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Comments and Quotes

- Toads on the road
- Water plants non grata
- Show bench morals
- ‘Fish tank finger’

Garden Ponds as Havens

ANYONE who has lived near a roadside pond used by frogs or toads will know of the springtime carrageen that can occur as the breeding-bent amphibians hop across the highway in front of cars at night. This can mean serious losses of these creatures just at a time when they are all set to found the next generation. Serious because there are grounds for believing that our national population of frogs and toads is already declining as a consequence of decreasing numbers of spawning sites available to them.

There was therefore a fauna-conserving motive behind the recent operation at Stevenage, Hertfordshire, referred to by the DAILY TELEGRAPH as a ‘See a toad across the road week’. Members of the local Wild Life Preservation Society patrolled the section of main road crossed by toads going to their pond and it was reported that on one evening no less than 654 toads were carried safely to the pond.

Garden pond owners are in fact probably helping to preserve our frogs and toads, for undoubtedly many of them now breed in these situations although no natural sites exist in the locality. Their spawn and tadpoles do no harm in a fish pond and because of the desirability of conserving these interesting species we would urge aquarists not to discourage the use by them of their water gardens.

This year a Breeding Sites Survey is being made by the Biological Research Centre with the main aim of determining fluctuations in the population of Rana temporaria and Bufo bufo both regionally and nationally during the last 20 years. Information on the colonisation of new ponds and the importance of the garden pond referred to above is being sought. Printed sheets for recording data on sites that have contained breeding frogs and toads at some time in the past 20 years have been made available by the Centre and anyone interested in helping with such information should write to the Amphibian and Reptile Scheme, Biological Research Centre, Marks Wood Experimental Station, Abbots Ripton, Huntingdon.

Water Lettuce Crop

THIS report of the way in which scientists in Nigeria are controlling excessive growths of the floating plant known to us as water lettuce might well provoke wrath in those readers whose spare time is spent trying to promote healthy water plant growth. Pistia stratiotes has been given trouble by clogging the new Kainji Dam on the Niger with its excessive growth. Elsewhere in Nigeria it has been observed that in the wet season (May–July) yellowing and brittleness of the leaves of the water lettuce occurs from a virus infection believed to be spread by aphids. Although the virus does not completely wipe out the water lettuce it stops it becoming a nuisance, and the scientists, it has been reported by NATURAL-TIMES News Service, are suggesting the introduction of diseased plants to the Kainji Dam to see if it will help the situation there. (Market price of the water lettuce for aquarists is currently 10–14d per plant: they’ve got a valuable crop on that Dam if they could only gather it!)
Show Bench Morals

WE recently received the following sad little note from a young show contestant aged 12 living in the north of England. "I belong to the Fish Society and when we had our open show, like other members who belong to other societies, I took along an entry in the breeders class—six fish which I had bred myself. But when the show came to the end no fish, no jar. Somebody had taken them. For the rest of the season I will come along with my Mum and Dad to shows and just look at the fish as I have not got any fish to show.' We have left out the name of the Society to which the young lady belongs as we feel it would be invidious to mention just one club in connection with this sort of regrettable happening. Unfortunately such occurrences are not exactly rare with even the best-run shows. Sometimes a genuine mistake has been made, for this can happen easily enough in the hubbub of a show breakdown and ownership will then be sorted out subsequently. But there are some incidents that can hardly be 'mistakes'. Someone must have known in the instance above that they had six more fish than they started with. In this fish-showing season now in full swing, let us hope there will be very few reprehensible and contemptible actions of this kind.

‘Fish Tank Finger’

SINCE the publication of our Comment last month headed 'Fish Disease and Man' we have seen an article by Albert J. Klee on the same topic and with the above title that was printed in ANCHOR, U.S.A. (February issue). The case of a pet shop proprietress who developed nodules on her hand after cutting a finger on the frame of an aquarium is described, with a positive identification of the infective organism as Mycobacterium balnei, a bacillus known to cause the human skin condition called 'swimming pool granuloma' in the U.S.A. This organism was also found to be present in the aquarium that was the source of the lady’s injury. Although there appears to be no reason to change our opinion that, since the frequency of occurrence of these infections is apparently very low, aquarists are not seriously at risk, we agree with the suggestion of Mr Klee that ‘... it would be a sensible course of action to treat cuts with care when one is about tending to one’s tanks of fishes. It would also be well for aquarists, professionals and amateurs alike, to familiarize themselves with the facts...’

LETTERS

Orfe Wins Through

MAY I tell you about an experience of mine? I’ve been keeping fish since ’64, tropical and coldwater. I’ve got some tropicals that are at least 8 years old and a goldfish that’s about 10 years old, purchased before ’64. The other morning, about the first week in April, I noticed a golden orfe lying on its side, apparently dead. I went to take it out of the pond, when it managed to swim to the bottom. As I was on my way to work I had to leave it till midday, when once again the fish was lying among the plants looking very dead. Again it evaded me and when I came home at night the fish was on the surface again.

I caught it this time and put it in an emergency tank—a cardboard box lined with plastic. I put 13 in. by 13 in. by 13 in. I filled it to a depth of 3½ in. with half pond and half tapwater; temperature was 52°F. I started aeration and added one teaspoon of Epsom Salts. The aeration was on about 14 hours and a second teaspoon of the Salts was added on the second day and a third teaspoon added on the third day. Well, we kept our fingers crossed and hoped for the best. About two weeks later, this poor fish was still lying on its side and only swimming (and even then upside down) when it was touched to see if it was still alive. I nearly put it out of its misery more than once but kept hoping, as it’s a lovely specimen with not a blemish on it. A well-known Nottingham aquarist, Bill Christian, said ‘Give it a drop of brandy or whisky’—so, nothing ventured, nothing gained. I added a drop of whisky, which did make the fish swim more, but still upside down. A drop more whisky was added. The next day being Saturday, I put a pair of rosy barbs to breed in the morning and got up about 8.30 a.m. on Sunday to see how they were going on. I noticed also that the poor orfe was still on its side and decided it must go, having been in the 3½ in. of watered Epsom Salts for over 2 weeks, just prolonging the agony. Anyway, about an hour later my 14-year-old son came to see how ‘Charlie’ and ‘Rosie’ were doing and said ‘Any eggs yet?’ and then, in the same breath, ‘Look, the orfe is right way up’. And so it was, and still is 13 days later. It is not feeding but is swimming round and round the right way up, so I’m glad I decided to give it a chance to save itself.

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LETTERS

Continued from page 54

orge, which will go back in the pond when it gets a bit warmer, and I'm sure it will win a first if I show it. If you decide to print this in PFM I'm sure some people will learn something, as I did. In fact, 'give them a chance'; because I consider it quite something that the fish recovered after so long on its side.

With regard to the question about how long fish can live in tanks (Comments and Quotes: PFM, April), my oldest fish, which were given to my son in 1964 (loch stock and barbel) by his teacher were: spotted catfish (C. melanostomus) 9 years; kuhli loach, 9 years; scissortail, 9 years; pair of cherry barbs, 10 years. These fish had been purchased for the school tank and they had had them for at least 2½ years.

Nottingham

FRANK POIZER

A Gift to be Maintained

Reading through Arpee's list of 'Ten Hopes' for the 1970s (PFM, March), I see that one of them is the hope that every hospital and Children's Home etc. that would like one will get a furnished aquarium, but may ask that clubs which make such presentations should urge their members to guarantee their upkeep. This may sound a bit pedantic when the club has been kind enough to present the aquarium, fish and plants in the first place, but as the mother of a daughter who has been nursing in one or two hospitals where this has happened I do know that presentation tanks do become 'presentation worries' if they are not looked after properly and just become an added chore to some already overworked member of the hospital staff.

Weymouth, Dorset

Mrs L. Sutherland

Surplus Stock

Mr. R. Sleet is an optimist in thinking that auctions of club members' surplus stocks of fishes and plants will ensure that breeders and growers will get more for their products than they will from dealers (PFM, April). At some auctions I have seen the bids accepted for stock were far from being inspired by generosity and the parsimony of the bidders easily matched that of the worst possible dealers.

London, N.10

R. Chapman

Bare v. Furnished

I cannot agree with the comments in the article by Mr. Peter Ginger on the 'relaxed' and 'happy' state of fish kept in bare tanks (PFM, April). He does at least admit that the bottom of the tank should be darkened, but what is more disturbing to a fish than the colour of the base below it is the reflective capacity of that surface. Gravels used may be light in colour whereas stream bottoms in tropical areas are dark, but neither light-coloured gravel nor the natural bottom reflects light as well as the flat glass base of a tank whether or not it is painted outside. If you want a dark base use ground-up dark stone, or peat if you are worried about the wearing effect of gravel on the whiskers of catfish etc., but don't imagine that an uncovered glass tank bottom makes a fish feel at home.

Old-fashioned aquaria had rough slate bottoms and these were, I'm sure, much more acceptable for fish when used unfurnished. Black glass is not the answer! Even human beings in offices with overhead lighting and floors of highly reflective material have been known to experience ill-effects from the glare.

London, S.E.5

F. Howe

I thought Mr. Ginger's article about unfurnished tanks in the April issue very interesting and must admit that his separate points, such as the advantages of a bare tank with regard to feeding and more space, are true in themselves. But yet I feel that this is not the whole story and that bare tanks aren't good enough. I think this view is probably what most people believe as Mr. Ginger suggests that his fellow club members have been 'on' at him to give planted tanks another try. Probably the argument is really the old 'battery hens' or 'lions at the zoo' one.

I'm sure fish in bare tanks will be quite healthy if looked after properly as Mr. Ginger outlines, and obviously bare tanks are important for quarantining and breeding in some cases. Also I admit that the 'furnishings' in the tank seldom really duplicate the fishes' natural habitat; but I feel sorry for these animals that exist in a 'vacuum'. I bet Mr. Ginger's fish in his bare tanks would rather be able to 'casually slip into the foliage' as he describes the fish in planted tanks and 'appear again only when you have forgotten what it was you were looking for'.

Mitcham, Surrey

I. Hurst

"His doctor's told him to give up drinking and take up the hobby"
Transatlantic TOPICS

By JIM KELLY

A VISITOR to a recent show mentioned that his plants were suffering from that complaint we loosely refer to as 'cryptocoryne disease'. Manifesting itself as clear spots on the leaves, it progresses steadily until the complete leaf and plant dissolve into a brown goo. Thanks to the work of Dr N. Thornton Lipcomb, from Louisville, U.S.A., which occupied him for 2 years, I was able to help our friend.

According to Dr Lipcomb the conditions which seem to support the disease are: too strong illumination; too much organic matter under the gravel; old and hard water. Correcting these four things always stopped the infection, though in advanced cases the cryptocorynes were denuded and set back months.

For moderate cases about 10 drops of a 1% solution of potassium dichromate per gallon was effective in halting the spread of the bacteria causing the outbreak. At this strength it is said not to be toxic to the fish, though a partial change of water over the next few days is recommended.

Frankness is only next to freedom in the hearts of American people and that this carries over to the hobby is soon apparent when reading their forthright club publications. No one is too big, and no matter how small they don't escape the notice of the critics.

With this in mind I was very interested when one Frank (Holcomb), wrote about another Frank (Clicker) on how the latter raises such wonderful fishes at his Garden Grove Hatchery way out on the West Coast.

The answer is typical of the dedicated humour expressed by these fishkeepers. Frank said he simply sits on his porch, rocking back and forth in his comfortable chair. Every once in a while he looks at his fish swimming around in their tanks and gently croons to them: 'Grow you little --/--, grow!' And if those results are anything to go by, they do!

Setting up as a professional fish farmer is difficult enough no matter where you decide to start but to attempt it right in the heart of Florida, where already there are no less than 72 members regathered with the Florida Tropical Fish Industries, would seem to be really asking for problems.

That it can be done given sufficient patience and know-how, is epitomised by the success story of Hank and Darlene Huff, owners of the Suncoast Tropical Fish Farm on the outskirts of St Petersburg.

Their first venture in building up a livebearer business came to a stop when their land was acquired for industrial development, but this didn't put them in a 'huff', if you will forgive the pun. Far from it—undaunted, they started afresh at their present location but changed to the breeding of angel fish; 'the condition of the local water wasn't conducive to the production of livebearers and made a repeat of our previous idea impracticable', said Hank.

One item of food, Daphnia, comes from their outside pools; the water fleas are fed with fish heads and cottonseed meal! Yet two more ingredients the do-it-yourself-at-home Cladocera reeler can add to his already large list of suitable feeding materials.

Three foot high waves lash our boat, grey, chill water threatens to overtop our launch as ominous fog closes in cutting us off from the distant shore.' Does that remind you of Newfound-land's Grand Banks? Dogger in the North Sea? Or a quote from the couch sea? You would be wrong. That incident, described by explorer Willard Price, was taking place some 5,000 miles up the River Amazon.

No wonder he refers to it as the Sea River, that home of so many of the tropical fishes that grace our aquaria.

This 4,000 mile stretch of water is fed by the greatest sprawl of rivers on earth and drains a territory of some 3 million square miles. Almost as large as the entire United States. Here are some more 'did you know that' facts about the Amazon.

Its mouth is from 180 to 200 miles wide, depending on what caps you choose. Neither bank is visible from the centre of the river, not even from an aeroplane.

Every second it discharges from 4 to 7 million cubic feet of water into the Atlantic Ocean in a wall of fresh

Continued on page 68
Breeding Wild-caught Killiefish from Ghana

In August last year I had the opportunity to obtain some wild-caught Pseudobraunia thiyryi and Epiplatys bifasciatus. These were sent to this country by David Blair, who was collecting in Ghana at the time.

After purchasing the fish, my first thoughts were to get them settled in, so that I could attempt to breed them as soon as possible. It is essential to get eggs quickly, as newly imported killiefish tend to be rather delicate, and after seeing these two species I could not bear the thought of losing them.

We will start with F. thiyryi, as to my mind this is the more interesting of the two. The coloration of this little fish is quite lovely; the basic body colour is a pale greenish-blue with irregular red-brown spots on the sides. The pelvic, anal, dorsal and tail fins are yellowish covered with red-brown blotches. They are also edged with the same colour. The tail tends to form a slight lyre shape as in the Aphyosemion; the pectoral fins are clear. The eye has a black pupil surrounded by a bright green ring.

The female, as in most killiefish species, is much less colourful; she is basically brownish-grey all over. The fins are mainly clear but there are a few brownish blotches in the dorsal and anal fins. She also lacks the green eye.

The wild stock has quite a nasty disposition. I found that the males needed two females to stop them from bullying them. However, tank-raised specimens do not seem so aggressive and I have just raised a batch of 240 in a 15-gallon tank without any serious fighting at all.

To spawn these fish a 12 in. by 8 in. by 8 in. tank will be sufficient. Half-fill the tank with water of pH 6.5-6.8 and a hardness of 2-2 DH. One inch of boiled peat over the bottom and a few well-boiled willow roots will complete the tank. If, however, you have a lot of light, a layer of floating plant will help the fish feel more secure. Spawning seems to take place almost continuously and I have found separation of the sexes unnecessary if good feeding is maintained. The fish will eat almost anything alive but I have had no success with dried foods of any kind. Favourite foods are mosquito larvae, Daphnia, Grindal worms and Tubifex. I find white worm rather too large for these fish.

After the fish have been spawning for 24 days, it is advisable to remove the peat containing the eggs. Half the water should be changed and more peat added. There are two methods by which the eggs can be hatched. Firstly, they can be kept under water. A cover of about 1 in. of peat over the eggs will be sufficient; after 5-6 weeks the depth of the water should be increased to 2-3 in. and hatching will take place within about 12 hours. I personally do not like this method; the fish hatch out rather irregularly and although the first may hatch in about 12 hours, some may still be hatching 7-10 days later. This gives a variation in the size of the fry that leads to the smaller fry being eaten by their relations.

I much prefer to dry out the peat and eggs. I first squeeze all surplus water from the peat, which is then placed between two sheets of newspaper for 2-3 days, bagged up in 1000 gauge poly-bags, labelled and stored. Hatching can be attempted at any time after 6 weeks (this is done by placing the peat in a tank and covering it with a in. of cool rainwater at 64°F, 18°C—the inclusion of a small amount of micro worm will help the hatch). After a further 2-3 days, the fry are siphoned out into another tank and the peat is examined. Several eggs will show very little, or possibly, no sign of any development. If these are left under water for about 14 days and then the peat is dried out again for another 6 weeks, another hatching will take place. In fact it is possible to get three or possibly four hatchings from one batch of eggs. These 'resting eggs' behave like this to ensure the continuation of the species, i.e. from one spawning there are four chances of the fish reaching maturity and spawning themselves. If the first, second and third spawnings do not reach maturity through some natural change, there is still the fourth batch.

In other words—something like a cat with nine lives.

I have found the youngsters will take micro worm straight away and at 4-5 days old they can be given newly hatched brine shrimp. The rate of growth does not seem to be as quick as in the Nothobranchius species but they usually become sexable at 6 weeks and will lay well at 12 weeks old. For anyone who is interested in bottom-spawning killiefish, this one is a must for their collection.

We will now consider Epiplatys bifasciatus. The wild-caught male I have at present is around 23 in. long and the females are a little smaller. The coloration of the male is basically green-gold on the body with a dark brown horizontal line from behind the gill plate to the base of the tail. The body is then overlaid with a diamond pattern of very fine and irregular red lines. As he moves, a few minute blue spots can be seen on the lower half of the body. The fins are yellowish to clear and are covered in a variety of lines, spots and blotches of no definite pattern. The colours of these markings vary from blue, green, red and brown. When seen in sunlight the effect is

By PAUL BLOWERS

Continued on page 66
A Garden Pool in a Couple of Hours

THE old way of making a garden pool with concrete involves a great deal of time and a lot of hard work if the pool is to be of any size. Pool making in the seventies is far easier if one takes advantage of modern materials. The choice is between rigid prefabricated glassfibre pools and several sorts of tough sheeting material to be used as liners. Glassfibre pools are obtainable in various shapes but from what I have seen of them many were obviously designed by people who knew very little about the requirements of aquatic plants and hardy freshwater fishes. The larger sizes are also very expensive. The garden owner who is also keenly interested in aquatic life is more likely to make use of a pliable liner, which allows him to design his pool to the shape and the size he desires.

By BRIAN FURNER

I have used three different sorts of liner for each of my pools: butyl rubber, Plastolene and Juradene. Butyl rubber is grey-black in colour. Plastolene comes in blue, green or stone and Juradene in blue and natural stone. Both Plastolene and Juradene may also be had in a pebble finish. It is this last finish which I find attractive, but does the colour of a pool liner matter at all that much? My main pool is lined with butyl rubber but this and the other liners are masked by the many aquatic plants. Windborne dust has also fallen into the pools and has settled on the liners.

Juradene is the cheapest of the three liners but it is recommended only for pools less than 100 sq. ft. in surface area. Butyl rubber and Plastolene are at least as tough as concrete for lining a pool.

The position for a garden pool is important. One may admire drooping willows around lakes but it would be unwise to imitate this sort of beauty by siting a garden pool...
beneath an attractive tree. The leaves can be such a nuisance. They fall into the pool during the autumn and sink to the bottom, where they release gases as they decompose. The gases, if trapped beneath ice during the winter, may foul the water and lead to the death of fish.

An open sunny site is to be preferred. Not only do water lilies and other aquatic plants thrive in sunlight but it also suits pool fish. During the spring months the sunshine raises the water temperature rapidly. This encourages the fish to start feeding and to recover from the winter fast.

Shape of the pool is a matter of personal taste. Square, rectangular and round pools go well with a lawn or paved patio; irregular shapes look fine alongside a rockery. In fact, during the construction of a garden pool the making of a rockery alongside it is a useful way of ‘losing’ the soil dug from the hole! Incorporating a waterfall in the rockery is an added attraction worth considering.

The size of the pool will depend on how much garden space may be spared for it. A mini-pool not only restricts the number of fishes but is not ideal for fishkeeping at all because the water temperature in a small pool fluctuates rapidly. In a small garden 54 sq. ft. is a reasonable pool area. This may sound rather big but it is only equal to a rectangle measuring 9 ft. by 6 ft. My main pool measures 9 ft. by 9 ft. and I wish now that I had made it larger.

In the south 18 in. is generally considered as quite deep enough for a garden pool but in very cold parts of the country I feel it would be wise to go down another foot. With a depth of 2 ft. 6 in. one is pretty sure that there will always be some unfrozen water in which the fish may safely pass a few weeks in a very severe winter.

Neither 2 ft. 6 in. nor 1 ft. 6 in. is the depth of water favoured by most aquatic plants and in the pond design several shelves should be included. These should be at about 8 in. below the surface of the water. The width of the shelves will depend on how the plants are to be grown. I favour planting them in polythene planting baskets and the shelves in my pools are only 8 in. wide. The shelves with the baskets of aquatic plants form a shallow area of water which pool fish favour as a spawning ground.

With the liner in position in the hole, stone slabs are placed around its overlap to keep the top edges in position during the filling with water.

After having decided on the size, shape and depth of the pool one needs to know what size the liner for it will have to be. This may be worked out by using the following formula:

- Length of pool liner = length of pool plus twice the maximum depth.
- Width of pool liner = width of pool plus twice the maximum depth.

When taking these measurements do not add an extra foot or so for the overlap around the edge of the pool. The elasticity of the sheeting automatically creates an overlap. If the proposed pool is to be an informal one then the measurements must be made as if one is dealing with a rectangle. This may mean that one will have some surplus sheeting here and there after the job has been completed and it may be necessary to trim back this surplus with scissors.

Before excavating it will be necessary to cut and dig out any turves if the pool is being made in a lawn. Stack the turves nearby. Some of them will be needed later on. A rake should be used to level the surface of the ground and strings and pegs used.
to mark out the perimeter of the pool and the positions selected for the shellfish. Start digging at the centre and work outwards so that the last part of the work consists of shaping the sides. These must be dug out so that there is no straight, vertical drop. Cut into the ground with the spade so that the sides slope slightly inwards towards the base.

This digging out of the hole is the only real work involved in making a garden pool the modern way. The work can be quite hard, too, if one has to deal with clay. It is easy going if the garden soil is sand or gravel. It took me only 2 hours to dig the hole for my 9 ft. by 9 ft. pool.

After all the digging has been completed use a spirit level to check that the edges of the pool are level. Some levelling is bound to be necessary here and there. Although pool liners may be fitted at any time they tend to become more supple if spread out on the lawn in the sun whilst one is excavating the hole.

Modern liners are tough and are capable of withstanding the pressure of a ton, or two, of water, but only hazard must be considered and action taken at this stage to prevent it. A small, sharp stone beneath the liner could pierce it when it is supporting a great mass of water, so a pad is needed between the liner and the soil. I used a 1 inch layer of granulated sedge peat. Sawdust (free from nails) and stone-free sand are other suitable materials for a pad. The chance of any hoiling at the sides is slight. I made sure this could not occur in my pools by padding the sides with several thicknesses of damp newspaper.

Stretch the liner over the padded hole and anchor the sheeting securely to the edges with stones like stone slabs and the garden roller along its edges. As the water runs in so the liner moulds itself to the shape of the excavation. When the pool has been filled the edges should be tuck beneath turves, rocks or paving stones.

An added advantage of the use of a pool liner is that the garden pool may be taken with one should one move house. My own pools are likely to be moved within a few years so instead of cementing the pieces of broken paving stones together I have filled the intersections with the small pebbles used to pebble-dash walls.

Breeding Wild-caught Killiefish

continued from page 63

fantastic and, to my mind, makes this fish one of the most colourful of the Epilates. The female has less colour but does have the horizontal stripe.

When I first received these fish, I thought they would never settle down. Whenever the tank was approached they would dash against the glass, jumping out of the water and losing every bit of colour they had. I overcame this by setting up a 12-gallon tank as follows: it was filled half with rainwater and half tapwater (they do not seem very fussy about water conditions); then into the tank were placed several bunches of fine-leaved plants with a really good layer of floating plants at the surface, in particular water lettuce as this plant has the long roots necessary for the fish to hide in. I then cut out all side light and left a loose panel for observation.

The fish were still not settling down too well, so I gave them a few female N. pseudom as companions. After about 2 weeks they seemed much happier and the male was in glorious colour, so I decided to try for a spawning. I fed the fish well on mosquitoes and fruit flies for about a week, then placed a couple of mops in amongst the floating plant. I did get one or two eggs, but that was all, so I then changed one-third of the water for fresh.

After about 10 days I had about 800 eggs in shallow dishes (24°C; 23°F) and hatched in 12 days. The young will take newly hatched brine shrimp straight away.

The young seem to be slow-growing, and at 12 weeks are still about 1 in. They do not seem to be as nervous as the parents, but they are not a steady fish. I shall be looking forward to seeing them when adult; there is a suggestion that they will not achieve the colouration of the wild specimens, but as mine are being grown in an 80-gallon tank I hope I shall get some reasonable colour in them.

The above fish are well worth keeping, and I hope they can successfully be kept with their full coloration, and I hope they can successfully be kept with their full coloration, and I hope they can successfully be kept with their full coloration. I would personally like to thank Mr. David Black for re-introducing these fish to this country, and I hope he gets as much pleasure collecting them as I have had in keeping them.

Aqua-tip

One of the most common problems encountered in setting up a display of fish is that, unless a spirit level is available, it is almost impossible to ensure that the aquarium and stand are quite level before the water is put in. In large aquaria this can mean a difference of an inch or more over the whole length and results in the water surface sloping below the top frame at one end of the front viewing panel.

However, use of a car jack will quickly solve this problem without the bother of emptying the aquarium. Place a sturdy length of wood under the lower tank support of the stand, at the end that is too low, and position a jack centrally underneath this. A few turns of the handle will raise the whole unit intact, and it is then a simple matter to pack small pieces of hardboard under the stand legs until the correct level is achieved.

C. Harrison
Almost every enthusiastic fishkeeper will be familiar with the situation described by Mrs Harding in the March issue of PFM. You start with one tank and finish up with x, y is a variable. It can either equate to an overflowing fish house with a little trading as a sideline or it can equate to an 'Exchange for poultry house' advertisement in the local paper. Sometimes it can equate to an optimum distribution of fish tanks throughout the house, based on square footage, number of rooms, size and sex of family etc.: there is probably some formula for this which the computer boys could work out in a spare millennium.

The extent of territorial expansion is perhaps more vital than the initial decision to become a fishkeeper, because if it is overdone it can become a positive menace to a household. The idea of a hobby is that it takes its place amongst other things, and not that everything else is subordinated to it. Exactly how you arrange your leisure is, of course, entirely a personal matter, but it is often not realised how much of a crashing bore the enthusiast can be, both to his friends and to his family, if he takes things too seriously. I know this for a fact because I have been guilty of it myself, but having taken a look at the situation a year or so ago I wondered what I could do by way of alleviation, and thereafter set about changing certain of my tactics.

The first thing was to only talk fish to non-fishkeepers if they raised the subject in the first place. This is much more likely to bring converts than any amount of hot gosspelling, and it got me out of the obligation to 'lecture' visitors, out of politeness, when it did not take genius to realise that they would have much preferred either to discuss their wretched cars or to have a quiet nap after lunch. If nothing else this has resulted in the certain knowledge that I shall no longer waste my breath, though whether I remain a bore is quite another matter.

Like Mrs Harding I found that the number of tanks was multiplying and the complicated negotiations with my wife on the subject were something like the Korean Peace talks, excepting that she got the worst of the deal and the place became more and more cluttered. The point at which I started to look really closely at the problem was when I found it inconvenient to feed and service all the tanks every evening. Despite what is said to the contrary I am a firm believer that you have to set a routine for fish feeding, and that you have to stick to it, even during holidays. This routine was becoming so onerous because the tanks were scattered about the house, and some I rarely saw for more than 10 minutes at a time.

Looking at my activities as a whole I realised that I was trying to do too much breeding and not enough fishkeeping, and it was here that I managed to effect the compromise that made so much difference. After analysis and heart-searching I had to admit that although breeding had been quite fascinating it was nothing like the paying proposition it had superficially appeared to be, and furthermore I was beginning not to care much whether it was or was not. The point was beginning to emerge that I was much more interested in the behaviour of the various species I had been keeping. If they procreated, so much the better, as it indicated that they were happy, but breeding as such was no longer a serious preoccupation.

I straightaway managed to strike two tanks off the complement, with the possibility that another two could follow at a later date. This would enable me to concentrate my efforts into the living room, in which I could introduce larger tanks, but fewer in total number than heretofore. The Peace negotiations seemed somehow to have found a formula. I have now settled for one 36 in. tank for the small tetras, one 30 in. tank for a cichlid collection, one 24 in. tank for brackish varieties and two 24 in. tanks for oddments, quarantine etc., and there is one vacancy. This will be a 36 in. tank, at the bottom of a tier in a rather dark situation, and at floor level.

What suggestions for filling this 36 in., please? I have my own ideas and should be most interested to hear how readers would handle this situation. Since I will write about the results for the benefit of PFM readers I would only stipulate that the nucleus of fishes must be such that it can be added to from time to time, so piranhas are 'out', likewise the 'funnies' such as the butterfly fish.

I have no doubt that the circumstances described by Mr L. W. Beale in his letter about his fancy guppies (PFM, February) will be familiar to many aquarists all over the world. Regrettably, even though I stand on the same side of the counter as he does, I cannot have complete sympathy with him. In this context you simply have to look at the situation from the normal point of view of the dealer, as from elsewhere one can only be biased and emotional. In the first place the dealer is in business to satisfy a demand. Even though our assessment of his judgement over this varies according to whether we are cichlid or tetra enthusiasts, we must assume that he generally knows what he is about or he would be out of business altogether.

He orders his fishes from wholesale suppliers according to his established market, and according to the lists of species which his suppliers tell him they can provide. The chap who catches the fishes probably gets about a twentieth of their across-the-counter price. In between him and the purchaser come the agents and the transporters, both in the country of origin and in the country of destination, all of whom take their cut. The contribution by the catcher, however, remains precisely the same throughout the whole of this chain, and by the time the retailer receives his consignment the fishes have had a number of adventures and gained considerably in value. If they all live, it is true that some losses can be made good.
others are entirely at risk the moment they arrive, even assuming that they survive at all. Thus the sale price of fishes may well have to depend, within reasonable limits, on the way things have turned out generally, rather than on some predetermined concept of what a this or that should cost.

Now, along comes another seller with surplus fishes. They may be very good or very bad, but whatever they are, they were never ordered by the dealer and may in fact be something of an embarrassment to him. Nevertheless, the price offered is probably much nearer the wholesale price than the price which would have been paid to the original catcher of imported fish. I cannot see what quibble one can have with this arrangement, since there is no earthly reason why the private breeder should collect the elements attributable to freight and agents' fees, which has no risk whatever. The dealer retailer has, in my view, every right to profit to this extent because he is entitled to the bonuses of good risks as well as the penalties of bad ones, and since the number of fishes from private sources is only ever a small proportion of his stock it cannot be said that he is making money hand over foot from these activities.

It is a different matter altogether if a retailer comes to an arrangement with a local breeder for the supply of fishes, as in this situation more favourable terms would be offered because the buyer (the retailer) is not in a commanding position. In neither case would I expect the fishes to be retailed noticeably more cheaply than normally. Why should they be? If a collector travels from the north to the south to visit a retailer and buys some superb fish at 3s each (these having come from an amateur's surplus), he is going to be pretty cross when he makes a return visit the following month to find the prices doubled simply because the specimens on view were imported. To me, it's as simple as that.

In fairness, though, I have the feeling that Mr Beale was given a pretty poor deal, and if he takes my advice he will give that dealer a miss in future and tell him why. If anybody develops as good a strain as the writer suggests, I am sure that an advertisement in FPM will bring lots of prospective buyers, and the news will get round if the stock is unusually attractive, but since 'unusually' is the keynote the average breeder cannot hope for much. I think it should be remembered that this problem of disposal is always a sore point with the livebearer enthusiast, and it is one reason why I never recommend guppies or the like as a beginner's fish. Beginners are usually nice, normal sort-hearted people who don't like seeing the fry gobbled up by big fishes; this is, however, preferable to flushing them away, which is a positive act of cruelty and should be punishable. I think that if I felt like Mr Beale I should try the egg-layers for a while and return to his first love when he has hardened his heart. If he finds that he has in fact produced something he should stick to it and compete with the local dealers, but in doing so he really changes his status and may find his views will become modified as he contacts and learns of the different costing problems connected with the trade. I very much hope that he will find some inspiration from all the advice he will undoubtedly get. The fact that he gets pleasure from looking at his fish than bemoaning the price the others fetched makes me think that he will rise above his present difficulties because he has got what matters in focus. As I look around at my guppyless tanks, a thought begins to form in my mind... Ah, well, perhaps not!

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Transatlantic Topics
continued from page 64

water that rushes more than 200 miles into the ocean. The island of Marajo at its mouth is larger than Switzerland and of its 1,100 known tributaries, ten are larger than Europe's River Rhine, seven are over 1,000 miles long. The black, Rio Negro, is as wide where it joins the Amazon as a distance from Slough to Central London.

At the Fifteenth Annual Professional Aquarium Symposium of the U.S. Society of Ichthyologists in New York, Richard Reckeweg, from the National Fisheries Center, presented a paper on wooden aquaria that created much interest among the delegates.

Made from plywood, impregnated and coated on both sides with a resin that renders it waterproof, they are known commercially as GPX. And to prove that wood isn't just for the small aquarium, he said that tanks up to 700 gallons capacity had been constructed with success.

Wooden tanks aren't new, we know, but plywood coated with fiberglass cloth and resin, or even epoxy, made these aquaria expensive. What is important to you and I is the simple fact that better technology is making them cheaper and bringing them within the reach of us all, even those of us of us who benefit of the American high-spending potential.
GUPPY
World

It is one thing for the experts to recommend that a prime requirement in the production of large fancy guppies is to feed them umpteen times per day. Another kettle of fish when most of us have to earn our living and that means being out of the house and away from our fish for a considerable part of that time.

Crash programmes usually involve a hurried first feed before dashing for the morning transport. Dire threats to the rest of the family take care of the rest of the day until we again return from our labours to resume 'normal service'.

Poecilia reticulata, like most fish, don't sleep in the accepted sense of the word. During the hours of darkness they enter into a kind of twilight inactivity during which their body metabolism slows down. It takes approximately 15 minutes before they 'come alive', counted from the time we flood their home with light. During this period they rarely eat so it isn't much use dashing into the fish room on rising, switching on the lights, scattering the food in the aquarium and expecting them to consume it before it hits the bottom of the tank. Some may but the majority will just ignore the food.

Experts fit a time switch that turns the lights on automatically, a quarter of an hour before they feed their fish. Failing this electronic wizardry, turn the tank lights on when rising but delay the feeding until you have washed, shaved and grabbed that cup of coffee. In return for this thoughtfulness your guppies will repay you by increased growth.

My discussion about the lethality of the yellow pigment in guppies (Guppy World, PM, April), seems to have aroused great interest amongst readers, especially those breeding the zebrafish sport with both yellow and black colouring.

Having kept these I can confirm what so many have said in their letters, that so long as the black coloration in the dorsal and caudal fins remains less than a quarter of the total area, the guppies breed normally. As the dark melanophores lessen, a noticeable deterioration is noticed in the strain until sterility, the final step, is reached.

The answer lies in breeding only with guppies containing more black pigment if inbreeding is practised. Better still, why not try introducing new fish from an outside strain?

By PETER UNWIN

Reading about the carotenoid compounds in Alan Charlton's excellent book, 'A Little Known Fish Food' (1971, March), brought to mind an old dodge used by the old-time guppy keepers to enhance the red colour in their Poecilias.

Fresh carrots, as red as was possible to obtain, were boiled in as little water as was necessary, and after chopping were mixed with Bemax to form a stiff paste. Stored in glass, screw-top jars, this diet supplement was to be found in the fish rooms of most guppyscolists boasting good red guppies.

It takes a little time for the results of feeding this mixture to show, but your patience is rewarded in the fact that unlike many proprietary 'colour foods' on the market, there is no limit to the amount of the do-it-yourself diet that you can feed.

You and your guppies will find this food a good thing—and everyone knows you can't have too much of that.

Fancy a holiday in Austria from 12th to 19th July? Would you like to enter a European show at no cost to yourself? Even have your fish entries sold for you afterwards? And if that sounds too good to be true I can assure you that the only apparent snag will be getting your tongue round the name of the group sponsoring the event—the Osterreichische Guppy-Gesellschaft, Wien.

The Austrian Guppy Association will be again holding their annual show at the Museum of Natural History in Vienna. The 1968 show was vividly described for us in PM (October, 1968) by British traveller, Malcolm Delingrède. For those interested enough to require more details, write to Max Kahner, Kaisersalle 23/6/1, A-1210 Korneuburg, Austria. Note that this show is limited to 300 entries.

I can hear again the cry of the Viennese Customs Officials: Lebende Fische? L-c-e-n-d-e fische?! I still don't know whether their surprise was at the luggage containing live fish or that fish were live-bearing!

Before I was tall enough to struggle with the hieroglyphics on the jam jar and table sauce bottles, my youthful mind fell into the dualistic habit of thinking the world was divided into rival categories. With me it was always either right or wrong, dark or light, black or white. No shades of grey existed! Even McLuhan in later years couldn't convince me that the water in my aquarium was anything but either clean or dirty. I learned the hard way.

Yellow water in the aquarium is usually indicative that it is on the acid side of the pH scale but not always. Because of the high cost of filter charcoal, many hobbyists have started to substitute gravel in their box filters and, judging by the number of readers' letters on the subject, quite a few have found that the water developed a yellow or golden cast.

Gravel can be used safely as a filter medium but in the hands of the beginner, using the wrong kind or even careless about its preparation, it can be more costly than the charcoal it replaces. Use old aquarium
GUPPY Types

No other tropical fish has such a comprehensive set of Standards as the guppy. The first guppy standards were issued in 1937 and their comparison with the latest Standards Handbook of the Fancy Guppy Association, just published *, reveals how the outlines have advanced. In this new series in PFM the highlights of the story of the development of the guppy varieties will be given.

On reflection, one wonders how those early breeders ever produced the fish they so much admired, because the two sets of Standards published in the pre-war years did not include a female! As for her human counterpart, emancipation of the female guppy was a slow and long process. Both the 1937 Standards of the Fish Culturists’ Circle and the Guppy Breeders Society Yearbook of 1938, though displaying five male types, contained nothing about the opposite sex.

When a standard did finally appear, as a 2-inch-long, clear-finned 'Plain Jane', nothing distinguished one female guppy from another but their body colours of grey, gold, laced, Robson coloured and albino. The goldlaced had a basic body colour of old gold but with each scale edged with black. The Robson, so named after a famous breeder, sported a grey body with the dorsal and caudal fins all black.

In these original outlines the dorsal fin was D-shaped, the caudal round; body depth at the deepest point was approximately five-eighths of an inch. It wasn’t until the introduction of the American types after the war that English breeders saw other types of finnage on the bench. First of these ‘newcomers’ was the superb or shark tail, a name that so aptly described the caudal fin. This guppy was claimed by many to produce the broadtail male, a claim proved to be false over the years. They do produce some large-finned males, but like a similar claim that the roundtail female gave birth to swordtails, both stories had a lot of ‘if’s’.

Ironically, in view of what we have just said, another female type, the wedge-tail, did for quite some time provide the hobby with many red-finned males. One interesting fact about this fish was its pointed anal fins. Perhaps the fashionable ‘winkle picker’ shoes of that period had some influence?

Once the new female standards started to show, others quickly followed. Like the 4 minute mile, it seemed the world had just been waiting for someone to do it first. In quick succession came the scalloptail, and later the metropolitan, and it wasn’t only the finnage that was changing. In place of the clear fins or drab blue-black, that had been the main finnage coloration, we saw red, green and multi-hued varieties. She was soon just as colourful as the male. After remaining a drab creature for nearly two decades, the female guppy blossomed out. In 1968, a northern breeder, Ken Rigby, had his new cofortail females accepted as a standard, and we once again saw both male and female guppies under the same name.

Today’s Standards of the F.G.A. have upped the female’s length to 2½ in. (64 mm.) and list seven varieties: roundtail, superba, metropolitan, scalloptail, wedge-tail, cofortail and natural tailed.

J.K.

* Obtainable, price 5s (post free), from the secretary, Mr F. Campbell, 37 Cardigan Drive, Bury, Lancs.
Historic House of Fishes

There can be few aquatic suppliers in the world who can boast of being housed in premises of historic interest, and probably no others can point to fourteenth-century beams above their tanks. However, despite the charms of their old-world surroundings (and possession of unexpected 'perks' such as the right to graze cattle on nearby Boxmoor), it is the modern presentation of stock and up-to-date fishkeeping methods of Mr and Mrs Roy Skipper, owners of the House of Fishes, that must be the foremost impression obtained by their visitors.

The House of Fishes first opened in October 1968, the result of Roy and Gwen Skipper's decision to make their fishkeeping, which they had pursued so successfully in scant spare time for so many years, their business as well as their hobby. Every available cubic foot of space at 77, High Street, Hemel Hempstead, has been put to use and this involved making a number of special tanks and stands that fit into the various nooks and corners up and down stairs within the old building. Bulky items of equipment for sale are stored in nearby premises so that, for example, despite a not too large sales area, aquarium tanks of all sizes up to 60 in. length can be supplied when asked for.

Roy Skipper was the first aquarist in this country to breed the discus fish, in 1955. The species is still his main speciality and, as might be expected, it's a discus that forms the attractive sign above the House of Fishes. It is to this front door that so many would-be discus breeders make their way to obtain information and often to see breeding pairs with fry. Roy and Gwen Skipper have prepared a helpful leaflet to guide their discus customers, but they say in it that they make no claim that their techniques give the only route to success. Soft and acid water is essential for keeping and breeding discus, and anyone who buys discus from the House of Fishes can be told precisely the reaction (pH) and hardness of the water in the discus holding tanks. Another point emphasised by Roy Skipper for the discus keeper is that this is a cichlid having quite a small mouth, and hence it should be given foods smaller than those offered to other cichlids of comparable size. Small earthworms form a weekly item on the menu of his large discus.

Other tropical and cold-water fish species form the bulk of the display, however, and of course advice on all

By ANTHONY EVANS

Roy and Gwen Skipper with a customer
aspects of fishkeeping is given. Three attractive marine tropical tanks with a representative selection of aquarium species, including the ever-popular sea-horse, were on show at the time of my visit. I asked Mrs Skipper what practical points about keeping marine were especially important to emphasise, in their experience. Many of the problems of keeping marine fishes are similar to those with the large freshwater cichlids, she told me. The fish have strong territorial instincts, which mean that numbers of marine fish in a tank must be strictly limited or else deaths result from the continual aggression. Plants cannot be kept in marine tanks, so, again as with the plant-free cichlid tanks, heavy aeration and filtering systems designed to keep down the nitrogenous waste substances from the fishes are necessary. Under gravel filters linked with Eheim power filters were in use in the House of Fishes' marine tanks.

Many aquarists are uncertain about the number of types of discus that are available and I asked Roy Skipper his opinion on the elaborate distinctions sometimes made between these fish. He said that the more discus he saw and kept the less he thought he knew about the separate-ness of many of the kinds. Colours change with environment and he thought that some of the postulated distinct species are in fact nothing more than colour variants. As he showed me the discus in his tanks he told me that it is his intention ultimately to create a separate section for large aquarium fishes and that he hopes to have a full collection of types of discus always on display.

Such new developments together with the day-to-day running of a busy shop can leave little time for relaxation. But Roy Skipper is also a very popular lecturer with aquarium societies and at least once a week he is out taking at meetings. If reminder had been needed I would have seen from some fine colour pictures on the wall at the House of Fishes that Roy is a skilled fish photographer, and he has found time to write a section on discus—of course—for a forthcoming aquarium book. 77 High Street once had a spell as a public house called The Nelson, but then there were no less than 24 pulps in the street. The House of Fishes and the Skipper are unique.

BOOK Review


This book, first published by Stanley Paul & Co. in 1938, has been strengthened by the addition of a commentary on modern pond-making techniques and by photographs—alas!, not in colour—of some most beautiful pools and their settings. Amidst the glamour of the present commercial drive to sell pools and fountains and all that goes with them, the restrained and balanced appraisal of current methods introduces just that note of calm that enables the beginner to get the best value for his money. The authors question, quite rightly, the assertion that every pool must have a fountain (but they do tell you in which settings they would use one), and they utterly reject the use of chemicals for clearing pond water of algae or cloudiness. They thus balance some of the untruths which assail us in the weekend press and which are derived from the pens of those who ought to know better. We are taken through the Gardens of Spain, through the centuries, at the opening of this book. It is a delight for the scholar, as for the traveller. Those who have ponds will find it a pleasant companion, and those who have yet to share the delights described by the authors will be well guided on their way by the fund of wisdom in this book. Those who find books difficult to read will experience a feast of good writing which soars to lofty heights in its quotations but never loses touch with you and me and the fellow next door. Those who have an instinct for such things will recognise authority when they see it, and this is how I see the writings of Hervey and Hems. You are taken through pond construction in only 24 pages, but there is more fact and lasting impact here than is often seen in entire volumes on the same subject. A particularly comprehensive plant survey leaves one rather breathless, but it remains in the memory as a good source for future reference. The chapters covering life in the pool are quite conventional, but one can be sure that they are sound reading that 'It is not given to us, nor, to any man to know whether a fish is of the quiet and sheltered life under the protection of man'. A tactful allusion to our overall responsibilities as pondkeepers; most of what follows enables us to do our best towards what we might hope would be the most happy state of affairs for our charges.

It would be a duty,—to what evolved no contra-comment, I could disagree that water lily leaves have no beauty in themselves, that native-caught fish should not be introduced to garden pools, and I could regret that the authors failed to say into which musel the hatching spawns, but this would be unfair, perhaps, when there is otherwise so much to be said for this classic. Considering the excellence of the contents I feel that the publishers could have done greater honour to them by a more appealing format. At 45s it should not be too much to expect a splash of colour here and there, and it really is time that those responsible for the production of books on fish, gardening, pigeons and the like came to realise that their readers all too often have dirty hands and, whether it is the done thing or not, refer to their favourite books before they have removed the grime. Both binding and pages need therefore a little more thought than is usual and some publishers have already risen to the situation.

In this case they have not.

Put this book on your Christmas list. It is for favoured recipients and for those, like me, who greatly appreciate a book in which the authors have endeared themselves to the reader. One notices, with sadness, that the Preface records this book as the swan song of a distinguished man. Hervey, Hems—and Miss Eileen Hill, who provided the illustrations here and in their Freshwater Tropical Aquarium Fishes. One can only say "Encore" hopefully,
In the first revision of this wonderful little book the illustration of arrowhead on page 32 should be replaced by a drawing of what we know as Sagittaria natans, as the form shown is seldom met in aquarium keeping and could mislead the tyro in his early shopping. I rather doubt the wisdom of including streptomycin as a remedy in the excellent 'Diseases and Treatments' chapter, partly because of the difficulty in obtaining it off prescription, and partly because the dosage is not indicated.

These few points apart, here is a most wonderful buy for 12s 6d. Added to the soundness and comprehensiveness of the contents, the style of layout and production is something on which the Brockhampton Press can be thoroughly congratulated. The board cover is attractively attractive, the print is clear and the quality of the paper absolutely first class. This book was produced to be used and referred to, and possibly to be annotated those important margins. The single word AQUARIUM is its sole fall from grace, since this is really the guide to the first tropical tank, and coldwater enthusiasts will get little from it except, perhaps, conversion!

R. S. B. PINKS

Readers' Queries Answered

Overcrowding

I have a problem of cloudy water in my 24 in. by 12 in. by 12 in. stainless steel frame tank. I use two undersanded filters, Gro-Lux lighting and keep the tank at a temperature of 78°F. The tank contains: two angelfish, two kising gouramis, two opaline gouramis, two cardinalis, two danios, two sebras, two tiger barbs, two tenifol barbs, one glass catfish and one molly. Algae have ever greened on the tank and no waste matter has collected on the bottom. There was no problem for 3 months, but for the last 6 weeks the water has turned cloudy and two tiger barbs were dead.

You do not state the sizes of your fishes but at a reasonable estimate it appears that you have nearly 40 in. of fish in your tank, which is in excess of the absolute recommended (about 25 in.) for a 24 in. by 12 in. by 12 in. tank. This would cause the cloudiness and will also be responsible for further losses of fishes. It seems unlikely that all these fishes were in your tank when you started, but, even if they were, over the 3 months of its existence presumably someone would have grown (particular the gouramis and tenifol barbs) to sizes that certainly make the tank overcrowded. If you reduce the number of fish and take care not to give excessive amounts of food, the problem of cloudy water will not again arise.

Daphnia

I am looking forward to being able to feed Daphnia again in quantity with the summer months but understand that even Daphnia can cause harm if too much is given. Is a bag of Daphnia every day (or most days) too much?

The answer is almost certainly 'no, it is not too much', provided that you are not proposing to give a bag of Daphnia a day to one small neon! A daily bag of Daphnia spread amongst the inhabitants of a 24 in. community tank will merely be an extra treat and of great benefit in helping to vary your fishes' diet. Almost any single live food given in quantity and to the exclusion of any other becomes monotonous and could give rise to dietary deficiency, but few if any fishes seem to find Daphnia diets monotonicous. Too much given at any one 'sitting' could be harmful in that large masses of the food can use up available oxygen; Daphnia is seldom sufficiently abundant for this mistake to be made, however. Daphnia used as an addition to the basic dried food diet is an excellent food, with no disadvantages.

Black Mollies

How long should a mollie take to produce young? My large female black mollie was mated into a breeding trap over 6 weeks ago and still has produced no young.

Of the more popular livebearers, the black mollie is the species that is, in general, the most difficult to breed. In the first place it is obviously not possible to judge when the gestation period is reaching a climax by the easy method— that is by viewing the gravid spot in the pregnant female fish of the other type of livebearers appears as a black or
How can I stop my garden pond going green?

The green appearance of the water is caused by thousands of single-celled plants called algae. Though unsightly, these algae are not generally harmful to the fish occupants. Given the right conditions and plenty of light these plants suspended in the pond multiply enormously, using dissolved solids in the water for sustenance. Heredity is the solution—rob them of this rich source of food and the algae will die out. Established ponds packed full of healthy, growing plants and not overpopulated with fish seldom go green. The addition to the pool of live water fleas (Daphnia) who filter feed on algae will help, but remember that these ‘cleaners’ are also valued as food by the fish.

The introduction of live Daphnia in the spring will often curtail the growth of filamentous blanket weed at a period when this algae is establishing a foothold.

Chemical ‘cures’ of various kinds are on the market but though they will often restore the clarity of the pool, the condition of green-ness is likely to return if there is no competition from other submerged aquatic vegetation.

It can be harmful to the pond if this green algae is killed too suddenly. Large amounts of the dead material will only provide rich sources of food for bacteria and can result in the pond becoming really foul. Your nose is a sure guide to this condition. Flushing out the old water with a gentle continuous flow from the garden hose will wash away the excess of algae, dead or alive.

translucent area. There are other guides, of course; when the female mollie is ready to drop her young the half circle of her distended abdomen will usually be seen to flatten at its greatest depth—but it is not quite so easy to judge this until one has had some experience. In any case, the female fish should have been transferred to a breeding tank well before this occurs. We say breeding ‘tank’ advisedly because mollies do not take kindly to incarceration for any length of time in a breeding trap. It is far better to prepare a small breeding tank provided with a good covering of floating plants.

The time lapse between egg fertilisation and birth varies quite a lot and is affected by factors such as temperature. In any case, unless the aquarist is following a very carefully controlled breeding programme, he doesn’t usually know when fertilisation took place. But the growth period is not likely to be less than 4 weeks and may last as long as 8 or 10.

We would suggest that your mollie should, this time, be left out of the breeding trap. Two weeks after the fry have been dropped (although you may see no fry the mollie’s shape should indicate when this has taken place), the mollie can be placed in a prepared breeding tank that contains a thick floating plant cover. This will serve to protect the fry although the female must be removed as soon as possible after the fry are born.

Elephant-nosed Fish

I have recently acquired a mormyrid (Gnathonemus petersii) and should be glad of your advice as to how he should be fed. I have been feeding Liquifry, but I don’t know whether this is sufficient. He appears uninterested in dried food. As he is completely nocturnal, it also seems to be necessary to feed him at night.

You have acquired, in your elephant-nosed fish, one of the most delightful of tank inhabitants; however, these fish are not particularly robust when young and need careful rearing. Liquifry is an excellent food made specifically for new-born fish, and will certainly not provide sufficient food for a mormyrid. Your fish will require a substantial diet of live food. Tubifex worms, suspended in the tank from a worm feeder, white worms and live daphnia are all suitable foods.

Elephant-nosed fish are rather shy and need well planted tanks so that they have somewhere in which to hide. Rockwork or pieces of cork bark also serve to provide hiding places for them. Once the fish is settled in the tank, it will probably feed on tubifex worms throughout the day, but certainly it can be induced to feed by switching out the tank lights. Elephant noses are more unusual in that they have a very well-developed sense of play, and a feeding ring suspended in the tank like a hoop, or a ball of tinfoil, will often keep them occupied for a long time. Such behaviour is most likely to be exhibited when at least two specimens of a similar size are housed together.

Albino Reds

Can you please tell me what exactly is meant by an ‘albino’ fish? I have always thought that an albino strain would be white, but I have recently been told that the red-eyed red mormyrid turns an albino fish. Can this be true?

The albino mormyrid is one in which the process whereby the normal brownish-black pigment (melanin) is produced is defective. But this lack of black coloration does not mean that the animal need be without colour, although many of the best-known albino's are. The red-eyed red mormyrid's 'albinism' is shown by the lack of black pigment in the eye and by the fact that the gravid spot in the female shows no black. This is also true of the albino swordtail itself, named 'albino' because it does closely resemble what is more usually thought of as albino, i.e. it is a pale, pinkish white fish with pink eyes; but in this fish also, although it lacks black pigmentation, some pigmentation is retained, such as yellow, and the pinkness is, of course, due to the red blood pigment being seen in the skin vessels.

Dwarf Rush

I have two Acorus plants in my tank, small ones that never seem to grow at all. They look quite healthy but don’t exactly prosper. Is this quite
FOR the last 2 years I have had a 24 in. tank by my
futon chair, and in it have lived a succession of pairs of
adult angels. They produced brood after brood and
caused me a lot about the way in which they live. It had
never been my plan to start a 'production line' of this
species, however, so I gave them the liberty of a much
larger tank, which they now share with clown loaches,
sharks and catfish, and these will soon be joined by some
festive cichlids.

Although the angels moved the tank remained and it
took me a long time to decide what should take up
residence. Only 'personality' fishes would do, as I had got
used to feeding the angels by hand and they had become
very tame indeed. The larger cichlids did, of course,
suggest themselves, but their nasty habits as regards plant
life made it almost inevitable that the physical appearance
of the tank would resemble a junk yard rather than some
idyllic aquatic backwater.

I had long been juggling with the notion that I might
experiment with tropical marines, but since I am not made
of money and the tank was an old angle-iron affair, long
past its best, this pipe dream soon drifted off. It then
struck me that I might invest in a brackish set-up, and in
this I was encouraged by my wife who saw a means of
disposing of that old tank, which was admittedly by now
an eyesore, and the acquisition of a new and gleaming
structure which was more in keeping with the room.

The immediate appeal to me was the prospect of keeping
a group of fishes which were quite new to me, such as
scats, monos, puffers and the like. Although these are all
tolerant of ordinary water they are said to be happiest in
brackish or salt conditions, and I thought that I might
gradually convert from brackish to full marine condi-
tions over, say, a year. Even if there were tragedies the
trial would be a useful one and might appeal to others of a
like mind to myself. I should make it clear that at the
outset I saw the brackish tank as a means to an end, and
not the end itself.

In this sort of situation you are first faced with the
likely cost. This is roughly how my money went:
Metaframe tank 24 in.—£9. Dialomatic heater/thermo-
stat—£2.75. Gro-lux lighting unit—£3. Cover glass—
75. 6d. Sand—10s. Thermometer—6s. Coral—£3.
Prices are approximate. Thus for about £40 you are well
on the way, including some fishes. I did not intend to use
a filter but I put an airline in with a quite large diffuser
designed to give a maximum output of really fine bubbles.

The sand needed for this sort of tank is the finest you
can get. It is vastly preferable to ordinary aquarium
gravel because the latter lets waste food particles slip
down into its interstices. It is said that one of the
greatest menaces in marine tanks is pollution, and there-
fore it is necessary to confine all extraneous material to the
surface of the (finest) sand, whence it can be siphoned.

Neither Salt
nor Fresh

Something new is added to the meaning of community tank by this photo-
graph of tropical seawater and freshwater fishes in the same aquarium.
They are photographed in Wonder Water, a patented mixture (specific
gavity 1.0080) that maintains an osmotic balance which both marine
and freshwater fishes of most types are said to find acceptable after a period
of acclimatisation that takes from a few hours to days or weeks for individual
fish and for different species. Developed originally in Japan, the water mix-
ture is also recommended for use with marines to rid them of external para-
sites. At present available in the U.S.A., this product is due to be
released in Britain by Jonco Wonder Products.
dipped or eaten by 'scavenger' fish. 'The tank itself was very nicely finished and gave promise of a lot of good service, but even so I applied Hydro Aqua-Sealer to all the glass joints to keep the salt water as isolated as possible from anything metal. The heater was also chosen with the danger from metal well at the forefront of my mind, as it is simply suspended in the water and does not need any submarine anchor of any kind. The Gro-lux lighting is essential to any modern aquarium and I would not even install any other system especially where a decorative effect is most in demand. It will be noted that I bought coral but no plant life.

A few comments on coral will not be out of place at this early stage. Those who have had no experience in its use will be astonished at its high price. A piece measuring about 9 in. by 6 in. by 4 in. can cost anything up to £4, but as it is sold by weight the dimensions are infinitely variable. It is unwise to buy cheap coloured coral. The commonest form is white but this is frequently stained red or blue or other shades, and it cannot then be regarded as safe, for when exposed to warm salt water the colouring medium usually comes out and can prove inimical to the inmates of the tank. Genuine red organ-pipe coral in combination with any of the commoner white forms creates a very fitting association and looks well under Gro-lux.

Apart from the familiar, rather knobbly white coral there are forms which resemble flowers and leaves, and the striking cup corals can constitute really significant centrepieces or focal points, around which the remaining pieces can be assembled. Coral is expensive and it is fragile, so treat it like rare china. It is quite obvious that it can be arranged just as it pleases you: it is a dead thing and there is normally nothing to go wrong with it unless you drop it. There do not even seem to be any binding rules or conventions as to how you should arrange it, save that it should please the beholder, so you can let your imagination run riot.

Since they do not contain any plant life marine and brackish tanks do not need to be bathed in brilliant light all the time, and hence the growth of algae is discouraged. Nevertheless, over a period, the corals get tired-looking because algae start to gain a foothold. The remedy is to remove the offending pieces and to submerge them in a plastic or rubber pail containing plain water to which a few tablespoonsful of liquid household bleach have been added. Leave for 24 hours and then re-submerge in plain water for a further 24 hours, changing the water as often as possible, until all trace of the smell of chlorine has disappeared. The original brilliance and beauty of the coral, especially the white forms, is thereby almost miraculously recovered at very little cost, without putting the aquarium fish in any way at risk. Some authorities advise boiling the coral but this is hardly necessary unless a really heavy infestation of algae has been allowed to develop. The bleach method is so simple and trouble-free that it can be carried out every month or so. There is no need for your tank to look bare during the cleaning sessions if you keep a reserve set of corals for these occasions. You may decide to alter your lay-outs every so often by withdrawing all and completely replacing them. This has the advantage that you can service the rest of the tank at the same time, though at the cost of disturbing the fish more than somewhat. It could be that the gradual change of coral is preferable in the interests of the peace of mind of the fish. It should be remembered that the monos are amongst the most emotional of fishes, and it has been known for them to succumb on the occasion of a door slamming or some similar acoustic disturbance. Those who scoff at fish psychology would do well to consider these things.

My initial purchase of coral was not very large and I had to hunt around a bit to secure a piece large enough to conceal the heater, but I eventually found what I wanted at the House of Fishes at Herne Hill. What you have to keep your eyes open and restrain your impatience! Some shells—all very carefully cleaned, were scattered informally around the tank floor, but I refrained from buying too many of these, or anything particularly large. It did fall for a lovely bit at Herne Hill's, whose globular redness was calculated to leap into prominence under the fluorescent lighting—and it did.

As for the water I bought a ten shilling packet of H. W. Meeressal, a preparation for converting water from your tap to something in which true marines can revel. I decided to use this at the rate of a teaspoonful per gallon. It was easy to mix and I soon had the tank set up and looking very welcoming to potential inmates. From concept to the setting up stage I was pleased that everything had been so trouble-free. Dearly as I love aquatic plants I was relieved that I did not have to go through the expensive process of buying in at a time of the year when it seems that stocks are at their lowest and most expensive. My only speculation was just how long the pristine freshness of the scene would last. According to the dismal predictions I can see disappointment almost before the sediment had settled!

To be continued

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Readers' Queries

continued from page 74

usual or are they rotting away underneath?

Acorus is a marsh or bog plant that grows in the wild with its leaves out of the water and grows better at temperatures rather lower than those found in a tropical aquarium. It does live, however, in our tropical tanks, but added to the fact that conditions in a tank are not really ideal for it, it is an extremely slow grower. Your plants are probably doing as well as can be expected. Acorus is nearly always used in a small clump for purely decorative purposes and not as a tank 'filler'.

Spawning Medium

Willows root is often mentioned as a spawning medium. Is it sufficient to tanker it after it has been obtained?

No, willow root must be boiled and rinsed several times over a period of days. This is to leach out all soluble materials that could be harmful to the fry as well as to ensure that no harmful pests are being introduced. If you wish to avoid this troublesome preparation, why not use nylon wool? This has to be made into 'mops' but it can be quite easily done by tying off the skein of wool into 4-in. lengths and then cutting it about 3 in. above each knot.
Breeding the Mottled 'Cat'

Corydoras paleatus (Jenyns)

This month’s article is about one of the very early occupants of our aquaria, for this spotted armoured catfish of the family Callichthyidae was already being imported into Europe by 1878. Since then these fish have been a firm favourite of aquarists. They are peace-loving and undemanding, and because of their untiring search for food on the bottom of the tank they are often spoken of as scavengers—the aquarium’s ‘refuse collectors’. This very virtuous activity does, however, have its shady side because the continual rooting about the bottom with their strong barbels stirs up the detritus and for this reason filtration is an absolute necessity when most kinds of catfishes are kept.

Corydoras paleatus comes from poorly oxygenated, shallow waters in south-east Brazil and along the course of the River Plate. Its general appearance is well known and is illustrated in the photographs. At the sides of its body there are two longish regular rows of bony plates, and there are dark markings on the greenish brown gleaming background.

Catfish are adapted to make use not only of the oxygen dissolved in the water, by their gills, but also of atmospheric oxygen and for this latter purpose an organ situated in the hindgut is brought into action. Air is taken in through the mouth, passed through the intestine and in the hindgut the oxygen is absorbed; the residual gases are passed out through the anus.

Various kinds of tanks may be used to house these fish and they
The photographs above show the relative position of the male (left) and female during the act of milt release by the male and transfer to the female. At the moment of release of milt the male's body wrinkles into an S-form (top right picture)

Below: the same procedure as shown at the top of the page can also take place in midwater instead of on the tank bottom

can be kept either alone or in company with other peace-loving species. The tank should be thickly planted and contain a few rocks and perhaps wood to give the catfish some places in which they can hide. Ordinary tapwater is suitable for them. They eat any food, taking it from the bottom of the tank.

There is no particular difficulty connected with breeding Cyprinus paleatus, though it is not always apparent when they intend to spawn and because of this they will often spawn in the community tank when one least expects it. The male is much smaller and slimmer than the female and his dorsal fin is longer and pointed. If they are kept in an 18 in. or 24 in. tank only in the company of their own kind it may be possible to bring on the spawning by raising the temperature to 77°F (24°C) and changing a third of the water for fresh, but it cannot be guaranteed. The best time for spawning is in the early morning hours during the months of February to May, and the fish should be at least a year old. It is also wise to put two or three males with a single female as one male alone is not capable of fertilising all the eggs.

Whereas Cyprinus schultzei lay their eggs on the leaf of a plant, Cyprinus paleatus prefer a hard surface—in the instance I am reporting, the fish used the tank glass. At the moment of mating the male's body was held by the female's barbels; as the male writhed he expelled the sperm. This then entered the pocket formed by the folded ventral fins of the female and into which she had already passed her eggs. In this pocket the eggs were fertilised. The female then sought a suitable spawning place on the tank glass and after it had been quickly cleaned
the eggs were stuck on it. Each laying of eggs was followed by a further mating and the whole process lasted for about 2–3 hours. A female lays up to 200 eggs and it is a wise precaution, when the spawning process has been completed, to remove the parents to prevent the eggs being eaten. The brood hatches about 6 days later. The eggs are white to start with but become progressively darker until just before
Top left: after cleaning the aquarium glass the female deposited some eggs there (shown in the picture) before being coaxed by the waiting male to a further mating act.

Top right: head-on view of the female, shortly before egg deposition, showing the ventral fins folded around the eggs.

Right: the albino form of Corydoras paleatus.

Hatching they are dark brown. The tiny brood should be fed on fine foods and it is a good idea to aerate the tank and change part of the water fairly frequently.

An albino variety of this species is also bred; like all albino varieties it requires a higher temperature.

**QUICK TIPS**

- Having trouble in keeping your dried foods just right? Next time you buy a new drum, empty out the contents onto a sheet of clean paper and line the inside of the can with a strip of blotting paper cut to fit. When refilling with the food you may have to keep shaking the contents down to get all the food back. Tins or containers lined thus will make your food and your pocket money last that much longer.

- Glue a strip of coarse sandpaper round all bottles of medicine that are poisonous or require special attention when in use. This will remind you on the odd occasions you are tempted to use chemicals indiscriminately in your aquaria. If you have the patter of tiny feet around the house, the kids can be taught never to touch such bottles and the coarse feel of the sandpaper gives them a forcible reminder.

- Troubled by a smoky wick on your fish room oil heater? If so, the next time you buy a new wick, first soak it in vinegar, allow to dry and then use in the normal manner. It won’t smoke any more.
What’s New?

If the aquarium tank does not feature as no. 1 decorative item in every self-respecting home of the future it will not be the fault of the aquarium manufacturers in this country. On display at this year’s Pet Trade Fair in Harrogate were a selection of tanks—leakproof, rust proof, decorative and ranging in shape from the purely orthodox to the distinctly unusual.

Aquaria

Inter-Pet’s (18–22 Church Street, Dorking, Surrey) new range of stainless-steel tanks, doubly sealed by setting the glass in the frame with hot bitumastic compound and then sealing the bottom with silicone rubber sealant, were on show for the first time and included the Contemporary Book Case Unit. This accommodates tanks sized 24 in., 30 in. or 36 in.; three glass shelves in a glass side unit and a long glass panel underneath the tank itself provide storage space for books, drinks, etc. The problem of whether to fit tungsten bulbs or fluorescent strip is neatly solved as provision is made in the hoods of these tanks for both forms of lighting to be used simultaneously.

If the words ‘all-glass aquaria’ conjure up a picture of the thick moulded tanks of the past, dismiss it from the mind. The modern all-glass aquarium is an elegant sight. Trophy Products (Laurence Drive, Stover Trading Estate, Yate, Bristol) Crystal Aquariums are made with 6 mm. glass for strength and oversealed with Trophix silicone rubber sealant. The sides of their 37 in. by 12 in. by 15 in. model and a top and bottom front strip are in black glass, and the front glass—sloped backwards to reduce reflection—is recessed to form a trough that can hold small rocks and pebbles and indoor plant cuttings. The price of this tank is £16.0.0, and a plain black matching stand in £7.12.6.

The revolutionary Aquadome was exciting a good deal of interest on the Fish-E-Quip (a Shrewton Road, London, S.W.17) stand. The Aquadome is a rectangular plastic tray base, 21 in. by 29 in., out of the middle of which rises a large plastic dome. The area of open water can be planted with surface plants such as water lettuce, while taller plants are accommodated inside the dome. Fish can move freely between the dome and the pond area and the unit is said to have a water/air surface equal to that of a 4 ft. tank. The water in the unit is continually filtered, being drawn from the dome, passed through an outside filter and pumped back into the tray. The price of the complete unit (£19.19.6) includes the base tray, Aquadome, air pump, outside filter, charcoal, treynow wool, hose, airline and fittings. A low wrought-iron stand on which the unit fits at exactly the right height for seeing it to full advantage can be supplied (£8).

A conventional rectangular tank was another centre of an admiring crowd on the SCAN Group stand. If its 15 in. width by 18 in. depth were not unusual its 10 ft. length certainly was. It had been made by Lee Reid & Co. (London) Ltd. (5 Beaumont Road, Bembridge, Isle of Wight).
who were separately displaying traditional tanks in many finishes, and was being offered by SCAN as the prize, fully stocked and decorated, in a 'guess the fish' competition.

Glazing with silicone rubber is the go-to option as it mounts easily on the new range of stainless-steel aquaria, from size 24 in. upwards, being marketed by King British Aquarium Accessories Co. (Cannon Mills, Union Road, Bradford 7, Yorks.). With matching stainless-steel hoods, the tanks are entirely suitable for marine fish as well as freshwater tropica! A range of smaller, non-rusting tanks from 22 in. by 8 in. by 8 in. to 24 in. by 8 in. by 8 in. has been introduced by Genyk Products Ltd. (Miles Road, Mintham, Surrey). Glazed, panelled aquaria, they have an all-plastic moulded frame in which the glass is permanently sealed with a special silicone rubber. Hoods to match are obtainable.

**Foods**

The fish food manufacturers had a number of new products on view. Phillips Yeast are introducing Maxiflakes. The manufacturer explains that these large flakes, which if held in the fingers just below the water surface will attract the larger fish so that they can be hand-fed, are based on a high-protein content that makes them as nourishing as a live food. A 1.1 oz. tin is priced at 75 pence. A new range of freeze-dried foods was being shown by Eric Woods (Rosewood) Ltd., with a protein value of 66% to 70%. Beef heart and ox liver retail at 56 pence, roe at 64 pence, shrimp at 63 1/2d, and tubifex at 36. Herb-Royal Ltd. have devised a freeze-dried food pressed into tablet form to adhere to the tank glass and advise that their Tetra Tips eliminate waste and allow the fish to feed as they require. Fish-Equip’s Tosca Flakes joined their food range (retail, 46 1/2d) and Fantasy Pet Products displayed a new line in food with long-floating capabilities combined with the advantages of a pellet food. Two packs, at 25 and 46 1/2d, are available in fine, medium and coarse grades. A new supplier of live foods is King British, who now offer white worm (46 1/2d) and micro worm cultures (31 1/2d).

**Heat and Air**

Inter-Pet have combined their Sunday-Star thermostat with their Hi-Duty heater to produce the Combined Heater-Thermostat.

Aquarium Kits by Thomas’s (Sheffield, Halifax) have been devised with the beginner in mind but these would also make ideal aquaria gifts of spaces for the established fish-keeper. For 69s 11d, the kit contains pump, heater, thermometer, tubing, connectors, clamps, clips, food, filter, airstone, wool and thermostat, all from the Petcraft range. The Eheim 476 is a new addition to the range of complete custom-built enclosed circuit filters that Europe’s largest manufacturer of precision power filters offers. The Major Eheim gives an output of 400 litres/hour for freshwater (237 3d 9d and for saltwater 50 2s 6d).

Airstreams are now available from Miracle Products (13 Nutley Lane, Reigate, Surrey) and also available from this firm are aquarium decor panels measuring approximately 23 1/2 in. by 16 in. portraying various stone work (fist, Cotswold, rustic, Roman etc). These retail at about 146 1/2d.

The Inter-Pet Powerstream Conversion Unit operates ideally on the Airstream range of filters, but it can be fitted to most air-operated outside filters as well as underwater filters to turn them into power units. The unit is made to pump 40 gallons an hour (cost £8 16s).

**Meetings and Changes of Officers**

AMESBURY & D. A. S. Chairman, Mr M. Saward; vice-chairman and treasurer, Mr E. E. Stokoe; secretary, Mr E. N. Stuart; (The Morris Arms, Tarrant, Chesel). treasurer, Mr M. Jones; secretary, Mr R. Darbon, Meetings: every first and third Thursday of month at the Oddfellows Hall, Lower Bridge Street, Chesel.

CROYDON A.S. President and vice-chairman, Mr F. J. Blake; chairman, Mr H. S. Wood; secretary, Mr D. H. Creek (1941 London A.A. Road, Addingham, Leeds), assistant secretary, Mrs S. S. Dryden; (24 Rawns House, Skipton Road, E2); phone 01489 7189.

CRAWLTON & D. A. S. Meetings (new venue): The Stars, North Street, Crawle, Sone.

CHESTER & D. A. S. Chairman, Mr P. M. Simpson; vice-chairman, Mr E. N. Stokoe; secretary, Mrs J. Darbon (The Morris Arms, Tarrant, Chester); treasurer, Mr M. Jones; secretary, Mr R. Darbon, Meetings: every first and third Thursday of month at the Oddfellows Hall, Lower Bridge Street, Chester.

CLYDE A.C. Chairman, Mr C. Murray; secretary, Mr J. Murray; treasurer, Mr T. Boyle (45 Mitchell Drive, Rutherglen, Glasgow); annual meeting, Mr J. Wellie; treasurer, Mr P. Adamson, Meetings: first Saturday of month in the Orange Hall, Tollis Street, Glasgow.

F.O.G. SOUTH LONDON Section, Meetings: change of venue: The Labrador Repo, 31 New Cross Road, London, B.R. & D. A. S. Chairman, Mr N. Matheson; vice-chairman, Mr M. E. Shone; secretary, Mr H. C. Beck (24 Battishell Crescent, West Wick, Surrey); phone Chobham 8756.

GOLDWELL SOCIETY OF GREAT BRITAIN, President, Viscount L. C. Burt; vice-presidents, Mr M. D. Cause, Mr D. B. Taylor, Mr B. J. Lycett, Mr W. I. Wilson; chairman, Mr G. H. O'Neill; secretary, Mr G. A. W. Fingay (1 Roland Road, Worsley, London, E2); assistant, Mr R. D. Eaton; treasurer, Mr W. F. Wain; bulletin editor, Mr R. Whittington; show secretary, Mrs M. Whittington; technical co-coordinator, Mr J. H. Boodell; P.B.O., Mr J. L. Linde.

GOSPORT & D. A. S. Secretary, Mr D. T. Harris (39 St Marys Road, Southsea, Portsmouth, Hants).

MIDLAND AQUARIUM & POOL SOCIETY, Meetings: change of venue: Ladyswood Community Centre, Lodbury, Clissold, Northampton, Notts.

NOTTINGHAM & D. A. S. Chairman, Mr M. J. Goodfellow; secretary, Mr K. House; (show secretary, Mr N. Knight; secretary, Mr K. Green (3 Sandford Road, Mapperley, Nottingham); bulletin editor, Mrs M. Goodfellow.

SMETHWICK & D. A. S. Chairman, Mr D. Johnson; vice-chairmen, Mr E. Woodward; (treasurer, Mr J. Harris; secretary, Mr W. Dorsett (214 Ardmore Road, Stourbridge, Worcs.); show secretary, Mr L. C. Butt; secretary, Mrs J. Hodges (Meetings change of venue): Sandford Road School, Smethwick.

WEDNESBURY & D. A. S. Meetings: change of venue: The Mildred Vaults, High Street, Wednesbury, Walsall, Meetings in the summer at 8.00 p.m. All welcome.
19th APRIL is probably remembered by the scientists as the anniversary of the death of Charles Darwin and by the poet as the same for Lord Byron: but to the aquarist, especially if he lives in the north, it will be remembered as the date of the thirty-fourth annual fish show organized by BELLE VUE A.S. Held in spacious new premises, the event proved a Mecca for hobbyists from all over the north and Mrs Lindley and Mr R. Moorhouse had their work cut out assessing the entries.

The show was also a special event for four ex-officers of the club—Mr J. F. Wilkinson, Mr T. R. Lee, Mrs Constance Kelly and Mr Jim Kelly. During the presentation to them of Life Membership scrolls, the present chairman, Mr Stan Taylor, spoke of their past services to the Society and said that the club was proud to have numbered such distinguished and well-known hobbyists on the membership roll. The presentation was made by Mr R. E. Legar, Zoological Superintendent and present president of the Society.

The honorary members, judges and officials of the club later enjoyed a dinner provided by the Ladies Committee—Mrs Shackleton, Mrs Miller and Mrs Cobb. All those attending the dinner were asked to address themselves to the secretary, Mr Roy Davies, 28 Wetherby Street, Mr Openshaw, Manchester M11 1WU (phone 845884).

Details of the results are:

**Guppy**: 1st Mr M. Buchanan (Buxworth, 79; 171), 2nd Mr and Mrs Cobb (Buxworth, 741: 12), 3rd Mr and Mrs Webb (Buxworth, 741: 12), 4th Mr and Mrs Worsley (Buxworth, 741: 12), 5th Mr J. James (Buxworth, 741: 12), 6th Mr R. J. Ives (Buxworth, 741: 12), 7th Mrs P. E. Hough (Buxworth, 741: 12), 8th Mr J. James (Buxworth, 741: 12), 9th Mr R. J. Ives (Buxworth, 741: 12), 10th Mr J. James (Buxworth, 741: 12).


**AT THE STRETFORD & D. A.S. open show a record number of entries, 372, from 28 societies from all over the north of England ensured healthy competition for the Best in Show trophy, which was won by the entry bunched by Mrs D. R. Sturden of Leycester A.S.—a silver shark which obtained 82 points. The Junior 'Best in Show' trophy was won by Mr A. C. T. Brown of Top Ten A.S. with a goldfish (76 points). The exhibition with most points was Mr Whitney of Accrington with 372 points from five winners. Prominent aquarist supply dealers and local aquarist shops contributed prizes to the value of £17 so that every first prize winner in the 33 classes received a worthwhile prize. 500 visitors in addition to the exhibitors visited the show. Results were:

**Guppy**: 1st Mr H. Cooper (751: 2), 2nd Mr H. Cooper (751: 2), 3rd Mr H. Cooper (751: 2), 4th Mr H. Cooper (751: 2), 5th Mr H. Cooper (751: 2), 6th Mr H. Cooper (751: 2), 7th Mr H. Cooper (751: 2), 8th Mr H. Cooper (751: 2), 9th Mr H. Cooper (751: 2), 10th Mr H. Cooper (751: 2).


**SaturdAy, 14th April was not only the date of the CATFORD A.S. open show but also the day of the first Cup Final and match of the visiting aquarists and their friends were delighted to be able to watch the latter on the colour television set that club members had obtained for the occasion. The fish were watched by Mr C. A. T. Brown, Mr D. R. Eason, Mr T. J. Jessop, Mr F. Tomkins and Mr J. Stowell. Special thanks were paid to Mr G. Greenhalh, Mr S. Mooney and others who assisted the show secretaries in the final layout of the show. Prizes were presented by Mr Eason to:

Furnished aquaria (Lei Aquaria Cup): 1st Mr S. Moore, 2nd Mr R. P. H. Poole, 3rd Mr R. P. H. Poole, 4th Mr R. P. H. Poole, 5th Mr R. P. H. Poole, 6th Mr R. P. H. Poole, 7th Mr R. P. H. Poole, 8th Mr R. P. H. Poole, 9th Mr R. P. H. Poole, 10th Mr R. P. H. Poole.

Mr and Mrs D. R. Sturden (Stourbridge, 741: 12) presented prizes at the CATFORD A.S. open show. The trophy was won by Mr G. Greenhalh (Kingsnorth), 2nd Mr R. Cooper (Kingsnorth), 3rd Mr A. J. E. Coles (Croyden). Cichlids: 1st Mr B. Bellingham (Tinbridg), 2nd Mr S. B. Bellingham (Walthamstow), 3rd Mr J. J. Stephenson (North Kent), 4th Mr J. D. Wilson (Hornsea & Redhill). Dwarf cichlids: 1st Mr T. C. Brown (Tinbridg), 2nd Mr R. B. Bellingham (Walthamstow), 3rd Mr J. J. Stephenson (North Kent), 4th Mr J. D. Wilson (Hornsea & Redhill). Dwarf cichlids: 1st Mr T. C. Brown (Tinbridg), 2nd Mr R. B. Bellingham (Walthamstow), 3rd Mr J. J. Stephenson (North Kent), 4th Mr J. D. Wilson (Hornsea & Redhill).

Exotic tankers: 1st Mr J. E. Coles (Croyden), 2nd Mr J. J. Stephenson (North Kent), 3rd Mr J. D. Wilson (Hornsea & Redhill), 4th Mr S. B. Bellingham (Walthamstow), 5th Mr R. Cooper (Kingsnorth).
A completely revised edition of the Standard Handbook of the FANCY GUPPY ASSOCIATION is now available. Price just $5.50, post free, from the Association's secretary, Mr Fred Campbell, 33 Cardigan Drive, Barby, Lamb, Lancs. It presents not only all the information members of the F.G.A. may require to select and exhibit their fish at Association meetings, but is a comprehensive guide to all who are interested in the breeding of Poecilia reticulata.

ENTRIES AT THE READING A.S.

Third Open Show were up on last year’s count and judges Mr B. Baker, Mr M. Hayes, Mr J. Stillwell, Mr A. Wilkinson and Mr W. Ryder commented on the high standards exhibited among the 354 entries received. Two added attractions this year were society tables entered by Blackwell, Portsmouth and Reading and an exhibition of snakes and other reptiles staged by a member. Fries and cards were presented by Society president, Mr A. Crisp, 50.

RESULTS OF THE INTER-CLUB SHOW BETWEEN PORTSMOUTH AND MID-SUSSEX, LITTLEHAMPTON, BRIGHTON & SOUTHERN A.S. WERE:

Champions: 1st Mr B. Cox (SOA) 2nd Mr V. B. Morris (Brighton), 3rd Mr S. Godfrey (Lampeter) 4th Mr H. P. Smith (SOA), 5th Mr M. C. Davis (Communications Society). Reserve: 1st Mr G. Godfrey (Lampeter) 2nd Mr B. Morris (Brighton), 3rd Mr H. P. Smith (SOA), 4th Mr M. C. Davis (Communications Society).}

The match was won by Portsmouth with 923 points (2, Brighton & Hove, 945; 3, Mid-Sussex, 904; 4, Littlehampton and Bognor, 902).

ENTRIES FROM GLOSPO, Stockbridge and Lancaster were among those braved by the 66 competitors at the N.E.S.A. open show and judges Mr M. Jones, Mr B. Pengilly and Mr J. Witham had 693 entries to judge. Results were:

Guppies: 1st Mr J. Witham (Airesport, 740); 2nd Mr P. Reynolds (Slovenia, 725).
In Brief . . .

LEEDS & D. A.S. has recently re-formed after a successful search for a new meeting place. Meetings on 10th June, 15th July, 19th August, 23rd September, 14th October, 11th November and 9th December will be held at the Leeds Anglers Club, junction of Beckett Street and Stoney Lane, Burmantofts, Leeds 8. New members, both beginners and experts, are most welcome and should contact Mr J. D. Jackson, 24 The Oval, Leeds 14, for details.

CRIES of horror from lady aquarists present greeted the jars of wingless fruit flies and micro worms that Mr R. C. Armstrong used to illustrate his talk on SOUTH-AMPTON A.S. on feeding tropical fish. However, members thoroughly enjoyed this very helpful lecture. In the table show for bars, a highly advanced class, Mr H. Armitage of Havant awarded first, third and fourth places to Mr E. Hearn and second to Mr J. Gilbert.

THE FIRST presentation of the AMESBURY & D. A.S. was made in high style with a maximum points gained from the year’s bottle shows, the Stonehouse Challenge Cup, was made to Mr Lune.

AFTER an enjoyable lecture by Dr. Casey of Warham, during which he performed some unusual experiments to illustrate the properties of water, Mr Jones won the WEYMOUTH & D. A.S. table show for bars (2, Mr Carter; 3, Mr Jones).

Mr C. BOWERY of CHESTER & D. A.S. was awarded third of the Society’s annual trophies when these were presented at the club’s AGM and Dinner. These were the Russell Allen trophy for best breeding achievements, the John Evans trophy for the highest number of show cards collected for club table shows and the Fish of the Year Award. The Mottershaw Cup for the best furnished aquarium in the show was won by Mr E. V. Stokes and the runners-up shield by Mr R. Needham. The Pabo Cup for the most outstanding achievement of the year was awarded to Mr E. V. Stokes.

SOCIETY funds profited from the proceeds of the Brigg and Bury auction held by BARNBURY T.F.S. and presided over by Mr J. Howard. Master J. Howard won the table show for livebearers (2, Mr B. Betow; 3, Mr R. Absom).

MEMBERS of BURTON & D. A.S. found the specimens that Mr J. Foden took along to illustrate his lecture on reptiles most interesting. They included an alligator, an African rock python, a hissing sand snake and red-eared terrapins. Mr B. Poinston won first and second awards in the table show for characins and Mr J. Sharratt third. Meetings are held on the second Thursday of the month at the Fox and Goose, Bridge Street, Burton-on-Trent at 7.35 p.m.

MAPS have moved their headquarters to Ladywood Community Centre, Ledbury Close, Ladywood, Birmingham.

Mr F. HARKINS won first and second places with A. anthrae in the THURROCK A.S. table show for egglaying toothcarps (3, Mr G. Eaton) and Mr H. Juson won the first two places in the table show for cichlids with angel fish (3, D. Durrant).

THE fish of the Month competition in April saw a variety of excellent fish on the bench at BETHNAL GREEN A.S.—a fact commented on by Mr Tomkins who judged them. A piranha owned by Mr P. Brindley came first (2, Mr D. Bundy; 3, Mr T. Hands).

CARSHALTON & D. A.S. members enjoyed an interesting talk by Mr Gerry Greenhalph on points to watch when entering fish in an open show. Mr Greenhalph also judged the table show and gave the first award to H. pulcher entered by Mr D. Wiltshire (2, Mr E. Horsley; 3, Mrs Ransom). The meeting took place at The Sun, North Street, Carshalton.

Mr J. HODGETTS both lectured to ACCRINGTON & D. A.S. on marine fish and judged the table show, with the following results: dwarf cichlid, Mr T. Allot; livebearer, Mr T. Tattersfield; killifish, Mr C. Whitney; labyrinth, Mr S. Taylor; loach, Mr G. Todd; characin, Mr G. Todd; pairs, Mr G. Todd; breeders, Mr T. Allot; best in show, Mr G. Todd.

JUNIOR members were highly successful in winning the first three places in the Fish of the Month (catfish and loach) class at the April meeting of KEIGHLEY A.S. 1, Master Shillam; 2, Master Mosley; 3, Master Ebbs. Mr R. Hampson gave a very interesting slide show on livebearers at this meeting.

A NEW idea for a Challenge Table Show proved popular with BISHOPS CLEEVE A.S. members. Challenges were issued by Mr K. R.
Burton (for cichlids) and Mr C. Slaughter (for a.v. guppy) to club members to best their entries. Mr Burton lost his challenge to Mr N. Dooley and Mr P. Tredgold and Mr Surgeon to Mr S. Scrivin, Mr N. Bonding has won the Society's home aquarium competition (2, Mr T. Duffell; 3, Mr N. Dooley), and Mr N. Dooley was voted assistant of the year. At the club's A.G.M. secretary Mr Dooley was voted in for a second term.

COVENTRY POOL & A.S. have been enjoying table show entries in the region of 38, 32 and 30. At the April meeting after a very informative talk and slide show by Mr Bernard Bromfield, Mr Ken Russell judged the table show entries and was presented with a pen and pencil set for his ever-willing assistance. Winners were: a.v. cichlids, Mr R. Coulson; a.v. barbs, Mr E. Sheeby; a.v. guppies, Mr D. Easingwood; breeders egglayers, Mr D. Easingwood.

YATE & D.A.S. are fast becoming the unofficial champion exhibiting Society in the south west. At the Bath open show 10 members entered 72 exhibits and collected 22 prize cards.

SECRETARY of the G.S.G.B.R., Mr W. L. Wilson, did not seek re-election this year and in recognition of his loyal services to the Society over many years he was unanimously elected a vice-president. The new secretary is Mr G. A. W. Fleming (3 Rutland Road, Warrengate, London, E.11). At this meeting, after lecturing, Mr Bundell, the Technical Co-ordinator, outlined a plan for members to co-operate in a series of proposed experiments, under his guidance, during the present decade.

ATHERSTONE A.S. member Mr A. L. Trotman took first award in three of the four classes (a.v. barb, a.v. characin, rasbora/danio) when the Society were hosts on the return leg of the inter-society table show with TAMWORTH & D.A.S. and winners by 20 points to 11. The class for a.v. livebearer was headed by Master Iain, also of Atherstone.

WEDNESBURY & D.A.S. were hosts to STONE A.S. at an inter-society show in April. The table shows for characins, judged by Mr F. Bolton of M.A.A.S., attracted a good entry and the home team took first and third places. An hilarious evening's entertainment was provided by a film show of the Society's non-aquatic activities including a cricket match with a local cricket club shown in reverse. The Society has been forced to change its venue because of lack of space and it is now at The Midland Vaults, High Bullen.

LOSS by cannibalism of gold and albino young in mixed broods was one of the subjects under discussion at the April meeting of the EASTERN COUNTIES SECTION of the F.G.R.S. At this meeting the section was shown a roundtable male of surprisingly high standard, though the standard of the 28 entries in the table show was itself quite good. Visits are welcome to meetings. Please contact secretary Mrs L. Myers (40 Charlford Road, Canning Town, London, E.16; phone 01-478 2919) for details.

LEAMINGTON & D. A.S. members are planning well ahead for the Exhibition they are staging over the August Bank Holiday at the Pump Rooms Annex. Those members who are not staging actual set displays will be loaning plants and equipment. Members recently enjoyed a follow-up visit to Rosedale Aquatics, Euston after a lecture and slide show by the owner, Mr Fox, had shown them the whole process of the construction of his fish house.


EALING & D.A.S. began the 1970 season successfully in their three-way match with RUNNYMEDE & RIVERSIDE. The match ended with Ealing joint first with Runnymede (21 points) but as Ealing supplied the best fish in the show, it was felt that a moral victory had been achieved! Runnymede will be hosts for the second leg of these matches on 11th October. The third will take place at Ealing's regular meeting place, Northfield Community Centre, Northcroft Road, London, W.13, where new faces are always welcome on the first and third Tuesdays of each month.

FOR the first time in the club's history the first, second and third prizes in one class were won by the same person at TONBRIDGE & D.A.S. This was Mr Ian Mathieson in the livebearer pairs. Mrs Elizabeth Allen, wife of the Society's chairman, presented annual trophies to members: livebearer breeders: Mr Mark Bromwich; egglayer breeders: Mr Lawrence Getley; Open show championships: Mr John Bellingham (2, Mr Iain Mathieson; 3, Mr Ron Taylor). Club championships: Mr Ron Taylor (2, Mr Iain Mathieson; 3, Mr John Bellingham).

MR P. SEALEY of YEOLIL & D. A.S. was presented with the Knight Knockout Cup by last year's winner Mr C. H. Rendell. The competition, organised by show secretary Mr T. Rendell and judged by members, has proved very popular and drew 30 entries. Winners of the table show classes at this meeting were: livebearers: Mr K. Wright; goldfish; Mrs W. Gaylard. Spurred on by his success in the table show, Mr K. Wright took his guppy to the Bath open show where it won first prize in its class.

WHEN Mr N. SHORT of NERO Aquatics, Haywards Heath, gave a demonstration and talk to members of MID-SUSSEX A.S. on the principles of tank glazing, members who had never done this successfully before were given the opportunity to cut glass and help to glaze a tank. Welcoming new members, chairman Mr R. Johnson reported that membership now exceeded 100, and the month's table show attracted over 50 entries.

AT the A.G.M. of NOTTINGHAM & D.A.S. Mr Bruce Irons made a vice-president and Mr H. Oldham became a life-member of the Society. The MacKenzie & Lynne Points Cup was presented to Mr Selby, who was also awarded the Appreciation Cup for all the good work he has done for the Society during the year. The George Bulleyment Trophy for the best effort in breeding fishes was awarded to Mr K. Lowe for his neon tetras.

WHEN MERSEYSIDE A.S. held an auction recently, there was not only a good attendance of members but also an astounding number of visitors present, 20 of whom joined the Society on the spot. A Study Group has been formed so that matters particularly interesting the members may be studied in greater depth than time allows at regular club meetings.

At the start of their fourth year HORSFORTH A.S. have 64 members including corresponding members. At the A.G.M. the committee, with one or two vacancies yet to be filled, was re-elected for another year. The best young speculative exits, judged by the number of points won over the year, were awarded to Mr C. Corns (a.v.o.), Mr J. Girdham (specified class) and junior a.v.o. to Master Jimmy Dugdale.

SOUTHEND, LEIGH & D. A.S. are to award medals for firsts in
table shows, and any dozen firsts will entitle the winner to have the medals set on a shield.

... WINNERS of the NEW FOREST A.S. annual home aquarium competition were: 1st, Mr. C. Knapp; 2nd, Mr. D. Harding; 3rd, Mr. R. Moseley, Coldwater; 4th, Mr. D. Harding; 5th, Mr. A. Williams; 6th, Mr. L. Manishett. Members have enjoyed lectures by Mr. R. Matley of Bournemouth A.S. on how to set up competition aquariums and one by club member Mr. C. Knapp on judging aquariums. The club has also acted as host to the finalists in the A.S.A. Shugisui, supplying questions and judges. Portsmouth won the quiz by one point against Bournemouth's 60 points.

... AT SWILLINGTON A.S. first quarterly members' show for 1970 Mr. Paul Reynolds received the Harry Strange trophy for guppies (placed 1, 2, 3 and 4) and the Swillington A.S. trophy for plants. Mr. L. Longfellow received the Swillington A.S. molly and swordtail trophies and Mr. R. Stringer for plants. Judge Mr. A. Firth of Bradford awarded the best in the show to a guppy entered by Mr. Reynolds.

Dates for Your Diary

7th June. NUNEATON A.S. Open Show. Details from Mr. S. G. Banks, The Shop, Shenstone Lane, Nuneaton.

7th June. LINCOLN A. D. A.S. Open Show. The Drill Hall, Broadgate, Lincoln. Commencing 7 p.m. Details from Mr. A. Clarke, 6 Lune Crescent, Brant Road, Lincoln.

7th June. HYDE A.S. Open Show. Queen's Hotel, Hyde, Cheshire.

13th June. LLANFYNYNG MAJOR A.S. Open Show. Town Hall, Llanfynyng Major, Swansea. All fish screened by 12.30 p.m. Details from Mr. A. Ashworth, 8 St. Mary's Avenue, Barry, Glam.

14th June. BOURNEMOUTH A.C. Open Show. Kilnwood Community Centre, Bournemouth.

14th June. LOUGHBOROUGH D. A.S. Open Show. Town Hall, Market Place, Loughborough. Schedules will be sent to Mr. P. P. Rees, 41 Pheasants Lane, Loughborough, Leics.

18th June. WEST LONDON SECTION. F.G.A. Open Show. The Community Centre, Clifton Road, Isleworth, starting at 1.30 p.m.

23rd June. SWILLINGTON A.S. Open Show. Country Primary School, Church Lane, Swillington, near Leeds. Schedules from Mr. P. F. Reynolds, 62 Lawrence Road, Leeds LS8 2ES.

23rd June. ATERSTONE A.S. Open Show. Memorial Hall, Schedules from Mr. A. L. Trotman, 15 Meadow Street, Atherstone.

25-27th June. BRISTOL T.F.C. Open Show. Congregational Church Hall, Newman Street, Bristol. Details from Mr. C. L. S. Farley, 75 Colerne Road, Bristol.

25th June. BISHOPS CLEEVES A.S. Open Show. Potters Nest, Chepstow. Schedules from Mr. C. B. Herbert, 20 The Chase, Chepstow.


26th June. NORTHWICH & D. A.S. Open Show. Stoney Hall, Nantwich Road, Northwich. Details from Mr. C. Davis, 26 Heron Avenue, Middlewich, Cheshire.


26th June. GLOOSOP A.S. Open Show. Gloosop Centre, Talbot Street, Gloosop, Darwen. Schedules from Mr. M. C. Smith, 3 Chapel Lane, Hadfield via Hyde, Cheshire.

26th June. GOSPORT & D. A.S. Open Show, Bridgemary Community Association, Beverley Road, Gosport. Details from Mr. R. Mathews, 10 Newport Road, Gosport.

29th June. HIGHLANDS A.S. Open Show. West Wycombe Hall, West Wycombe. Bucks. Schedules from Mr. P. Cook, 143 Oak Tree Road, Marlow, Bucks.


11th July. BAINSTRODE & D. A.S. Open Show. Details from Mr. A. Blake, 58 Burma Road, Haslingden, Lancs.

11th July. ROMSFORD & BEACONTREE A.S. (Ripponden Town Show). Details from Mr. J. M. R. Pyne, 23 Ashdale Drive, Chelmsford, Essex (phone Chelmsford 24425).

11th July. GRANTHAM & D. A.S. Open Show. Details from Mr. A. C. Pout, 36 North Road, Grantham, Notts.


16th July. NORTH KENT A.S. Open Show. Details from Mr. J. H. Piper, 6 Moore Road, Swanley, Kent.

19th July. BARNSTAPLE T.F.S. Open Show. Mapperton & Staremore Village Hall, Dolton. Details from Mr. E. How, 97 Walcot Collery, Dolton, Barnstaple, Devon.

24th July. STOCKTON A.S. & CLEVELAND A.S. Open Show. (joint venture incorporated into the Teesside Agricultural and Horticultural Show). Stewart Park, Teesside. Details from Mr. K. Lowe, 2 Fairbank Road, Ormesby, Middlesbrough, Teesside. TSN d10 or Mr. K. Clement, 28 Thame Avenue, Thornaby, Teesside.

25th July. PLYMOUTH A.S. Open Show. Sherwell Hall, Sherwell, Plymouth. Details from Mr. R. Guest, 31 Balmoral Road, Ermington, Plymouth, Devon.

1st August. STRoud & D. A.S. (2nd year). Open Show. Mid Gloucestershire Technical College, Stanford Road, Stourbridge. Details from Mr. J. W. Evesham, 177 Kings Road, Hadsperton, near Stroud, Glos.

2nd August. BLACKPOOL & FYLDE
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25th September. BRACKENHALL A.S. Open Show, Paskwood Community Centre. 21st September. TORBAY A.S. Open Show.

21st September. STRoud & D.A.S. Convention—details to follow.

2nd October. EAST LONDON AQUARIUM AND FISHKEEPERS ASSOCIATION Open Show, Ripple Road School, Buckling, Essex.

17th October, G.S.G.B. CONVENTION and Open Show, St Marks Church Rooms, Reigate, Surrey, at 2-3 p.m. Details from Mrs. P. Whittington, Pipers Lodge, Reigate Park Avenue, Reigate, Surrey.


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