINES", compiled by G. H. Jennings, Fellow of the International Marine Study Society and Member of the Marine Biological Association of the United Kingdom.

All too often we read of books that purport to be the final word in aquatic literature, and it is therefore refreshing to study a publication which makes no claim on this score, but leaves the reader to decide on its merits or non-merits, whichever the case may be. In the book 'Keeping Marines' I was initially impressed by the attitude of its editor who, in his opening paragraph, states "This booklet is not intended to be a comprehensive guide to those wishing to keep marine fish. I have always maintained, and probably always shall do, that such a book cannot exist." (my italics).

'Keeping Marines' is an extremely low-priced publication on a constantly expanding section of our hobby, and if only for the lack of other books on its specialist subject is probably worth purchasing. It does, however, have its own literary merits, and to my mind crams more useful information into its 30 pages than some books ten times its size and five times its price.

Articles are included on essential basic information for



the novice mariner, a review of semi-natural marine systems, ozone, green algae, medicine chests for the marine aquarist, marine community aquariums, and items on various species suitable for a marine tank, including scats, pipe fish, seahorses, etc.

'Keeping Marines' may be purchased direct from the publishers, Messrs. North Agencies, 2 Gatcombe Road, Tufnell Park, London, N.19, at a price of 5/11d. (post free) and from a society library and individual point of view is a bargain not to be missed. M.J.P.

There is quite a variety of specialist books available on the guppy. Three soft cover books, which are good value for money, costing only a few shillings each, are available from The Pet Library (London) Limited, 30 Borough High Street, London, S.E.1. The books are: "Enjoy Your Guppies", by Carroll Friswold (32 pages, with diagrams and excellent colour photographs); "Enjoy Your Fancy Guppies", by the same author, with the same number of pages and with equally as good diagrams and colour photographs; and "Know Your Guppies", by Albert J. Klee (a larger book with 64 pages and useful diagrams and excellent colour photographs).

Each of the books is very good value for money and will be most useful to the guppy breeder. The two smaller books are in their third or fourth printing, and the photographs have recently been brought up to date with the introduction of some of the more recent guppies which are being bred over the world. The text is both interesting and instructive, and gives many useful pointers for the beginner to ensure

that he makes the best use of the stock which he has available. The books would be most interesting for their colour photographs on their own. They show a wide selection of guppies, from the wild species to many of the most recently introduced. These are enough to make my mouth water, living, as I do, in N. Ireland, where it is impossible to obtain good quality stock.

The larger book, "Know Your Guppies", by Albert J. Klee, is a much more comprehensive book on guppy breeding. It contains a wealth of information for the guppy breeder, especially the more advanced breeder. Mr. Klee has obviously had a lot of experience with guppies, and has the gift of explaining his subject matter in simple terms. He has managed to make the subject of genetics in the guppy both interesting and comprehensible to the average reader. He gives useful information on inheritance and outlines some clearly defined breeding programmes which the earnest breeder can follow towards success. These programmes are well illustrated by simple diagrams which take much of the mystery out of what has been, for some time, a complicated scientific exercise, for the average aquarist. Some of the other topics covered in this book are diseases of guppies, the use of hormones in female selection and the effects of different hormones on both male and female fish, the routine care of guppies, etc.

Any one of these books would be most useful to the serious guppy breeder, or for the beginner. In fact, all three books should be read by anyone who is keen on guppies, and the photographs will certainly set a high standard for which the breeder may aim. B.W.

## News

## from AQUARISTS' SOCIETIES

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

**THE Bracknell A.S.** open show results were as follows: Barbs: 1, Mr. Grosvenor; 2, M. Carter; 3, C. Pike; 4, L. Jordan. Characins: 1, R. Cooper; 2, J. Pollard; 3, Mrs. R. Greenhalf; 4, B. Crooks. O.A.S. Cichlids: 1 and 4 M. Davies; 2, J. Stillwell; 3, A. Peppert. Angels: 1, J. Peters; 2, Mr. Fiander; 3, Mrs. J. Roberts; 4, R. Thomas. Dwarf cichlids: 1, Mr. Grosvenor; 2, A. Blake; 3, J. Pollard; 4, S. Wood. Labyrinths: 1, A. Blake; 2, Mrs. R. Greenhalf; 3, Mr. Wynd; 4, H. Gough. Egg-laying Toothcarps: 1 and 3, Mr. Tarrant; 2, H. Gough; 4, Mr. Cruickshank. A.O.S. Catfish: 1, D. Eaton; 2, T. Summers; 3, G. Smith; 4, Mr. Cruickshank. Corydoras Brochis: 1, J. Norris; 2, T. Summers; 3, Master T. Berryman; 4, G. Greenhalf. Rasbora: 1, J. Pollard; 2, B. Crooks; 3, P. Merritt; 4, A. Blake. Danio and Minnow: 1, A. Blake; 2, M. Carter; 3, Mrs. R. Greenhalf; 4, B. Johnson. Loach: 1, L. Little; 2, M. Carter; 3, L. Jordan; 4, A. Marshall. A.O.S. Egg-layers: 1, J. Peters; 2, A. Blake; 3 and 4, R. Thomas. Male Guppy: 1, P. Merritt; 2, T. Duffy; 3, A. Keith; 4, A. Blake. Female Guppy: 1, Mrs. R. Greenhalf; 2, T. Duffy; 3, A. Blake; 4, M. Davies. Sword-tails: 1, M. Carter; 2, Mr. Larder; 3 and 4,

Master Tom Berryman. Platies: 1, C. Pike; 2, L. Little; 3, M. Davies; 4, T. Summers. Mollys: 1, J. Stillwell; 2, D. Wells; 3, H. Gough; 4, Mr. Tarrant. A.O.S. Livebearers: 1, Mr. Cooper; 2, A. Blake; 3 and 4, G. Greenhalf. Breeders (Egg-layers): 1, R. Cox; 2, Mr. Grosvenor; 3 and 4, Mr. Tarrant. Breeders (Livebearers): 1 and 4, L. Little; 2, R. Cox; 3, H. Woods. Sexable Pairs: 1, J. Pollard; 2, A. Blake; 3, R. Thomas; 4, C. Pike. Single Tail Goldfish: 1, R. Dudley; 2, J. Kempley; 3 and 4, D. Ridgley. A.O.S. Coldwater: 1, R. Dudley; 2, J. Stillwell; 3, Master M. Ridgley; 4, D. Arkell. Twin Tailed Goldfish: 1, R. Dudley; 2, A. Marshall; 3, L. Jordan; 4, A. Marshall. Rooted Plants: 1, 3 and 4, G. Greenhalf; 2, B. Johnson. Cuttings Plants: 1, T. Duffy; 2, G. Greenhalf; 3, M. Carter; 4, R. Dove. Mini Aquaria: 1, T. Duffy; 2, Leo Jordan; 3, J. Taylor; 4, M. Carter. Best Fish in Show: H. Paclator owned by M. Davies of Reading A.S. F.B.A.S. Trophy awarded to the Best Barb was won by a Schubert owned by Mr. Grosvenor. The Society would like to thank everyone who exhibited at the Show and especially the Judges and everyone who helped make the show a success.

A QUIZ show with colour slides was the attraction at the July meeting of the **Bishops Cleeve A.S.** The table show as Breeders Livebearers—teams of four: 1, C. Scrivn; 2, N. Binding; 3 and Highly commended, D. Stevens. The resident judge M. Stray then showed how he had assessed the points.

A VARIED programme is being enjoyed by **Wolverhampton and D.A.S.** Lectures on such topics as: "Breeding the Barbs"; "Aquarium Plants"; "The Fancy Guppy"; "Breeding Live Foods"; "Aquarium Literature", etc., have been very well received, and appreciated. Various Sunday trips to the Aquatic establishments and shows, have been well supported and are extremely popular. The Society's visit (fifty-four in the party) to the Exhibition at Alexandra Palace was very much enjoyed.

Having won the "Decorative Aquaria" Class at the recent M.A.A.S. Convention, high hopes of "being in the cards" are held regarding this year's M.A.P. Show in Birmingham.

Leading the Society's Table Show Classes, so far this year, are, Class "A": Reg Crutchley; Class "B": Ken Teddill.

The Juniors have also been prominent, in all the Society's activities, and are busy making preparations for the evening when they take over, and show the Adult members how it's all done. Meetings are always very friendly, and the aim of the members is always to help one another.

Visitors and new members are assured of a warm welcome at 8 p.m. on the first and third Tuesday of each month at premises over 8 Worcester Street, Wolverhampton.

**THE Dagenham Town Show** results were as follows: Furnished Aquaria—Club: 1, Ilford and District A. & P.S.; 2, Ilford and District A. & P.S.; 3, Walthamstow and District A.S. Furnished Aquaria—Individual: 1, D. Durrant (Tharrock A.C.); 2, Mrs. J. Twine (Walthamstow and District A.S. Breeders Livebearers); 1, B. T. Mather, Walthamstow and District A.S.; 2, L. R. Baker (East London A. & P.A.);



3, G. Greenhall (Kingston and District A.S.).  
 Breeders Egg-layers: 1, W. Corby (East London A. & P.A.); 2, G. Green (East London A. & P.A.); 3, D. Durrant (Thurrock A.C.). A.V. Sword-tails and Platies: 1, B. T. Mather (Walthamstow and District A.S.); 2, W. Corby (East London A. & P.A.); 3, Mrs. J. I. Arrows (East London A. & P.A.). A.V. Mollies: 1, M. Smith (Walthamstow and District A.S.); 2, R. L. Passmore (Southend and Leigh and District A.S.); 3, Miss Claire Durrant (Thurrock A.C.). A.O.V. Livebearers: 1, Mrs. R. Greenhall (Kingston and District A.S.); 2, D. Durrant (Thurrock A.C.); 3, G. Greenhall (Kingston and District A.S.). Dwarf Cichlids: 1, J. A. Pollard (Kingston and District A.S.); 2, W. Corby (East London A. & P.A.); 3, B. Nicol (Thurrock A.C.). A.O.V. Cichlids: 1, R. P. Ruth (Ilford and District A. & P.S.); 2, R. L. Passmore (Southend and Leigh and District A.S.); 3, B. T. Mather (Walthamstow and District A.S.). A.V. Barbies: 1, R. Argent (East London A. & P.A.); 2, W. D. Harper (Kingston and District A.S.); 3, Mrs. S. Hodges (Unaffiliated). A.V. Danio, Mountain Minnow and Rasbora: 1 and 2, E. Nicol (Thurrock A.C.); 3, Mrs. J. A. Pollard (Kingston and District A.S.). A.V. Labryrinth: 1, Mrs. M. Tucker (Unaffiliated); 2, D. Edwards (Southend and Leigh and District A.S.); 3, W. Corby (East London A. & P.A.). A.V. Characins: 1, R. Kerridge (Harlow A.S.); 2, J. A. Pollard (Kingston and District A.S.); 3, R. Argent (East London A. & P.A.). A.O.V. Tropical Fish Egg-layers: 1, Mrs. M. Tucker (Unaffiliated); 2 and 3, R. Kerridge (Harlow A.S.). A.V. Egg-laying Tooth Carp: 1 and 3, G. Green (East London A. & P.A.); 2, L. P. Baker (East London A. & P.A.). A.V. Aquaria Plant: 1 and 3, B. T. Mather (Walthamstow and District A.S.); 2, G. Greenhall (Kingston District A.S.). Junior Tropical Coldwater: Claire Durrant (Thurrock A.C.); 2 and 3, Martin Burgess (Unaffiliated). Condon Goldfish and Condon Shubunkins: 1 and 2, H. G. Berger (Ilford and District A. & P.S.); 3, J. Groves (East London A. & P.A.). Single Tail Goldfish and Comets: 1 and 2, H. G. Berger (Ilford and District A. & P.S.); 3, C. F. Lene (Unaffiliated). A.O.V. Fancy Goldfish: 1, R. Anderson (Unaffiliated); 2, H. G. Berger (Ilford and District A. & P.S.); 3, J. Groves (East London A. & P.A.). The cup for the club with the highest number of points was won by East London.

FORMED in 1951 the High Wycombe A.S. staged their First Annual Open Show independently of any other event early in July. From a Competitors point of view it was an outstanding success with nearly 600 exhibitors. The public showed great interest with well over 700 people turning up in pouring rain to view the various tanks and jars filled with fish.

The Chairman of the F.B.A.S. presented the Engraved Trophy for Best Fish in show to P. Arnould of Hackney for his entry of a Botia Loha Chata. The Turner Trophy for the High Wycombe member with the highest points was awarded to Mrs. Anne Seed, and the Anne Seed Rosebowl for the best Goldfish in show went to A. W. Smith. S. G. Tarrant won the "67 Committee" trophy for Best Breeders Egg-layers and L. G. Little the "68 Trophy" for First Breeders Livebearers, whilst R. Dudley of Wimbledon became the first holder of the "69 Bovingdon" trophy with his entry of Globe Eyes in the breeders-coldwater class. The best Characin owned by R. S. C. Wingrove won him the Chatfield Trophy. Results: Tropical Fish: A.V. Platy: 1, C. Beavis; 2, L. Little; 3, T. Erey; 4, J. Gower. A.V. Swordtail: 1, P. Abbot; 2, R. Wingrove; 3, J. Healey; 4, R. Cox. A.O.V. Livebearer (ex. Guppies): 1, R. Cooper; 2, M. Carter; 3, T. Summers; 4, B. Funnell. Characin hemigrammus, Hyphessobrycon and Chelodons: 1, R. Wingrove; 2, J. Gower; 3, C. Pike; 4, J. Kempley. Characin, A.O.V.: 1, R. Cooper; 2, H. Wood; 3, Mrs. D. Crickshank; 4, A. Blake. Danio, Rasbora and Minnow: 1, J. Gower; 2, M. Carter; 3, B. Funnell; 4, P. Merritt. Barbies: 1, P. Grosvenor; 2, M. Carter; 3, J. Healey; 4, A. Wilkinson. Corydoras Catfish: 1 and F.B.A.S. Plaque, D. Lader; 2, J. Norris; 3, T. Summers; 4, R. Cox. A.O.V. Catfish and Loaches:

1, P. Arnould; 2, C. Pike; 3, M. Carter; 4, G. Smith. Cichlids: 1, Mr. and Mrs. Sellwell; 2, L. Jordan; 3, R. Field; 4, J. Bird. A.O.V. Egg-layer: 1, S. Tarrant; 2, A. Blake; 3, C. Waldford; 4, Mr. and Mrs. A. Jeffs. A.O.V. Labryrinth: 1, J. Bird; 2, A. Wynn; 3, T. Golland; 4, A. Blake. Breeders Livebearers: 1 and 4, L. Little; 2 and 3, H. Wood. Breeders Egg-layers: 1, S. Tarrant; 2, P. Grosvenor; 3 and 4, R. Cox. Pair of Breeding Fish: 1, S. Tarrant; 2, C. Beavis; 3, C. Pike; 4, A. Horwood. Guppies: Best Male, F. Hall; Best Female, G. Wheeler; Best Breeders, G. Wheeler. Goldfish: Singletails: 1, 2 and 3, K. Speaks; 4, Mrs. A. Seed. Twintails: 1, 2 and 3, A. Smith; 4, L. Roberts. Globe Eyes, Brambleheads, Pseudocoras, Celestials, Pom-Poms and Bubble-tails: 1, J. Leaver; 2, R. Dudley; 3 and 4, Mrs. A. Seed. Common Goldfish and Comet tails: 1, 2 and 3, V. Voysey; 4, J. Kempley. Broadleaves, Morse, Grand Pears: 1 and 2, Mrs. A. Seed; 3, A. Smith; 4, C. Beavis. Breeders Goldwater: 1 and 2, R. Dudley; 3, A. Smith; 4, C. Beavis. A.O.V. Goldwater: 1, Mr. and Mrs. A. Sellwell; 2, R. Dudley; 3, H. Thomson; 4, V. Hunt. Club Furnished: 1 and 2, High Wycombe; 3, Ialing. Individual Furnished: 1, Mrs. S. Thomas; 2, D. Schramm; 3, Mrs. O. Wilkinson; 4, Mrs. J. Cleaves.

THE Hounslow and District A.S. has its plans well under way for this year's open show in an effort to achieve a well-organised event. The show schedule this year is the first to be drafted to F.B.A.S. specifications, and with this it is hoped to achieve standard classifications of classes at all open shows.

A very successful time is being had at the fortnightly meetings, with a large number of very good lectures in recent months. Social events have also been arranged regularly. A coach trip to Bosmermouth on the day of their open show was especially successful, members having a good day by the beach and at the show.

The club shows are being well supported. Results at recent meetings were: Corydoras Catfish: 1, C. Bance; 2, J. Bannion; 3, D. Brook. A.O.V.: 1 and 3, H. Abbott; 2, C. Bunce. Labryrinth: 1 and 2, Mrs. R. Brewer; 3, M. Dear. Barbies: 1 and 3, R. Bush; 2, R. Nelhaus. A.O.V. Catfish: 1, J. Dobinson; 2, B. Callow; 3, R. Blackwell. Livebearers: 1, M. Heaver; 2, R. Abbott; 3, B. Callow.

THE Reigate and Redhill A.S. meetings have continued to be well attended this year and have provided a varied programme of talks, slide shows and discussions on a wide range of subjects. Early in June the Society's president, Ken Pascott, gave a lecture on the Koi Carp, illustrated with a selection of slides; he also brought along a dozen examples of Koi to demonstrate the many colour varieties available.

A talk by Ted Jessop on Native Marine Creatures was also very well received; his ability as a raconteur, not merely on the subject of marine creatures made the evening both interesting and amusing. This talk also provided a good background for the Society's visit to Brighton for what has now become known as the "Annual Brighton Jaunt". The aim of this meeting is to collect plants and animals from the rockpools and display them in 18 in. x 10 in. x 10 in. tanks set up on the beach in a competition for the best furnished aquarium, using only specimens collected on the beach. About thirty members met at Blackrock at 8 p.m. on the 30th June to take part, and although the participants undertook the collecting with typical enthusiasm, the competition was not taken too seriously and provided an excellent opportunity for those present to enjoy a pleasant summer evening in Brighton.

The show season has been fairly successful for the Society with several members regularly exhibiting at open and inter-club shows and a respectable total of awards to show for their efforts. Plans are well advanced for the Reigate and Redhill A.S. Open Show at the Cotman Institute, Redhill, on Sunday, 7th September. Schedules are available from Steve Perham, 5 Bolsover Grove, Merstham, Surrey.

AT the July monthly meeting of Castleford and District A.S. a lecture on fishfood and feeding was presented by G. Banks of Goole. The members enjoyed the talk and appreciated the fund of good information passed on by the speaker. Results of Table Show: Plants: 1, Mr. and Mrs. Gates; 2, A. Town; 3, J. Kendrew. Fancy Goldfish: 1, C. Asquith; 2, J. Heptinstall; 3, A. Town. Danios and Rasboras: 1, C. Asquith; 2, I. Heptinstall; 3, J. Kendrew. During the summer recess meetings will be held weekly at the Star and Garter Hotel, Aire Street, Castleford.

THE first anniversary of the West Cumberland Aquarist Club was held early in July when twenty seven members were present. The Chairman, S. Martin, gave a report on the first year's activities and expressed his pleasure regarding the steady increase in membership (seven members attended the first meeting in July, 1968). A film show on Cichlids proved to be very interesting and enlightening, the slides were some of the best shown by the Club. It is also hoped to combine with the Brampton Cichlid Club and stage an Annual Open Show, which would be the very first for this County. Mid-May 1970 is the suggested date, venue Carlisle. Result of the Table Show held in July. Two sections: Guppies: 1, R. Strand; 2, J. P. Ward; 3, W. Frain; 4, S. Martin. Catfish: 1, L. Sharp; 2, J. Parker.

TWENTY TWO members were present at the July meeting of the Barnsley Tropical Fish Society. The table show was won by C. Claypole who also came second Mrs. B. Deaves was third. Raffle won by B. Betton and A. Simpson and I. Brown of Mableton's Pet Store ran a Twenty Questions Quiz. Meetings will now be held on the second and fourth Tuesday in the month. They will start at 7.30 p.m. in the Alambra Hotel and anyone wishing to attend will be most welcome. For further information please contact Mrs. F. M. Howard, 67 Woolley Colliery, Darton, Nr. Barnsley.

THE Northwick and District A.S. first Open Show was a success and the results were as follows: Guppies: 1, 2 and 3, Mr. and Mrs. Webb (Salford A.S.). Swordtails: 1, C. Davies (N. and D. A.S.); 2, R. Antonio (N. and D. A.S.); 3, W. D. Valentine (N. and D. A.S.). Mollies: 1, B. Bewick (Warrington A.S.); 2, A. D. and E. Wood (Rotherham); 3, P. Thompson (Wrexham). Platies: 1, Mr. and Mrs. Webb (Salford A.S.); 2, Mr. and Mrs. Hogarth (Salford A.S.); 3, B. Pearson (N. and D. A.S.). Section Winner: B. Bewick (Warrington A.S.). Barbies (up to 3 in.): 1 and 2, Mr. Tibson (Chester A.S.); 3, Miss B. Kaye (Huddersfield). Barbies (over 3 in.): 1, R. Antonio (N. and D. A.S.); 2, R. Adamson; 3, M. Palin (N. and D. A.S.). Section Winner: R. Antonio. Characins (up to 3 in.): 1, Mr. Cass (Macclesfield A.S.); 2, R. Dutton (Chester A.S.); 3, P. Thompson (Wrexham A.S.). Characins (over 3 in.): 1, R. Adamson; 2, P. Acton. Section Winner: R. Adamson. Fighters: 1, C. and M. Raybould (Rotherham A.S.); 2 and 3, C. Bowyer (Chester A.S.). A.O.V. Anabantids: 1, B. Bewick (Warrington A.S.); 2, H. Bockley (N. and D. A.S.); 3, L. Thorne (N. and D. A.S.). Section Winner: C. and M. Raybould (Rotherham). Dwarf Cichlids: 1, R. Dutton (Chester A.S.); 2 and 3, M. Summers (N. and D. A.S.). Angels: 1, L. Ashbrook (N. and D. A.S.); 2, B. Pearson (N. and D. A.S.); 3, R. Antonio (N. and D. A.S.). Section Winner: R. Dutton (Chester A.S.). Carps and Minnows: 1, M. Palin (N. and D. A.S.). Danios and Rasboras: 1, L. Thorne (N. and D. A.S.); 2, B. Pearson (N. and D. A.S.); 3, B. Bewick

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(Warrington A.S.) Sharks and Flying Foxes: 1, B. Bewick (Warrington A.S.); 2, Mr. Cass (Macclesfield); 3, M. Summers (N. and D. A.S.). Section Winner: B. Bewick (Warrington A.S.). Small Catfish: 1, M. Summers (N. and D. A.S.); 2, Mr. Tilton (Chester A.S.); 3, Mrs. S. Conley (N. and D. A.S.). Large Catfish: 1 and 2, R. Antonio (N. and D. A.S.); 3, M. Summers (N. and D. A.S.). Loaches: 1 and 3, Mr. and Mrs. Webb (Salford); 2, I. Ashbrook (N. and D. A.S.). Section Winner: R. Antonio (N. and D. A.S.). A.O.V. Tropical: 1, Mr. and Mrs. Webb (Salford); 2, L. Thorne (N. and D. A.S.). Section Winner: Mr. and Mrs. Webb (Salford). Pairs (Livebearers): 1, Mr. and Mrs. Hogarth (Salford A.S.); 2, B. Bewick (Warrington A.S.); 3, H. Buckley (N. and D. A.S.). Pairs (Egglayers): 1, R. Dutton (Chester A.S.); 2, Mr. Tilton (Chester A.S.); 3, H. Buckley (N. and D. A.S.). Section Winner: R. Dutton (Chester A.S.). Breeders (Livebearers): 1, Mr. and Mrs. Hogarth (Salford A.S.); 2, P. Acton. Breeders (Egglayers): 1, R. Dutton (Chester A.S.); 2, C. Bowyer (Chester A.S.); 3, Master A. Kaye (Huddersfield). Section Winner: R. Dutton (Chester A.S.). Common Goldfish: 1, Master A. Kaye (Huddersfield A.S.); 2, K. and J. Raybould (Rotherham A.S.). Fancy Goldfish: 1 and 2, Mrs. S. Conley (N. and D. A.S.). A.O.V. Coldwater: 1, Master A. Kaye (Huddersfield A.S.). Section Winner: Mrs. S. Conley (N. and D. A.S.). Junior Section: 1 and 2, Master A. Kaye (Huddersfield A.S.); 3, Miss B. Kaye (Huddersfield A.S.). Section Winner: Master A. Kaye (Huddersfield A.S.). Winner of the "Thorn" trophy for "Best Fish in Show" was a Severum Gichlid owned by R. Dutton (Chester A.S.). Best Livebearer other than best fish in show: Winner: B. Bewick (Warrington A.S.) who won the "Russell-Alen" trophy. The "Hyland" trophy (Best fish by Northwich member other than best fish in show) and the "Benoy" trophy (Northwich member gaining most awards) was won by Robert Antonio. With 78 points Northwich and D. A.S. won the "Interpet" trophy for the Society gaining the most points overall.

The fifth open show of the **Barnsley Tropical Fish Society** was a great success with over 500 entries from 34 societies. B. Phillips from Ashton-under-Lyne won Best Fish in Show with a Characin. The following were the results: Guppies: 1, 2 and 3, W. J. Orton (Salford). Platies: 1, J. A. Whyteley (Aireborough); 2, D. Trace (Ashton); 3, A. G. Bateva (Top Ten). Swordtails: 1, N. R. Gibson (Huddersfield); 2, L. Kaye (Top Ten); 3, M. Jones (Valley). Mollies: 1, J. Murray (Salford—Section Winner); 2, Mr. and Mrs. J. Brown (Mixenden); 3, B. Pickles (Keighley). Small Characins: 1, M. Jones (Valley); 2, P. Buxton (Barnsley); 3, R. Walker (Sheffield). A.O.V. Characins: 1, R. Phillips (Ashton—Section Winner); 2, J. A. Whyteley (Aireborough); 3, N. Turner (Mixenden). Dwarf Cichlids: 1, N. R. Gibson (Huddersfield); 2, R. Walker (Sheffield); 3, L. Kaye (Top Ten). A.O.V. Cichlids: 1, D. Kennedy (Bradford—Section Winner); 2, Mr. Taylor (Aireborough); 3, P. Booth (Wakefield). Barbs: 1, P. Buxton (Barnsley); 2, J. A. Whyteley (Aireborough); 3, F. E. Gregory (Osram). A.O.V. Barbs: 1, J. A. Whyteley (Aireborough); 2, M. Jones (Valley); 3, Mr. and Mrs. J. Brown (Mixenden). Catfish and Loach: 1, Mr. Holdsworth (Privateers); 2, Mr. Rhodes (York); 3, D. Kennedy (Bradford). Siamese Fighters: Mr. Anson (Stocksbridge); 2, C. and M. Raybold (Rotherham); 3, M. Asquith (Castleford). Anabantids: 1, W. J. Orton (Salford); 2, L. Kaye (Top Ten); 3, A. B. White (Keighley). Danios, Rasboras and Minnows: 1, Mr. Ormester (Southport); 2, A. Simpson (Barnsley); 3, Mr. Asquith (Castleford). Egglaying Toothcarps: 1, D. Jackson (Dukeries); 2, Mr. Greyst (Sunnybrow); 3, Mr. and Mrs. J. Brown (Mixenden). Breeders (Livebearers): 1, W. J. Orton (Salford); 2, G. Monk (Aireborough); 3, R. Healey (Barnsley). Breeders (Egglayers): 1, R. Walker (Sheffield); 2, R. Healey (Barnsley); 3, P. Buxton (Barnsley). A.O.V. Tropical: 1, D. Kennedy (Bradford); 2, M. J. and S. Allison (York); 3, B. Pickles (Keighley).

Livebearers (Pairs): 1, W. J. Orton (Salford—Section Winner); 2, G. Thickbroom (Castleford); 3, Mr. and Mrs. Bosc (Huddersfield). Egglayers (Pairs): 1, Mr. Greyst (Sunnybrow); 2, Mr. Reynolds (Swillington); 3, N. R. Gibson (Huddersfield). Sharks and Flying Foxes: 1, R. Walker (Sheffield); 2, N. R. Gibson (Huddersfield); 3, Mr. and Mrs. J. Brown (Mixenden). Goldwater: 1, J. Hooper (Valley); 2 and 3, Mr. Jaden (Sheffield). A.O.V. Characins—Best Fish in Show: B. Phillips (Ashton).

**MEMBERS** of Swillington A.S. have been quite busy recently, for, apart from their normal aquatic activities, they have held a car rally and put on a display of fish and furnished tanks at Swillington County Primary School's open day in aid of the school's swimming pool fund. Entertainment at the recent meetings has been a quiz organised by W. Emmett; a new form of taped talk, by P. Reynolds, on newly imported fish species; and a discussion on aspects of fish breeding by G. Binks, who also answered members' questions on the subject.

**THIRTY-ONE** members were present at the July meeting of the **Bourne-mouth Aquarists Club**. After the Secretary read the minutes of the previous meeting, a general discussion took place about the recent open show, and several suggestions were put forward for improvements. During the interval, the Table Show of the Month was judged very ably by Bob Brown of the Salisbury and District A.S. with the following results: A.V. Mollies: 1, R. Travers; 2, Mr. Watkins; 3, Mr. Greenhalgh. Labyrinth (except Fighters): 1, Mr. Ryan; 2, Mr. Watkins; 3, Mr. Sample. After the interval, enthusiastic Marine fishkeepers discussed their side of the hobby with Freshwater enthusiasts.

At the last meeting of **Tonbridge and District A.S.** members were entertained by a slide show "Rivular Top Spawners" hired from the B.K.A. The table shows were for Fighters, won by Ian Marchison, and sexual pairs of Livebearers, won by Ron Taylor. The number of entries for the Fighter class was low, but a club record of 23 was achieved in the pairs.

The policy of the **Harlech A.S.** has always been to attract the very best of speakers to its monthly meetings, and its pursuit of this aim was much rewarded at its July meeting, when the guest speaker was Dr. Neville Carrington, Managing Director of Iner-Pet Ltd., Dorking, Surrey. Lecturing on the theme "Modern Techniques in Fishkeeping" Dr. Carrington spoke for over one hour, and even during the lengthy refreshment break was unable to break away from enthusiastic members, who surrounded him on all sides, anxious to obtain his authoritative views on almost every aspect of the aquatic hobby. The Harlech society meets on the third Tuesday of each month at the Gaballa Junior School, Colwell Road, Cardiff, and amongst forthcoming speakers are Mr. R. McN. Alexander (Professor of Zoology, University of Leeds), Mr. Barry R. James (Proprietor, Chesham Aquatics) and Mr. S. P. Dance (Assistant Keeper of Zoology, National Museum of Wales). The secretary is Mr. M. J. Parry, 57 Carreau Court Road, Cardiff.

The July meeting of the **Hereford and District A.S.** was also an inter-club meeting with Cladwell A.S. Interesting discussions took place and it was tentatively agreed to hold another inter-club meeting in September. The table show was for Mollies, Male Fishers, Angels and Platies, with a card prize for each class winner and a special prize for the overall best fish in the show.

OWING to increased membership the **Northwich and District A.S.** have taken larger premises and now meet on the first Thursday in every month at the Co-operative Hall, Earham Green Lane, Earham, Norwich, at 8 p.m. The Society has been very fortunate in securing as its president, Mr. Philip Wayne, whom readers will remember from television and his award

winning film "Wind on the Heath". A trophy known as the "Philip Wayne Annual Trophy" is being presented each year to the member gaining the most points in the monthly table shows and it is hoped to present this trophy at the Society's first dinner and dance to be held on 5th December. The Society organised a coach trip to Alexandra Palace for the recent show, a day which was enjoyed by all.

**EARLY** in July **Littlehampton and Bognor A.S.** were visited by **Runnymede A.S.** The idea of the visit was to combine an inter-club show with a day on the beach. Unfortunately the rain poured down all day, but it may have been of some consolation to the Runnymede members that they won the interclub show with one point. The 67 entries were judged by H. Armitage of Portsmouth and the results were as follows: Guppies: 1, Mr. Henderson (Runnymede); 2, Mrs. Carroll (Runnymede); 3, and 4, Mr. Carruthers (Littlehampton). Barbs: 1, Mr. Hollis (Littlehampton); 2, Mr. Vermette (Littlehampton); 3, Mr. Carruthers (Littlehampton); 4, Mr. Terry (Runnymede). A.O.V. Livebearers: 1 and 3, Mr. Cairns (Runnymede); 2, Mr. Terry (Runnymede); 4, Mr. Carruthers (Littlehampton). Labyrinth: 1, Mr. Tye (Littlehampton); 2, Mr. Hollis (Littlehampton); 3, Mr. McDowall (Runnymede); 4, Mr. Gallop (Littlehampton). Characins: 1, Mr. Richardson (Runnymede); 2, Mr. Carruthers (Littlehampton); 3, Mr. McDowall (Runnymede); 4, Mr. R. Smith (Littlehampton).

**THE Wellingborough and District A.S.** heard a talk by Mr. Jeffs of Bedford on breeding and showing tropical fish. He spoke of fish he had bred and showed and described in detail how to breed angel fish. There were two table shows, one for Coldwater fish and one for Tropical Pairs. Results were: Coldwater section (Judge P. Flint): 1, A. Tupman; 2, A. Tupman; 3, L. Love. Tropical Pairs (Judge Mr. Jeffs): 1, Mrs. H. Skerritt; 2, P. Skerritt; 3, P. Flint.

AN extremely successful open show was held by the **Bristol Tropical Fish Club** recently. It was with extreme regret some late entries had to be declined due to a very large entry list despite last minute buying of extra aquariums to accommodate the maximum possible. Best Fish in the Show went to Mrs. C. Little with a *Velfera Moly*.

Results were as follows: Siamese Fighters: 1, F. Brown; 2, A. Ibberson; 3, M. Taylor. Labyrinth: 1, Mrs. M. Gadd; 2, H. Mustalik; 3, Mrs. C. Little. Barbs: 1, F. Brown; 2, M. Thompson; 3, R. Watts. Hemi, and Hyph.: 1, D. Noble; 2 and 3, Mrs. P. Kimber. A.O.V. Characins: 1, T. Green; 2, E. Newman; 3, R. Chapman. Angels: 1, M. Taylor; 2 and 3, E. Newman. Dwarf Cichlids: 1, H. Mustalik; 2, E. Newman; 3, M. Butcher. A.O.V. Cichlids: 1, R. Watts; 2, T. Green; 3, Mrs. C. Little. Cory Catfish: 1, F. Brown; 2, G. Furber; 3, Mrs. C. Little. A.O.V. Catfish: 1, T. Green; 2, J. Willett; 3, D. Noble. A.V. Danios: 1, G. Furber; 2, M. Thompson; 3, M. Butcher. Sharks and Loaches: 1, J. May; 2, Mrs. C. Little; 3, G. Furber. A.O.V. Tropical Fish: 1, V. Smith; 2, D. Hodling; 3, Mrs. P. Chapman. Swordtails: 1, D. Pluck; 2, R. Hemming; 3, R. Day. Mollies: 1 and 2, Mrs. C. Little; 3, M. Winfield. Platies: 1, G. Furber; 2 and 3, F. Brown. Breeders Egglayers: 1, H. Mustalik; 2, F. Brown; 3, B. Clark. Breeders Livebearers: 1, M. Taylor; 2, R. McMullen; 3, J. May. Guppies, Long Tail: 1 and 2, J. Wheeler; 3, L. Littleton. Guppies, Short Tail: 1, 2 and 3, M. Taylor. Guppies, Female:

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1 and 2, J. Wheeler; 3, Mrs. D. Western. A.V. Seeded Pairs: 1, B. Barnshaw; 2, H. Musilik; 3, D. Gould. A.V. Egg-layers (Junior): 1, J. Howe; 2, P. Felski; 3, Miss B. McMullin. A.V. Livebearers (Junior): 1, P. Felski; 2 and 3, P. Knight. Individual Furnished Aquaria: 1, L. Littleton; 2, Mrs. I. Stone; 3, Mrs. J. Smith.

**THE Open Show results of the Leamington and District A.S. were:** Breeders (Egg-layers): 1, L. W. Ball (Atherstone); 2, B. and P. Hunt (Coventry); 3, Mr. and Mrs. Highfield (Wednesbury); 4, F. Underwood (Leamington). Breeders (Livebearers): 1 and 2, Mr. and Mrs. Delves; 3 and 4, R. Trippas (North Warwick). Barbs (under 3 in.): 1, Messrs Edkins and Pagett (Nuneaton); 2, L. W. Ball (Atherstone); 3, Mrs. J. K. Smith (Leamington); 4, S. Woodbridge (Coventry). Barbs (over 3 in.): 1, L. C. Wilkes (Haden Select); 2, F. Underwood (Leamington); 3, S. Dean (Tamworth K.A.S.); 4, R. J. Hough (North Warwick). Dwarf Cichlids: 1, Mr. Ashby (Bedworth); 2, Mr. and Mrs. Simpson (Bedworth); 3, R. C. Roberts; 4, A. Whitman (Rugby). Large Cichlids: 1, R. J. Hough (North Warwick); 2, P. M. Taggart (Leamington); 3, A. J. Hiron; 4, R. Trippas (North Warwick). A.V. Anabantids: 1, D. Emery (Haden Select); 2, A. J. Hiron; 3, Mr. and Mrs. Delves; 4, F. Underwood (Leamington). Guppies: 1 and 2, A. Whitman (Rugby); 3, S. Dean (Tamworth K.A.S.); 4, Mr. Trotman (Atherstone). Killifish: 1, E. Shakespeare (Bedworth); 2, L. W. Ball (Atherstone); 3 and 4, Mr. and Mrs. Aucott (Nuneaton). Plants: 1, Mr. and Mrs. Cox (Nuneaton); 2, B. C. Roberts; 3, F. Underwood (Leamington); 4, B. L. Jones (Leamington). Pairs (Egg-layers): 1, A. J. Hiron; 2, T. Sheehy (Coventry); 3, R. J. Hough (North Warwick); 4, T. Sheehy (Coventry). Pairs (Livebearers): 1, Messrs Edkins and Pagett (Nuneaton); 2, Mr. Trotman (Atherstone); 3, Mr. and Mrs. Aucott (Nuneaton); 4, Mr. Davis (Bedworth). A.O.V. Livebearer: 1, L. W. Ball (Atherstone); 2, R. C. Roberts; 3, Messrs Edkins and Pagett (Nuneaton); 4, E. Clarke (Leamington). Characins (Hy. and Hem. Species): 1 and 4, B. C. Roberts; 2, Mr. and Mrs. Delves; 3, D. Emery (Haden Select). A.O.V. Characins: 1, A. Gregory (Haden Select); 2, R. J. Hough (North Warwick); 3, D. Emery (Haden Select); 4, Messrs Edkins and Pagett (Nuneaton). P. Rasbora-Danio-W.C.M.M.: 1, Mr. and Mrs. Delves; 2 and 4, R. Trippas (North Warwick); 3, Mrs. J. K. Smith. Corydoras Catfish: 1, R. Shakespeare (Bedworth); 2, T. Sheehy (Coventry); 3, Mr. Mawby (Wednesbury); 4, D. Beard (Leamington). A.O.V. Catfish and Loach: 1 and 3, A. Gregory (Haden Select) (Best in Show); 2, R. Shakespeare (Bedworth); 4, Mr. and Mrs. Highfield (Wednesbury). A.O.V. Tropical: 1, Mr. and Mrs. Highfield (Wednesbury); 2, S. Woodbridge (Coventry); 3, S. Bloxham (Nuneaton); 4, Mr. Mawby (Wednesbury). Common Goldfish: 1 and 4, A. Emery (Haden Select); 2, E. Clarke (Leamington); 3, K. Highfield (Wednesbury). Fancy Goldfish: 1, E. Clarke (Leamington); 2, M. Smith (Leamington); 3, Miss D. Stanforth; 4, J. Thomas. A.O.V. Goldwater: 1, Mr. Tedds (Bedworth); 2, M. Smith (Leamington); 3, A. J. Hough (North Warwick); 4, D. Beard (Leamington).

This show although well supported by members of the public, was poorly supported by local societies. Nine of the sixteen or so clubs expected to attend, brought fish and the total exhibits were only 239, over one hundred down on previous shows.

**THE results of Nuneaton A.S. Open Show were as follows:** Best Fish in Show, with a tinof barb, was won by Mr. Haynes of Derby. The prize for most awards was won by Mr. and Mrs. G. Cox of Nuneaton. Anabantids: 1, P. Bunting (Nuneaton); 2, Mrs. Leigh (Nuneaton); 3, Mr. Steed (Tamworth Killis); 4, Mr. Shakespeare (Bedworth). Fighters: 1, 2 and 4, M. Fellows (M.A.P.S.); 3, M. Underwood (Leamington). Characins (over 3 in.): Edkins and Pagett (Nuneaton); 2,

Mr. Tedds (Bedworth); 3, Mr. Hough (North Warwick); 4, C. Skidmore (Bedworth). Characins (under 3 in.): 1, Edkins and Pagett; 2, P. Bunting; 3 and 4, Miss Skinner (Birmingham). Angels: 1, Mr. Trippas (North Warwick); 2 and 3, Edkins and Pagett (Nuneaton); 4, C. Skidmore (Bedworth). Cichlids Dwarf: 1, Mr. Kaye (Top Ten); 2, Mr. Ashby (Nuneaton); 3, Mr. and Mrs. Simpson (Bedworth); 4, Mr. Sheehy (Coventry). A.O.V. Cichlids: 1, Mr. Hough; 2, Master J. Glover (Bedworth); 3, Mr. Catts (Birmingham); 4, Miss Law (S.A.S.S.). Barbs (over 3 in.): Mr. Haynes (Derby); 2, Mr. Hough; 3, Mr. Steed (Tamworth); 4, Mrs. Leigh (Nuneaton). Barbs (under 3 in.): Mr. Kaye (Top Ten); 2, Mr. and Mrs. Simpson; 3, Master P. Skinner (Birmingham); 4, R. Shakespeare. Catfish: Mr. Shakespeare; 2, Mr. Sheehy (Coventry); 3, Mr. Steed; 4, Master P. Skinner. Loaches: 1, R. Scally (Bedworth); 2, S. Dean (Tamworth); 3, J. Aucott (Nuneaton); 4, P. Bunting. Male Guppies: 1, R. Shakespeare; 2, Mr. Underwood (Leamington); 3, Mr. and Mrs. G. Cox (Nuneaton); 4, Mr. Worth (Hinckley). Female Guppies: 1, Edkins and Pagett; 2, Mr. Trippas; 3, R. Scally. Platies: 1, Mr. Young (M.A.P.S.); 2, Mr. and Mrs. G. Cox; 3, Mr. Worth (Hinckley); 4, Mr. R. Scally. Molies: 1, L. Ball (Atherstone); 2, Mr. Everett (S.A.S.S.); 3, S. Dean (Tamworth); 4, Mr. Trippas. Swordtails: 1, L. Ball; 2, Mr. Roberts (Solihull); 3, Mr. Spencer; 4, Mr. and Mrs. G. Cox. A.O.V. Livebearers: 1, Mr. Kaye (Top Ten); 2 and 3, Edkins and Pagett. Breeders (Egg-layers): L. Ball; 2 and 3, Mr. and Mrs. G. Cox; 4, Miss Leigh. Breeders (Livebearers): 1, Mr. Trippas; 2 and 3, R. Scally; 4, Mrs. Leigh. Egg-layers (Pairs): 1, Mrs. Leigh; 2, Mr. Sheehy; 3, Mr. Coombs (Hereford); 4, J. Aucott (Nuneaton). Pairs (Livebearers): 1, Master Glover (Bedworth); 2, J. Davis (Nuneaton); 3, Mr. and Mrs. G. Cox; 4, Mr. Worth (Hinckley). Killies: 1, Mr. Trotman (Atherstone); 2, Mr. Worth; 3, Mr. and Mrs. G. Cox; 4, Mr. and Mrs. Simpson (Bedworth). A.O.V. Tropical: 1, S. Bloxham (Nuneaton); 2, Mr. Trotman; 3, Mr. Everett; 4, Mrs. Leigh. Goldwater (Common Goldfish): 1, Mr. Gibbs (Bedworth); 2 and 3, E. Edkins (Nuneaton). Fancy Goldfish: 1, Mrs. Leigh; 2, Mr. and Mrs. Simpson; 3, R. Freeman (Nuneaton); 4, Mr. Glover (Derby). A.O.V. Goldwater: 1, Mrs. Haines (Nuneaton); 2, Mr. Hough; 3, Mr. Shakespeare. Plants: 1, Mr. and Mrs. G. Cox; 2, Mr. Steed (Tamworth); 3 and 4, S. Bloxham (Nuneaton).

THE correct way to set up an aquarium, was the main item at the last monthly meeting of the Jersey A.S. Information was gained by means of a competition, with two members to each tank and a choice of equipment supplied for their use. The judges had quite a busy time, with such a wide variety of different ideas on using gravel, rock, slate, etc. in the tanks.

The highest marks were awarded to Mr. Wright and Mr. Brown also to Mrs. Melvin and Mrs. Le Marchand.

Thanks were extended to the judges, Mr. Wells, Mr. Marsh and Mr. Blakemore who later gave the reasons for marks being lost or gained. Members who were not busy in the competition were shown the fish. Mr. Gunton is breeding.

The Secretary, Mrs. P. M. Beddoe, La Tomine, Route de Dielament, Trinity, Jersey. Telephone North 1513, would be pleased to hear from any aquarist visiting Jersey where they would be welcomed at a meeting of the J.A.S.

**THE Southend, Leigh and District A.S. was** held at Blackwater, Billericay and Witham for an Inter-Club quiz and table show, the first leg of a two leg series. The quizmaster was C. J. Skilton of Chelmsford and the results of the quiz were: Billericay A.S. 28 points; Blackwater A.S. 23 points; Witham A.S. 15 points; S.L.A.D.A.S. 14 points.

The table show was judged by E. Nicoll of Thurrock A.S. Results: Barbs: 1, G. Yallop (Blackwater); 2, R. Scott (Southend);

3, P. F. Capon (Southend); 4, R. Hall (Blackwater). Toothcarps: 1 and 3, J. Devall (Blackwater); 2, D. Edwards (Southend); 4, E. Gee (Blackwater). Male Guppy: 1, S. Norris (Southend); 2, J. Norris (Southend); 3, C. Allen (Southend); 4, P. Holme (Billericay). Characins: 1, T. Clark (Southend); 2, P. Paris (Billericay); 3, R. Nield (Southend); 4, G. Yallop (Blackwater).

**THE Basingstoke A.S. show** attracted 520 entries and the results are as follows: Club Tropical: 1, Basingstoke A.S. Club Goldwater: 1, Portsmouth A.S. Individual Tropical: 1, G. Clewer (Basingstoke); 2, D. Walls (Basingstoke). Individual Goldwater: 1, Mrs. W. Voysey (Unattached); 2, Mrs. J. Blake (Basingstoke). A.V. Barbs: 1, A. Marshall (Basingstoke); 2, G. Clewer (Basingstoke); 3, T. Errey (Basingstoke); 4, P. Grosvenor (Runnymede). A.V. Characins: 1, A. Cox (Weymouth); 2, P. Grosvenor (Runnymede); 3, C. Beets (Portsmouth); 4, R. Ridley (Basingstoke). A.V. Pencil Fish 1, 2 and 4: A. Balke (Basingstoke); 3, G. Greenhalf (Kingston). A. V. Cichlids: 1, T. Swomey (Basingstoke); 2, M. Davies (Reading); 3, R. Willey (Salisbury); 4, S. Cook (Salisbury). A.V. Dwarf Cichlids: 1, M. Davies (Reading); 2, T. Hatton (Weymouth); 3, A. Blake (Basingstoke); 4, P. Grosvenor (Runnymede). A.V. Angelfish: 1, A. Cox (Weymouth); 2, G. Orton (Weymouth); 3 and 4, Mrs. J. Rowe (Southampton). Labryntia A.V.: 1, J. Mitchell (Basingstoke); 2, A. Blake (Basingstoke); 3 and 4, I. Lamb (Basingstoke). Fighters: 1, 2 and 3: R. Wynd (Farnborough); 4, A. Blake (Basingstoke). Toothcarps: 1, S. Tarrant (Hendon); 2, H. Gough (Basingstoke); 3, D. Hancock (Reading); 4, Mrs. T. Cruickshank (Ealing). Catfish A.V.: G. Greenhalf (Kingston); 2, P. Lange (Basingstoke); 3, G. Greenhalf (Kingston); 4, E. Binstead (Portsmouth). A.V. Corydoras: 1, R. Cox (High Wycombe); 2, S. Cook (Salisbury); 3, D. Cruickshank (Uxbridge); 4, M. Carter (Bracknell). A.V. Rasbora: 1 and 2, P. Merritt (Reading); 3, J. Pollard (Kingston); 4, S. Cook (Salisbury). A.V. Danios: 1, Mrs. T. Cruickshank (Ealing); 2, M. Carter (Bracknell); 3, T. Errey (Basingstoke); 4, A. Blake (Basingstoke). A.V. Loach: 1, P. Lloyd-Worth (Weymouth); 2, Mrs. G. Carter (Bracknell); 3, P. Stevens (South Bucks); 4, M. Carter (Bracknell). A.V. Egg-layer: 1, J. Hargreave (Salisbury); 2, T. Hatton (Weymouth); 3, A. Blake (Basingstoke); 4, J. Pollard (Kingston). A.V. Platy: 1, L. Little (Bracknell); 2, T. Errey (Basingstoke); 3, Master M. Gough (Basingstoke); 4, M. Davies (Reading). A.V. Molly: 1, T. Jones (Weymouth); 2, T. Errey (Basingstoke); 3, A. Marshall (Basingstoke); 4, D. Hancock (Reading). A.V. Swordtail: 1, R. Cox (High Wycombe); 2, Master S. Mustart (Basingstoke); 3, Mrs. J. Rowe (Southampton); 4, F. Lange (Basingstoke). A.V. Livebearer: 1, D. Cruickshank (Uxbridge); 2, A. Blake (Basingstoke); 3, I. Lamb (Basingstoke); 4, M. Carter (Bracknell). Seeded Pairs A.V.: 1, S. Tarrant (Hendon); 2, R. Ridley (Basingstoke); 3, R. Biggs (Unattached); 4, F. Hall (Didcot). Common Goldfish: 1 and 3, V. Voysey (Unattached); 2, D. Hancock (Reading); 4, R. Ridley (Basingstoke). A.V. Fancy Goldfish: 1, V. Collins (Yeovil); 2, 3 and 4, Mrs. A. Seed (High Wycombe). A.V. Shubunkins: 1, 2, 3 and 4: Mrs. A. Seed (High Wycombe). A.V. Goldwater: 1 and 3, V. Voysey (Unattached); 2 and 4, V. Collins (Yeovil). Breeders (A.V. Egg-layers): 1, S. Tarrant (Hendon); 2, R. Cox (High Wycombe); 3, P. Grosvenor (Runnymede); 4, G. Clewer (Basingstoke). Breeders (A.V. Livebearers): 1, Master M. Little (Bracknell); 2, T. Errey (Basingstoke); 3, R. Cox (High Wycombe); 4, J. Turner (Weymouth). A.V. Plant: 1, H. Gough (Basingstoke); 2, J. Mitchell (Basingstoke); 3, V. Collins (Yeovil); 4, H. Gough (Basingstoke). F.R.A.S. Junior Trophy: Master M. Gough (Basingstoke). Best Fish in Show: A. Cox (Weymouth). Breeders (Egg-layers): S. Tarrant (Hendon). Breeders (Livebearers): Master M. Little (Bracknell). F.R.A.S. Championship Trophy: G. Greenhalf (Kingston). Best Breeding Achievement: R. Hughes (B.K.A.). Best Characins:



A. Cox (Weymouth). Best Barb: A. Marshall (Basingstoke). Wendy Cup: Mrs. W. Voysey (Unattached). Didcot Trophy, Best Cichlid: T. Sweeney (Basingstoke). Best Livebearer: L. Little (Bracknell). Best Labyrinth: J. Mitchell (Basingstoke). Highest Aquaria: Basingstoke A.S. Best Furnished Aquaria: G. Clewer (Basingstoke). Highest Pointed Fish: A. Marshall (Basingstoke). Highest Total Points: A. Blake (Basingstoke). R. Keeping Trophy, No. 1: T. Sweeney (Basingstoke). R. Keeping Trophy, No. 2: A. Blake (Basingstoke). Forthcoming Attraction: Three counties V. A.S.A.S. at Basingstoke on 12th October closed inner-group match.

AS a new society with a membership of over forty, the **Privateer A.S.** devoted its July meeting to discussing future social activities in the hope of catering for the needs of increasing membership. During the last few meetings, much has been learned from the guest speakers, L. Taylor (Bradford), H. Foden (Huddersfield) and L. Haley (Bradford), and it is hoped that more knowledge will be gained from the list of speakers for the rest of the year. In addition to the monthly meetings, the Society is arranging several social events and trips including a visit to Mr. Foden's fish-houses and one to Blackpool. The next meeting is 22nd September and the Fish of the Month will be Barbs.

If any other society has any films, slides or quizzes which they would be prepared to loan, please contact the secretary, Mrs. L. Zarineas, 39 Coeswood Avenue, Wrose, Shipley.

AT a club meeting of the **Warrington A.S.** members held a discussion, on various topics, and persons experiencing difficulties and seeking information on keeping fish, were given tips and information by the more experienced members. F.O.T.M. Competition: A.V. Catfish: 1, J. Allcock; 2, L. Crawford. Labras, Sharks and Flying Foxes: 1, B. Bewick-Trophy; 2, J. Higham; 3, M. Baker. A.V. Corydoras: 1, B. Bewick; 2, R. Philcox. Loaches: 1, I. Hickton; 2, M. Baker; Joint 3, K. Reedy and J. Higham.

At a later meeting J. Boardman of Leigh gave a talk on breeding fish in general, he also described how he conditioned fish prior to spawning them, and the list of foods he used amazed some of the members new to the hobby. The F.O.T.M. was Danios: 1, R. Blackmore; 2, B. Bewick; 3, L. Crawford. Large Danios: 1 and 2, J. Higham; 3, A. Addison.

The results of the second open show were as follows: Guppies: 1 and 2, P. J. Duffy (Manchester); 3, Mr. and Mrs. E. Wells (Sunnybrow). Mollias: 1, B. Bewick (Warrington); 2, D. Slater (Sunnybrow); 3, Mr. and Mrs. Grimshaw (Sunnybrow). Swordtails: 1, P. Ledger (Top Ten); 2, J. and R. Standen (Loyne); 3, Mr. G. Hoggarth (Salford). Platys: 1, Mr. and Mrs. Hoggarth (Salford); 2, Mr. and Mrs. Webb (Salford); 3, L. Crawford (Warrington). A.O.V.: 1, L. Kaye (Top Ten); 2, Mr. and Mrs. Webb (Salford); 3, A. Middleton (Sunnybrow). Characins (2 in.): 1, P. Gregory (Oxram); 2, J. Gresty (Sunnybrow); 3, R. Dutton (Chester). Characins (over 2 in.): 1, J. Gresty (Sunnybrow); 2, D. Healey (Warrington); 3, M. Baker (Warrington). Barbs (up to 3 1/2 in.): 1, F. Gregory (Oxram); 2, Mr. Wilbraham (Oxram); 3, L. Kaye (Top Ten). Barbs (over 3 1/2 in.): 1, D. and R. Standen (Loyne); 2, R. Haslam (Loyne); 3, Mr. Shovelton (Warrington). Cichlids, Angels: 1, R. Philcox (Warrington); 2, Mr. Shovelton (Warrington); 3, D. and R. Standen (Loyne). Dwarf: 1, Miss B. Kaye (Huddersfield); 2, P. Booth (Wakefield); 3, I. Kaye (Top Ten). Large Cichlids: 1, R. Dutton (Chester); 2, P. Booth (Wakefield); 3, D. and R. Standen (Loyne). Anabantid Fishers: 1, A. E. Addison (Warrington); 2, G. Ashquith (Castelford); 3, J. Roberts (Nelson). A.O.V.: G. Eevers (Top Ten); 2, P. Booth (Wakefield); 3, Mr. and Mrs. Bone (Huddersfield). Catfish: 1 and 3, T. W. (Sunnybrow); 2, D. and R. Standen (Loyne); Loaches: 1, Mr. Wilbraham (Oxram); 2, Mr. and Mrs. Webb (Salford);

3, D. and R. Standen (Loyne). Labras, F.P. Sharks: 1, B. Bewick (Warrington); 2, M. Baker (Warrington); 3, D. Winney (Warrington). Toothcarps, etc.: 1 and 3, J. Gresty (Sunnybrow); 2, J. Roberts (Nelson). Minnows, etc.: 1, B. Bewick (Warrington); 2, Mr. and Mrs. Webb (Salford); 3, F. Gregory (Oxram). A.O.V. Tropical: 1, R. Dutton (Chester); 2, D. and R. Standen (Loyne); 3, J. Gresty (Sunnybrow). Breeders Six (Egglayers): 1 and 3, R. Dutton (Chester); 2, F. Gregory (Oxram). Livebearers: 1, J. Higham (Warrington); 2 and 3, P. J. Duffy (Manchester). Pairs (Tropical Egglayers): 1, R. Dutton (Chester); 2, Mr. and Mrs. Grimshaw (Sunnybrow); 3, J. Murray (Salford). Pairs (Tropical Livebearers): 1, J. Gresty (Sunnybrow); 2, Mr. and Mrs. Bone (Huddersfield); 3, Mr. and Mrs. Hoggarth (Salford). Coldwater Common Goldfish: 1 and 3, Mr. Eadon (Sheffield); 2, Master A. Kaye (Huddersfield). Fancy Goldfish: 1, Mrs. Conroy (Northwich); 2, Mr. Eadon (Sheffield); 3, Mr. Walsh (Accrington). Coldwater: 1 and 2, Mr. Eadon (Sheffield); 3, Mr. Whitney (Accrington). Junior: 1, Master A. Kaye (Huddersfield); 2, P. J. Duffy, Jr. (Manchester); 3, Master M. Palin (Northwich). Best Fish in Show: Pairs (Tropical Egglayers): R. Dutton (Chester).

THE Irvine Trophy, **Ealing and District A.S.** club competition for long term quality fish-keeping, reached the halfway stage recently. After a large initial entry, the second round entries dropped in number by half; members are still debating whether this is due to widespread deaths, or just wholesale surrenders to the faithful few. The Club recently enjoyed a lecture given by Mr. Colling, of the Metropolitan Water Board, and he is to be recommended to any interested Society; he felt that he had learned as much from the Club as the Club did from him and, as can be imagined, Water Chemistry and filtration were both given into quite depth.

Plans are well in hand for the Club's first Open Show, on the 14th September, and all that is needed now to make it a success (apart from entries!), is good weather, as outside entertainments are being planned for the non-fish minded wives and children. Table show results: A.O.V. Egglayers: 1, P. Carter (Junior); 2, R. Sellers; 3, J. Batts. Dwarf Cichlids: 1, R. Sellers; 2, R. Savage. Killies: 1 and 3, and 3, J. Healey; 2, P. Head.

THE members of the **Gosport and District A.S.** would like to express their thanks to J. Stillwell, R. Matley and W. Syder for judging the entries at their third Open Show held in July. This was a very successful event, the results being as follows: Male Guppy: 1, Mr. Ellick (Gosport); 2, Mr. Perman (Gosport); 3, Miss Conroy; 4, Mr. Gregory (Bath). Female Guppy: 1, Mr. Cook (Salisbury); 2, Master Ovens (Gosport); 3, Miss Sandfield. Platies: 1 and 2, Mr. Little (Bracknell). Best Livebearer: 3, and 4, Mr. Cook (Salisbury). Swordtail: 1 and 3, Mr. Gregory (Bath); 2, Mr. Cox (High Wycombe); 4, Mr. Blake (Basingstoke). Mollias: 1 and 2, Mr. Cook (Salisbury); 3, Mr. Bridgen (Gosport); 4, Mr. and Mrs. Littlepead (Gosport). Characins: 1 and 3, Mr. Blake (Basingstoke); 2, Mr. Gifford (Gosport); 4, Mr. Perman (Gosport). Dwarf Cichlids: 1, Mr. Jones (Southampton); 2 and 3, Mr. Blake (Basingstoke); 4, Mr. Cook (Salisbury). A.O.V. Cichlid: 1 and 2, Mr. Perman (Gosport). Best Fish in Show, Best Cichlid: 3 and 4, Mr. Cook (Salisbury). Barbs: 1 and 2, Mr. Blake (Basingstoke). Best Barb: 3 and 4, Mr. Perman (Gosport). Slender Fighters: 1 and 2, Mr. Wynn (Farnborough). Best Labyrinth: 3, Mr. Blake (Basingstoke); 4, Mr. Gregory (Bath). A.O.V. Labyrinth: 1 and 3, Mr. Blake (Basingstoke); 2, Mr. Miller (Winchester); 4, Mr. Wynn (Farnborough). Danio, Minnow and Rainbow: 1 and 3, Mr. Cook (Salisbury); 2, Mr. Hunt (Portsmouth); 4, Mr. Blake (Basingstoke). Corydoras Catfish: 1 and 3, Mr. Perman (Gosport); 2, Mr. Blake (Basingstoke); 4, Mr. Ellick (Gosport). A.O.V. Catfish: 1, Mr. Perman (Gosport); Best Catfish: 2, Mr. and Mrs. Littlepead (Gosport); 3, Mr.

Clough (Gosport); 4, Mr. Gregory (Bath). Loach or Botia: 1, Mr. Little (Bracknell); 2 and 4, Mr. Ellick (Gosport); 3, Mr. Blake (Basingstoke). A.O.V. Tropical: 1, Mr. Blake (Basingstoke); 2, Mr. Wynn (Farnborough); 3, Mr. Bridgen (Gosport); 4, Mr. Perman (Gosport). Breeders (Egglayers): 1 and 2, Mr. Cox (High Wycombe). Conroy Cup: 3, Mr. Sandfield (Gosport); 4, Mr. Jones (Southampton). Breeders (Livebearer): 1 and 2, Mr. Little (Bracknell). Wingate Cup: 3, Mr. Blake (Basingstoke); 4, Mr. Cox (High Wycombe). A.O.V. Goldfish: 1, Mr. Voysey (F.R.A.S. Trophy, Best Coldwater Fish); 2, Mr. Mansbridge (Southampton); 3, Mr. Cook (Salisbury); 4, Mr. Perman (Gosport). A.O.V. Twinstail: 1 and 2, Mr. Collins (Yeovil); Best Twinstail: 3, Mr. Hunt (Portsmouth). A.O.V. Shubunkin: 1, Mr. Ellick (Gosport); 2, Mr. Voysey. A.O.V. Coldwater: 1, Mr. Voysey; 2, Mr. Collins (Yeovil); 3, Mr. Perman (Gosport); 4, Mr. Harding. Furnished Aquaria—Tropical (Club): 1, Gosport (Best Furnished Aquaria); Tropical (Individual): 1, Mr. Gregory (Bath); Coldwater (Club): 1, Gosport. The best fish in the show was a Texas Cichlid owned by Mr. I. Perman, at the show an added attraction was an exhibition of amphibians and reptiles.

AT a meeting of the **Rhondda A.S.** held in July, new officers were elected as follows: Chairman: C. Jones; Secretary: R. Richards; Treasurer: D. Jones; Show Sec.: R. Boole; Asst. Show Sec.: B. Boole.

TWENTY-SIX members attended the July meeting of the **Amesbury and District A.S.** After a short meeting the guest speaker, R. Matley, was introduced to the members. The talk entitled "General Aquarium Management" was appreciated by all. The bottle show was judged by C. Lennox with the following results: A. V. Coldwater: 1, Mrs. Harris; 2, Mr. Barron; 3, Mr. Lane. Characins: 1 and 2, Mr. Elliott; 3, Mr. Harvey; 4, Mr. Lane. Livebearers: 1, Mr. Harvey; 2, Mr. Barron; 3, Mr. Martin; 4, Mr. Lane.

THE winners at the **Bournemouth Aquarists Club** were as follows: Guppies (Male): 1, J. Hicks (Weymouth); 2, G. T. Orton (Weymouth); 3 and 4, T. J. Croucher (Brighton). Guppies (Female): 1, C. Beets (Portsmouth); 2 and 3, J. Scott-Morgan (Bournemouth); 4, F. & A. Smith (Hounslow). Swordtails: 1 and 3, Mrs. R. Gregory (Bath); 2, H. E. Greenhalgh (Bournemouth); 4, A. J. Ryan (Bournemouth). Platys: 1, H. E. Greenhalgh (Bournemouth); 2 and 3, N. Walker (Bournemouth); 4, R. Sobey (Bath). Mollias: 1, H. B. Greenhalgh (Bournemouth); 2 and 3, S. Cook (Salisbury); 4, A. J. Ryan (Bournemouth). Hems and Hyphs: 1, G. Marks (Portsmouth); 2, E. Sheppard (Hounslow); 3, J. V. Jeffery (Bournemouth); 4, E. Cox. A.O.V. Characins: 1, A. Stoda (Hounslow); 2, A. G. Cox (Weymouth); 3, S. Cook (Salisbury); 4, J. V. Jeffery (Bournemouth). Angels: 1, A. J. Ryan (Bournemouth); 2, A. G. Cox (Weymouth); 3, W. J. Merrifield (Bournemouth); 4, Mrs. J. E. Forward (Yeovil). A.O.V. Cichlids: 1, M. Davies (Reading); 2, T. Hutton (Weymouth); 3, K. Willey (Salisbury); 4, S. Cook (Salisbury). Barbs: 1, A. G. Cox (Weymouth); 2, A. Blake (Basingstoke); 3, R. Nelham (Hounslow); 4, M. Stark (Bournemouth). Egg-Laying Tooth-Carps: 1, S. Cook (Salisbury); 2, J. Vincent (Southampton); 3, M. Davies (Reading); 4, J. Scott-Morgan (Bournemouth). Fishers: 1 and 2, A. Blake (Basingstoke); 3, H. S. Pratt (Houn-

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slow); 4, Mrs. B. Cowdrey (Bournemouth), A.O.V. Labyrinth; 1, H. S. Pratt; 2, D. J. Jones (Southampton); 3, A. Blake (Basingstoke); 4, C. Beets (Portsmouth), Danio-Rash-Minnows; 1, C. Cook (Salisbury); 2, D. J. Jones (Southampton); 3, A. Blake (Basingstoke); 4, P. C. Morris (Bournemouth).  
 Catfish and Loach; 1 and 3, G. P. Carter (Weymouth); 2, S. Cook (Salisbury); 4, R. Brown (Salisbury); A.O.V. Tropical; 1, R. Abbot (Hounslow); 2, H. S. Pratt; 3, M. Davies (Reading); 4, A. G. Cox (Weymouth).  
 Breeders (Egg-Layers); 1, K. Forward (Yeovil); 2 and 3, G. P. Carter (Weymouth); 4, D. J. Jones (Southampton). Breeders (Live-bearers); 1, A. Blake (Basingstoke); 2, J. Scott-Morgan (Bournemouth); 3, Miss P. M. Carr (Brighton); 4, J. Scott-Morgan (Bournemouth). Comets and Common Goldfish; 1, 2 and 4, J. V. Jeffery (Bournemouth); 3, R. J. King (Torbay). Breeders (Coldwater); 1, V. Collins (Yeovil); 2 and 3, R. J. King (Torbay); 4, R. Coombes (Bournemouth). Singletails; 1 and 3, D. S. Langdon (Yeovil); 2, R. J. King (Torbay); Twintails; 1 and 2, V. Collins (Yeovil); 3, R. J. King (Torbay); 4, D. A. G. Stokes (Poetsmouth). A.O.V. Coldwater; 1 and 2, V. Collins (Yeovil); 3, Collard, S. (Bournemouth); 4, V. B. Hunt (Poetsmouth). Best Fish in Show: Twintails, V. Collins (Yeovil). Best Tropical Fish: Egg-laying Tooth Carps, S. Cook (Salisbury).

RECENT activities of Brighton and Southern A.S. included a very well presented and most interesting slide lecture by Mr. Jack Stillwell of Portsmouth. This lecture was concerned with genetics among fishes, and did much to explain the art of selective breeding, showing how genes for colour, finnage, etc. are passed through successive generations of a strain and how the introduction of fishes from a different strain may either help or hinder a breeder.

It was clear that Mr. Stillwell really knows his subject (though he claimed to be almost a layman), questions from the members being ably answered.

A table show for breeders' classes for both livebearers and egg-layers, four fish per entry, was also held in July. Mr. Tomkins very kindly came down from London to judge the entries, bringing with him some of the recently released F.B.A.S. Show guides. Results of this show were as follows: Livebearers—D. Soper; Egg-layers—M. Whittington.

The early meeting in August was most entertaining, being the occasion of one of the quarterly bring and buy sales and as usual there were some fine fishes put up for sale. The next meeting will be held on Monday, 8th September at the usual venue. The British Legion Club, Haig House, Marine Parade, Brighton, when a table show for Rasboras, Danios, Minnows and Barbs will be held. Anyone interested in joining the Society should contact the Secretary, A. Shelton, 45, Coventry Street, Brighton.

THERE was a rather smaller attendance at the New Forest A.S. July meeting than usual. The main item on the programme was a lecture on Pond Animals and this was illustrated by detailed sketches projected on a screen accompanied by a tape recorded commentary. The lecture was presented by Messrs. H. Earle and L. James of Bournemouth Aquarist Club.

A report on the Aquarist and Pondkeeper Exhibition held at Alexandra Palace was given by A. Williamson. He was particularly impressed with the Marine fishkeeping exhibition, and the Koi Carp were also attractive, some being so tame that they were eating from the children's hands.

The results of the table show were as follows: Fancy Goldfish; 1, Black Moor, A. Williamson; 2, Hammerhead, L. Menhennett. Tropical plants; 1, 2 and 4, Vallis, D. Harding; 3, Hygrophilla, R. Travers.

The next meeting will be held on the third Monday in September.

ONCE again Hendon and District A.S. will be holding another Congress—a Congress that should be as successful as those staged since the early 1950's. This year the old and familiar venue i.e., Whitfield Secondary Modern School, Claremont Road, Hendon, London, N.W.2, has been reserved and the date will be Saturday evening, 22nd November, commencing at 6 p.m. This year the Society has been successful in obtaining the services of one of the most eminent speakers both the Continent and Britain have to offer in the form of Arend Van Den Nieuwenhuizen of Holland. Mr. Nieuwenhuizen is also one of the world's leading photographers of fishes; besides being an expert in his own right of their breeding, and his lecture should not be missed by any aquarist—whether experienced or a beginner. Many of the important personalities in the hobby will also be attending and will be available to discuss the various aspects and problems. Refreshments will be available for early arrivals and again during the long interval.

Early reservations is advisable for tickets which are obtainable from Keith Putbrick, 3, Holme Way, Stanmore, Middx. (Telephone 01-954 2233), price 5s. each, juniors half-price.

#### NEW SOCIETY

ON the 30th July the first meeting of Hyde A.S. was held at the White Hart, Old Road, Flowery Field. There was an attendance of twelve from which a committee of seven was formed. Quite a few topics were discussed and it is hoped at further meetings to get guest speakers to attend to give a few hints on various subjects. Further details can be obtained from R. Riley, Secretary, 133 Manor Park Road, Glossop, Derbyshire.

#### SECRETARY CHANGE

Association of Yorkshire Aquarist Societies Hon. Secretary: A. B. White, 1 Moss Carr Road, Long Lee, Keighley, Yorkshire. Tel.: Keighley 2719.

#### CHANGES OF VENUE

With effect from 9th September, the Harrow A.S. will meet at the Methodist Church Hall, Locket Road, Wealdstone, Middx. Meetings held on the second and fourth Tuesday of each month. New members welcome.  
 Suffolk Aquarists and Pondkeepers Association: Royal William Hotel, London Road, Ipswich. Meetings will now be on the first Tuesday in the month, at 8 p.m.

#### AQUARIST CALENDAR

6th September: Bethnal Green A.S. Annual Open Show. Schedules can be obtained from J. Coombes, Show Secretary, Bethnal Green Institute, 229 Bethnal Green Road, London, E.2.  
 6th September: Rhodda A.S. Open Show. Full details available later.  
 6th, 7th September: Mid-Herts A.S. Open Show. Show Secretary Charles S. A. Withers, 15, Charnwood Road, St. Albans, Herts.  
 7th September: Seaham (Rock House) and District A.S. Sixth Annual Table Show, Rock House Community Centre, 17 Tempest Road, Seaham, Co. Durham. Show Secretary: A. H. Coulson, 17 Tempest Road, Seaham, Co. Durham.  
 7th September: Barnoldswick, Earby and District A.S. Annual Open Show, Albion Hall, Earby, J. Wiseman, Hon. Secretary, 20 Frederick Street, Barnoldswick, nr. Colne, Lancs.  
 7th September: Midland Aquarist League Table Show, St. James's Parish Hall, Bulkington, Nuneaton. Open Classes. Schedules from M. Lee, 57 Grant Road, Exhall, Coventry, Warks.  
 13th September: South Park Aquatic (Study) Society. Open Coldwater Show at Sutton Adult School, Benhill Road, Sutton, Surrey.  
 14th September: Baling & District A.S. First Open Show. Schedules from R. Barrett, 8 Grove Court, The Grove, Baling, W.S.  
 14th September: Oldham and District A.S. Open Show, Werneth Park, Oldham.

14th September: The Nottingham and District A.S. Open Table Show, at the Drill Hall, Triumph Road, Nottingham. Schedules now available from Show Secretary, N. B. Kenney, 34 Leonard Avenue, Sherwood, Nottingham.

14th September: Radlett Section F.G.A. Annual Open Show to be held at the Guides Hut, Watling Street, Radlett, Herts. Further details from L. Smith, 2 Mercers Road, London, N.19.

20th September: Hounslow and District A.S. Annual Open Show. Show schedules available from F. Smith, Anstra House, 7 The Greenway, Hounslow, Middx.

20th September: Tamworth and District A.S. Annual Show (not Open). Over twenty show classes, rare fish and oddity display, trade stands, refreshments available. Doors open to visitors 11.30 a.m. Saturday. College Lane School. Visitors from Aquarist Societies especially welcomed. Further information if required (Complimentary tickets available but limited) from Publicity Manager, P. Afford, 79 Comberford Road, Tamworth, Staffs.

21st September: Stone A.S. Annual Open Show at Walton Community Centre, Walton, Stone. Show Secretary, M. Dale, 14 Lavender Close, Great Bridgeford, nr. Stafford.

27th-28th September: Cambridge and District A.S. Open Show at the Guildhall, Market Square, Cambridge. Schedules and enquiries to L. Georgetown, 16 Leys Road, Cambridge, CB4 2AT.

28th September: Cleveland A.S. second Open Show in British Legion Hall, Westgate, Guisborough, Yorkshire. Show Secretary: Mr. R. L. Glover, 6 Dorset Road, Guisborough, Yorkshire.

28th September: Northampton and District A.S. Open Show at Kingshorpe Community Centre. Schedules are available from R. Memory, 121 Booth Lane South, Northampton.

28th September: Hucknall and Bulwell A.S. Second Open Show to be held at Bulwell Youth Club, Coventry Road, Bulwell, Nottingham. Further details from T. E. Smith, Show Secretary, Longmead Drive, Daybrook, Nottingham, NG5 6DP.

28th September: Medway A.S. Convention. To be held at John Fisher School, Ordnance Street, Chatham, Kent. Reception 2.30 p.m. To be opened by Dr. J. N. Carrington of Inzarpet at 2.45 p.m. Speaker: Roy Skipper of The House of Fishes. Details from Secretary A. Clark, 6 Holland Road, Chatham, Kent.

5th October: Castleford and District A.S. First Open Show.

11th October: The Goldfish Society of Great Britain Convention and open show to be held at 2.30 p.m. at Sutton Adult School, Benhill Road, Sutton, Surrey. Further details from Mrs. F. Whittington, Pines Lodge, Ringley Park, Reigate, Surrey.

18th, 19th October: British Aquarists' Festival, Belle Vue, Manchester.

26th October: Halifax Aquarists Eighth Open Table Show, Sunday, at Smith Bulmer & Co. Ltd., Holmfield Mills, Halifax. Schedules from A. G. Whyte, 11 Roswell Drive, Halifax.

2nd November: Mixenden T.F.S. Open Show in the Mixenden Community Centre, Clough Lane, Mixenden, nr. Halifax. Show schedules available from J. H. Brown, 9 Clough Bank, Mixenden, Halifax, Yorks.

8-9th November: Heywood Horticultural Society/Heywood and District A.S. Joint Two Day event, Open Show, Sunday, 9th November, 1969.

8th November: Hartlepool A.S. Eleventh Annual Open Show. Langsca Hall, Seaton Carrow. Schedules available from J. D. Watson, 42 Sydenham Road, Hartlepool, Co. Durham.

28th November: Aireborough & D.A.S. Open Show to be held at Greenacre Hall (ex Rawdon Drill Hall). Further details from B. Megson, 32 Church Street, Yeadon, Leeds, Yorkshire.

14th December: Horsforth A.S. First Open Show. Further details to follow.

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FOR B.A.F. DETAILS

THE AQUARIST