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Comments and Quotes

- Coldwater or Tropical or Both?
- Dealers and the Hobbyist

Cool, Cold, Warm, Hot?

'COLDWATER' and 'tropical' as terms have become so hallowed by usage in fishkeeping that the questions asked by Mr J. Stillwell about their validity in his article in this issue of PFM will no doubt provoke amazement in some diehards for whom everything is cut and dried, black and white. By others the matter will perhaps be thought to be of little importance, but in the show world the distinction between types of fishes that the two words attempt has already failed to be made and the terms have created difficulty, as Mr Stillwell in his capacity as a fish judge has discovered. There are some points of biological interest here, however.

Acclimatisation to colder or to warmer conditions is a process that is well recognised as occurring in some fishes. Goldfish and catfish ('coldwater' or cold-tolerant species) have been acclimatised experimentally to temperatures of over 100°F (38°C). Within less spectacular limits there are a number of species that can be adapted to live under the aquarium conditions usually recognised by the aquarist as either 'coldwater' or 'tropical'. It is these fishes, who show tolerance to variation in water temperature over a wide range, that render it hard to make a 'cold' or a 'tropical' label stick.

Nor is this a problem that can be solved by reference to their native geographical habitat. For example, water temperatures in equatorial lakes in Kenya in July and August can be as low as in British ponds in January—and yet species of cichlids (Tilapia) live in these waters. They breed there, however, only when the lake water warms up in the early part of the year, a state of affairs like that existing for most British freshwater fishes—except that the temperature that will induce breeding is a lower one for our native species. Here might be a clue to a characteristic serving to fit a fish into one or other of the desired slots.

It is possible that the range of temperatures for reproduction is a closer and more constant one than the total range of temperature over which acclimatisation is seen. Here again, however, the breeding range for some species is likely to span that magic mental hinterland of the sixties (F) that for most aquarists represents the band of separation, and in any case these temperatures would inevitably be argued about by the show bench lawyers.

Ha'pence as Well as Kicks

It is a coincidence that in two successive issues of PFM letters have appeared from readers complaining about the prices given to them by dealers who have taken their surplus fishes and plants. Complaints of this kind are made from time to time and the absence of replies from traders might sometimes be taken as admission of guilt by default. This we know very well not to be the explanation. Aquatic traders lead a busy life and time for letter-writing isn't plentiful: raise the matter with a trader in conversation, however, and you'll find good answers forthcoming for specific charges. Sometimes a dealer buys surplus stock largely in a spirit of helping his customer out of a difficulty; charges of high profit margins would be more rationally levelled if in fact the customer knows (a) that all the items taken are sold, sold quickly and sold at the price shown, and (b) what the true overheads of the shopkeeper are. Traders out for the 'quick buck' undoubtedly exist. For the majority, however, we must ask ourselves: where would we be without them?
Transatlantic TOPICS

By JIM KELLY

Thanks to the efforts and hard work of a certain enthusiast by the name of Malcolm Delapole from Birmingham (Warwickshire, not Alabama), the process of entering these foreign competitions was made as easy as catching a London Tube train, and with one eye cocked at the proposed new forms, just as cheap.

Now our board is gyrating once more and predicting that the next 365 days will see our 'exports' returning as imports with a flood of foreign immigrants that won't cause a certain politician to lose any sleep. But as we are still lacking a world standard for show fish, they might just cause quite a few headaches amongst the show secretaries trying to sort out what classes these entries are eligible for.

* * *

From a lively correspondence in the U.S. publication PET INDUSTRY last year on the subject of whether traders should belong to hobby clubs the araver that emerged seemed to be a definite yes. The main complaints from the trade were that those who did join found the clubs made too many requests for 'free trophies', and discovered too many so-called 'back street' aquarists were competing in the sale of fish.

Despite this, the opinion of the

Continued on page 488

What's New?

Lighting the Pond

FOR those who find that even the long summer evenings do not contain sufficient hours of light in which to enjoy all the pleasures of watching their fish in the garden pond, Edsworthy Electronics Ltd. have devised a new system of low-voltage underwater lighting called Aqua Glow. There are two lighting units; the body of each is moulded in rubber and houses a sealed beam lamp (1500 candle power) and coloured lens. The lighting units can be floated on the pool's surface or, by weighting the cable, can be submerged to any desired depth. There are four colour lenses available, which can be unclipped and changed at will. The units are operated through a 12 volt transformer that is included in the price, £7. 15. 0.

All-wood Aquarium

IT is a good few years now since it became apparent that the aquarium tank, as well as its contents, could be made into an attractive addition to the home. Only fairly recently have such tanks been within the reach of the fishkeeping home where the skills of the head of the household as an aquarist did not automatically make him a carpenter of genius. Such aquarists will want to see the new Lagoon Aquarium introduced by Cheltenham Aquatics. This all-wood aquarium embodies the latest techniques of the furniture industry; All inside wood surfaces are coated with special waterproof sealants in a pastel-blue shade. The external finish is of natural wood and these surfaces are coated with polyurethane to give a chip-free water-resistant surface. The design incorporates a hinged canopy and the legs and picture-frame front are in matt black.

The aquarium can be bought as a complete unit, with all the electrical wiring, lighting, pump, filters and heating equipment already installed so that the aquarium has only to be furnished, filled with water and plugged in to be ready for use. A control panel carries the switches for the operation of the pump and lights. The unit measures 24 in. by 12 in. by 15 in. and stands 33 in. high, including legs. The standard model (without equipment) sells for £15. 6. 0, plus purchase tax.

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Q Whose contemporaries have marketed lines without this thorough testing? (Piracy isn't beyond anyone!)
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Competition that Assesses Skill

MAY I be permitted, via your Letters column, to pass on to other aquarist societies details of a competition that has proved to be a great success with our Society.

Before going into details, a brief introductory note: it was thought that a competition was needed which would not only encourage entries and stimulate interest, but prove to be of some value to the hobby and give a measure of the aquarist’s ability. This was particularly so now that the 28-day rule of ownership has been lifted (an almost impossible rule to enforce or disprove) and to prevent “pot hunters” from filling tanks with ‘money-no-object’ specimens just for the occasion! The Irvine Challenge Trophy, as the name infers, was the idea of club member Jim Irvine, and the scheme is quite simple in operation; the basic idea is that an entry consists of a single specimen but—and here is the difference—it is shown four times over a period of 1 year. The highest total of points wins the trophy.

Exponents of showing will quickly see various methods of planning for such a competition; if one picks an adult show specimen (for a possible maximum points from the start) it may not last a further year; a three-quarter grown fish will obviously pick up points for size as the year progresses, will obviously last the distance, but may only really come into show condition in the last furlong. Place marks are not awarded, so a consistent also-ran can overtake a placed fish as the year passes. An interesting spin-off from the competition was that it was hoped to find the ‘ideal’ show fish, with the added bonus of longevity.

The competition had a massed start of over 40 entries, but round 2 showed a large drop (fatalities, lack of confidence, mistaken belief that an unplaced fish couldn’t catch up?). However, rounds 3 and 4 were evenly contested, and 12 fish lasted the course. Obviously, judging presented a problem, and it was agreed that the judge would need all his wits about him, plus a good memory. The club was fortunate enough to engage the services of Mr Harry Towell, F.B.A.S., and at the end of the competition he was kind enough to give a rundown of the winning fishes; also he praised the idea and aims of the contest and was pleased to be asked to judge it as it helped to keep him up to scratch!

Entries consisted of a wide selection of species, characins to cichlids, livebearers to labyrinths. The winner? A silver hatchet. Second was a silver tetra, third a black platy, and fourth was a C. severum. As the main object of fishkeeping is to do just that, aside from the showing and breeding aspects, to keep worthy specimens in top condition for over a year is a measure of the popularity and sustaining interest of the hobby and shows what can be done if you try! Incidentally, the second-placed fish was owned by a junior member, so ‘us old ‘uns’ had better watch out.

From the results, it would appear that the characin family is a good source of long-lived, easy-to-keep-in-condition fish, but the result may well have been different had not many entries given up the chase after the first round. But we shall not know the answer to that until this time next year!

R. C. MILLS
Ealing & D.A.S.

Fair Deal Wanted

I THINK it is about time someone publicly complained about the terrible prices hobbyists are offered for their excess fish and plants by retailers.

We usually find at some time or other that a tank is overgrown with a certain plant, and if you have no room for them it usually means going to the local pet shop and selling them. But the prices they offer are robbery; there’s no other word for it! As an example, one day I took over 5 dozen ferns (Ceratopteris thalictroides) on average about 6 in. high. I was given 276 d. The following day a friend went to the same shop and was charged 15 aq for one plant. This really upset me (and it isn’t the first time this has happened).

I think nearly all hobbyists have a real love for keeping fish and plants, but retailers (four in my area), far from promoting the hobby, seem to be doing their very best to persuade us not to keep fish. The above example is one of many (I can give at least five others, all similar). So please ask traders to give us a fairer deal. We all know they have a living to earn but must they make nearly 400% profit to live? No wonder most of them are expanding.

Warley, Warks.

Thanks to the Judges

W E of the Mid-Sussex A.S. would like, if possible, to thank the judges who attended our Society’s table and inter-club shows during 1969 for the wonderful job they do. We know many of these judges travel many miles
Why Maxi-tanks Cost More

Mr P. Ogston (RVM, Letters, January), might think that high profit margins lie behind the prices asked for 'special sizes' of tanks, which he describes in his letter as 'inflated'. If he does think this he is wrong. I have looked into the costs of materials for the maxi-tanks in which Mr Ogston is interested and, just as I have always understood, there is a staggering upsurge in production costs for a tank made deeper than 15 inches. This extra depth in a long tank means that the thickness of glass used has to be at least doubled; looking at retail prices for glass, since these are readily ascertainable, there is a difference of 6s per sq. ft. between the price of ½ in. glass and 1 in. glass.

The angle iron used for the frames of larger tanks also needs to be thicker and wider than that used for 'stock sizes'. Additional cross-strengthening at the base is also required. Add to these the increased labour charges (heavy, bulky tanks involve greater handling difficulties during manufacture) and costs of storage and transport and one can begin to see what is responsible for the 'inflated prices'. And are there really so many people anxious to buy 'maxi-tanks'? These can take up as much floor area as a dining table or a settee in the home and I suspect that the number of fishkeeping owners of mansions with spare spaces of these proportions is quite small (they wouldn't need to worry about the higher prices of the tanks in any case!).

Onward Ever Onward

I am wondering if the same thing has happened to other wives as it has to me. Three years ago, my husband bought a fish tank to decorate our living room. I bought a book and started to read it. Then I had my own fish tank—then one went in our bedroom, then in the children's rooms (our son wanted one like ours). Then it happened! Seven fish tanks all over the house. So we had to do something about it: a shed (my greenhouse)! So all my tomato plants and flowers had to go. The result? One for the family, we, 32 different sized tanks. I have been successful in breeding many types of fish and am now just as interested as my husband. I always spend an hour in the fish house every evening and thoroughly enjoy it.

Another Mature Society

Your Comments in the January issue of RVM under the heading of 'Senior Societies' state that three societies have completed 21 years. May I point out to you that the Nottingham & District Society was formed in 1927 and is still going strong.

I myself have kept fish since 1919 when a boy of 8, and I still have quite a number of coldwater fish, mostly shubunkins, but not of course as before my illnesses—having been in hospital three times with coronary attacks I have had to reduce my activities somewhat. However, I sincerely hope that I shall be able to continue my hobby a few more years.

London, N.W.10

R. KNOWLES

National Standard for Goldfish

Mr M. D. CLUSE of the G.S.G.B., writing on 'Standards' (RVM, December 1969), omits to state a very important fact, i.e. statements made at the Kiddington meeting, and these statements must be, in fact it is imperative that they are, made known.

The Midland club, M.A.P.S., and ourselves, Bristol A.S., were invited by the G.S.G.B. to discuss standards jointly at Kiddington, standards which M.A.P.S. and ourselves thought were to be a NATIONAL STANDARD. A National Standard, after so many years, for coldwater fish; but when the meeting was being held after a short while it was stated by the G.S.G.B. that 'It was thought that the position of the G.S.G.B. and F.B.A.S. would be strengthened if Bristol A.S. and M.A.P.S. accepted the G.S.G.B. Standards'.

Now, the things Mr Cluse hasn't stated: the spokesmen for M.A.P.S. and ourselves, Bristol A.S. (Mr H. C. B. Thomas, Mr Les Dodge and Mr Jack Savage), all stated very firmly, at separate times, that the G.S.G.B. were wasting our time and theirs if they had hoped, even remotely, that we should accept their Standards en bloc, and that our unanimous thoughts were for a National Standard, and the meeting must, and should be, conducted on those lines, with that purpose in mind.

The G.S.G.B. agreed that the Bristol shubunkin standard should be accepted as it was and that it should remain unaltered; that, of course, remains to be seen, but any alteration will be strongly opposed. Any alteration would make it just another fish.

Now, Mr Cluse, and your Committee—let's cut all the old arguments short and, by golly, let's have a NATIONAL STANDARD with no 'Big Brother' about, and let's call it a NATIONAL STANDARD; all clubs being anonymous, we have the necessary beginnings and we could reach an agreement if everyone is treated equally and all 'streamrollers' are left home.

The ball is in your court Mr. Cluse. How about it—what do you say?

Jack Savage
General Committee, Bristol A.S.
Breeding the Tiger

In the pictures accompanying this article the female tiger barb (lower fish in this photograph) is easily distinguished by her size and plumper shape. The male’s dark bands are greatly intensified, and his jaws and fins become red, when he is ready to breed.

By RUDOLPH ZUKAL

Photographs by the author

Translation by F. MARSH

A MEDIUM-sized tank thickly planted with various species of Cryptocoryne and containing a swarm of tiger (Sumatra) barbs makes a beautiful picture. Many an enthusiast-to-be has first been captured by the sight of these beautiful fish at an exhibition or at a local aquarists’ shop. I must not exaggerate, but one can almost certainly find these fish in every second tank and sometimes even where they are not really suitable. Their popularity is not surprising, for they reach only about 2½ in. in length, are peaceful and are not exacting about water requirements. Nor are they fussy about food. But they do bring from their tropical habitat (tiger barbs were imported into Europe from Thailand, Sumatra, Borneo and the Malay Peninsula in 1933) a need for warmth. At a temperature lower than 68°F (20°C) the tiger barb loses its splendid colouring, hides away in a corner of the tank and, if the temperature is not raised, will die. Don’t worry about the tiger’s health, however, if you find him head downwards; this is his favourite position and the typical position he adopts when perfectly well.

As I have explained, these fish are quite happy in normal water, though it should not be hard water and it is particularly important that it should be well-aerated and crystal clear. These barbs are very sensitive to the content of organic matter in the water. If this should build up their gills become inflamed, they gasp at the surface for air and finally die. So it is important to feed them cautiously and carefully and, if possible, to employ a good filtration system. If the
water should become cloudy, a partial water change will not harm them. In fact, it is a good idea to replace some of the tank water quite frequently with fresh. Also a small amount of cooking salt added to the water does no harm.

The company of other peace-loving barbs suit them best; they play a lot together and the males spar harmlessly with each other. A word of warning—if long-finned fishes are present in the community tank the tiger barb will really enjoy snapping at their fins. The extended filiform fins of the angel will suffer badly in this respect. The planting of Cryptocoryne in the tiger tank can be supplemented by water wisteria, Indian fern, Cabomba and so on.

On the whole, the propagation of barbs makes no special demands and tiger barbs are certainly not problem fish. A 2-4 gallons tank, medium-hard or soft water (snow water, rainwater) and fine-leaved plants, plus a temperature of 76°F (24°C), will bring the fish easily into spawning condition. It is not necessary to restrict oneself to using sand on the tank bottom. It is true that I have personally used a sand base, but this is to enable me to arrange the plants suitably for photography.

As I have very little time to fetch naturally soft water from the woods, I use 2 parts of normal tapwater to 1 part of distilled water (I use only water that has been distilled from a glass still).
In the picture the pair of barbs are shown spawning just below the water surface. Events during spawning take place so quickly that the sequence is difficult to follow by eye.

The water is filtered for about a week through peat and I thus have both a soft and an acidified water. I have done this for several years although I know that the fish will, in fact, spawn perfectly well with normal rainwater. And another little tip—before the spawning I separate the sexes for a few days as this increases their enthusiasm when they are put together. I do this with most fish species and I only use a pair that have already shown interest in each other while in the community tank or in the shoal. It is best to use fish that are neither too young nor too old. With tiger barbs a 'full' 1-year-old female is best. The male can be older than this.

Now to my pictures. The male was put into the tank a day before the female, and she joined him on the following day. The male immediately reacted to his mate's presence with spread fins; his colours became darker, his jaws reddened. In the photographs one can see the sex difference fairly clearly. The male is somewhat smaller and slimmer, and although this is not visible, of course, in a black and white photograph, the male's fins are the colour of blood.

The male commenced the 'display' by making circling movements round the female, trying to reach her side. The female continually dodged away but was often pushed down and finished on the bottom of the tank with gills moving rapidly. Then began the second phase. The female was
hunted through the tank and if she attempted to stop her wild swimming to rest, the male was immediately there making his circular movements round her.

Finally the male is able to entice the female to the plants. The whole thing takes place so swiftly that I still can’t say whether the female followed the male. All I can say with certainty is that it was the female that chose the spawning place—she lay for a split second in the plant, the male came to her side, the fish pressed together and quick as lightning the male folded his caudal fin over the female’s body and the spawning happened.

The fish were constantly spawning in different places and the whole spawning process lasted about 3 hours. About 6000 eggs were laid. It was always the female who looked for a suitable place; the male came to her side and the spawning was done, sometimes in the plant, then just under the water surface then on the tank bottom. Everything happened so quickly and wildly that it was difficult to see it with the human eye—the water whirled and splashed out of the tank and the eggs fell freely down and stuck to the plants.

While the spawning continued neither fish took any notice of the eggs, but when it was all over the eggs were eaten greedily, largely by the female. It’s possible to assess when the spawning is coming to an end—the rest pauses become longer and finally the female will not join in. As soon as the spawning ceased I took the fish out because I do not like the eggs to be eaten. After 24–36 hours the young were hanging on the plants and on the glass and after a further 5 days the egg sacs had broken and the fry were free-swimming.

They must then be very carefully fed with suitable fry food. Take care during these early days. Small fish are very susceptible to temperature and water changes. With good feeding, and where possible aeration, the young grow very quickly and within 2 weeks one can see the oblique stripes in their colouration. This is the point, I always say, where they become clothed.

Transatlantic Topics

Continued from page 478

The vast majority of those who earn their bread and butter from the hobby was that the clubs do a good job in acting as a bulwark against unfair legislation. When some controversial idea is introduced at either local or Government level, the traders can rely on the aquarists in the various groups for organised support.

Though most aquatic clubs throughout the world include their trade members, the first prize for sheer numbers must surely belong to the South Florida A.S., who list more than 50 commercial members!

* * *

'I don’t trust electricity!' Thus spoke Samuel Franklin Cody American-born, naturalised British, aviation pioneer—better known from his achievement as the first man to actually fly in these shores.

His words took on a new meaning when I read an account in a Stateside fish magazine describing how to encourage earthworms to leave the ground by the use of electricity. This involved connecting a metal rod to the mains and then sticking this live peed into the lawn. It shocked me, I can tell you.

Comment on this dangerous practice is short and simple: don’t! Fishkeeping has enough problems without adding the hazard of taking one’s life and limb and those of others foolish enough to stand around and watch you acting foolishly. In your search for food
here is one ‘hot line’ that could quickly connect you with the next world.

* * *

My dictionary defines the word exotic as ‘introduced from a foreign country’. Straightforward, but the exact meaning has sparked off a row in the U.S. Pet Trade, especially in aquatics.

It all started by the publication of an article by the Outdoor World magazine entitled ‘The Inhumane Traffic In Exotic Pets’, a title calculated to make most pet-keepers hot under the collar. Things really warmed up when the Reader’s answer later printed a condensed version.

I wonder how our Trades Description Act would treat a dealer who listed his tankful of goldfish or guppies as exotic pets? Perhaps HMV readers have some comments on what they think the term exotic pet means?

* * *

If you go to California, California and find your steps take you to the pet shop called ‘Kitty Fair’ don’t look up unless your income runs high enough that you don’t have to worry about it! When planning his fish department, owner David Varshavsky wanted to surround his visiting hobbyist with aquaria from floor to ceiling. This was fine, but how about that row of tanks up the top, way above eye level? He solved it by using these aquaria to hold fishes priced from $2 to $10.

For those visitors whose income doesn’t run this high he uses the tier for what he describes as ‘customer education’. When folk ask about a fish’s growth he can often point up and say: ‘That’s the size it will grow to’.

Meetings and Changes of Officers

ACCRINGTON & D.A.S., President, Mr. M. Smith; chairman, Mr. H. Smith; vice-chairman, Mr. A. Johnson; treasurer, Mr. M. Smith; secretary, Mr. G. Weir; show sec., Mr. G. Weir; meetings: Second Tuesday at the L.C. Hall, Accrington.

ALFRETON & D.A.S., Secretary, Mr. M. Allen (112) Birchwood Lane, Sandiacre, Derby, DER 4 ENF.

ASCOCIATION OF MANCHESTER & D.A.S., Chairman, Mr. F. Muller; vice-chairman, Mr. C. Walker; secretary, Mr. A. Newell (17) Fog Lane, Delph, Manchester; meetings: in association with the Manchester Aquarium Club.

BASINGSTOKE A.S., Meetings; From time to time for the benefit of every Friday at the meeting room of the Camberley Park Hotel, Guildford, Surrey.

BILLERICAY A.S., Chairman, Mr. P. Burrows; vice-chairman, Mr. C. Johnson; secretary, Mr. N. Lawton (43 Thames Road, Hadleigh, Essex); show sec., Mr. P. Farrow.

BROMLEY A.S., Chairman, Mr. A. Smith; vice-chairman, Mr. G. Scott; secretary, Mr. P. R. Albert (21 Campden Avenue, Bromley, Kent); show sec., Mr. R. Wooding; meetings: Second and Fourth Monday of month, 8 p.m. at the Comenius Centre, Alton Lane, Sidcup.

BREWTON & D.A.S., Chairman, Mr. D. Brown; vice-chairman, Mr. F. H. Howells; secretary, Mr. G. Howells; show sec., Mr. F. H. Howells; meetings: Second and Fourth Monday of month, 8 p.m. at the Comenius Centre, Alton Lane, Sidcup.

BRENTWOOD A.S., New Society, Secretary, Mrs. M. C. Taylor (4A Ainsworth Road, Brentwood, Essex); chairman, Mr. R. Howells; meetings: First and third Tuesday of month, 8 p.m. in the homes of members and interested inquirers please contact Mrs. Taylor.

BURY A.S., Chairman, Mr. J. R. House; vice-chairman, Mr. R. W. Foreman; secretary, Mr. G. House; show sec., Mr. R. W. Foreman (12 Church Street, Walsgrave, Coventry); meetings: Third Thursday of each month, 8 p.m.

CAMBRIDGE & D.A.S., Secretary, Mr. S. B. F. Collins; chairman, Mr. J. W. Harford; meetings: Second Tuesday of each month, 8 p.m. at the Cambridge University Centre.

CLAPHAM A.S., Chairman, Mr. F. G. Glover; secretary, Mrs. E. Tim (67 Clapham Road, London, S.W.4); show sec., Mr. T. Miller; meetings: Second Tuesday of each month, 8 p.m.

COVENTRY POOL & D.A.S. President, Mr. A. Dickinson; vice-president, Mr. J. W. Stamp; secretary, Mr. J. Green; chairman, Mr. R. E. J. Green; treasurer, Mr. F. J. Green; show sec., Mr. T. Miller; meetings: Second Tuesday of each month, 8 p.m. in the Coventry University Centre.

DEWSBURY & D.A.S. President, Mr. R. M. F. Jones; vice-president, Mr. J. W. Stamp; secretary, Mr. J. Green; chairman, Mr. R. E. J. Green; treasurer, Mr. F. J. Green; show sec., Mr. T. Miller; meetings: First and third Monday of each month, 8 p.m. at the Beswick Hall, Dewsbury.

DERBY A.S., Chairman, Mr. J. G. Smith; vice-chairman, Mr. R. J. Smith; secretary, Mr. H. P. W. Smith; show sec., Mr. T. Miller; meetings: First and third Monday of each month, 8 p.m. at the Beswick Hall, Dewsbury.

DERBYSHIRE A.S., Secretary, Mrs. G. C. Cooke; chairman, Mr. A. Smith; meetings: First and third Tuesday of each month, 8 p.m. at the Beswick Hall, Dewsbury.

ERITH & D.A.S. Secretary, Mrs. J. Savory (28 Woodland Road, Abbey Wood, London, S.E.I.)

F.G.A. EDMONTON Section, Chairman, Mr. D. Curry; secretary, Mr. D. Phillips; show sec., Mr. M. Brown; meetings: First and third Monday of each month, 8 p.m. at the Beswick Hall, Dewsbury.

F.G.A. RADLETT Section, Chairman, Mr. G. Goodall; vice-chairman, Mr. L. Smith; secretary, Mr. G. H. Goodall; show sec., Mr. J. G. Smith; meetings: Second Tuesday of each month, 8 p.m. at the Beswick Hall, Dewsbury.

HAMPSTEAD & D.A.S., Chairman, Mr. R. A. O. Smith; vice-chairman, Mr. F. Harvey; secretary, Mr. J. Hedges (2 Maresfield, Agnes Green, London, N.W.9); treasurer, Mr. V. J. Smith; show sec., Mr. T. Candy; secretary, Mr. R. Ward; P.R.O., Mr. L. Smith; P.C.S.S. delegate, Mr. E. Harris.

HARLECH A.S., President, Mr. S. Nott; vice-chairman, Mr. M. Perry; secretary, Mr. B. Perry (11 Conway Court, London, S.W.4); treasurer, Mrs. Mary Smith; show sec., Mr. T. Smith; meetings: Second Tuesday of each month, 8 p.m. at the Conservative Club, 13 Park View, Harrogate.

HARROGATE & D.A.S. Meetings: Second Tuesday of each month, 8 p.m. at the Conservative Club, 13 Park View, Harrogate.

HARWICH & D.A.S. Chairman, Mr. B. Beck; secretary, Mr. P. J. Baker (15 Southwold Road, Harwich, Essex); treasurer, Mrs. Diaper.

HIGH WYCOMBE A.S., Chairman, Mr. C. Chivers; vice-chairman, Mr. R. Thomas; secretary, Mr. S. White; show sec., Mr. D. Perry; meetings: First Tuesday of each month, 8 p.m. at the Conservative Club, Great Missenden, Bucks.

HORNBY A.S., Secretary, Mr. R. A. Thomas; chairman, Mr. B. R. Cooke (34 Oak Tree Road, Mathon, Hucknall, Notts); treasurer, Mr. W. Smith; show sec., Mrs. C. Smith; meetings: First Tuesday of each month, 8 p.m. at the Conservative Club, Gainsborough, Lincoln.

HYDE A.S., Chairman, Mr. D. Chambers; secretary, Mr. R. R. Wood (113 Manor Park Road, Glynneath, Dyfed); treasurer, Mr. J. C. Thomas; meetings: Second Tuesday of each month, 8 p.m. at the Beswick Hall, Hyde.

KINGSTON & D.A.S. Chairman, Mr. B. B. W. Read; secretary, Mrs. E. L. Read (47 River Road, Kingston, Surrey); meetings: First and third Wednesday of each month, 8 p.m. at the Beswick Hall, Kingston.

LAKELAND A.S. New Society, Secretary, Mr. W. Field (33 Bentworth Park, Gosforth, Cumbria); meetings: The third Tuesday of each month, 8 p.m. at the Beswick Hall, Gosforth.

LONDON A.S., Secretary, Mr. W. Field (33 Bentworth Park, Gosforth, Cumbria); meetings: The third Tuesday of each month, 8 p.m. at the Beswick Hall, Gosforth.

MEDFORD A.S. Secretary, Mr. R. N. Mass (4 Franklin Road, Liverpool, L 18); meetings: First Tuesday of each month, 8 p.m. at the Beswick Hall, Medford, Mass.
OBITUARY

William Vorderwinkler

EVERY field has its bright stars who shine so briefly that we miss them long before we have had the time to appreciate them. William Vorderwinkler was one of those stars in the aquaria world. He was born in Austria, and then movedices to the United States. In 1916 he started a hobby that he followed throughout his life. He opened a shop and sold aquariums. Later, he became the owner of Vorderwinkler Aquariums, a well-known company in the aquarium world.

Vorderwinkler's work was not just confined to his own business. He was very active in the aquarium community, serving as a member of the National Association of Aquarium Societies, and later as the president of the Monmouth County Aquarium Society. He was also a member of the New Jersey Aquarists Guild and the Aquarists Society of America.

Vorderwinkler was a respected figure in the aquarium world, and his knowledge and expertise were highly regarded. He was a regular contributor to various aquarium-related publications, and his articles were highly praised for their accuracy and clarity.

Vorderwinkler's contributions to the aquarium world were not limited to his work. He was also a dedicated member of the National Aquarium Club, and he was a charter member of the New Jersey Aquarium Club.

Vorderwinkler's legacy lives on in the aquarium world, and his contributions will be remembered for generations to come. He was a true visionary in the field, and his work will continue to inspire new generations of aquarium enthusiasts.

NEAL TITLER
IT is fashionable at the moment to look back on what has been happening during the sixties and to attempt predictions of one sort or another for the next 10 years. On the whole, those who indulge in this pastime conclude with easy forecasts which, as in most fairy stories, send the reader comfortably to bed. I will attempt no review of the past decade save to say that it was remarkable in seeing the first man on the moon, though precisely how this will benefit mankind remains to be seen. Such obscurities were, perhaps, typical of the 1960s during which the way ahead became less and less clear to more and more ordinary people.

In such conditions the value of hobbies like ours becomes all the greater because the diversion of mental excursions from paths which are littered with ugliness and insecurity into those which are attractive and interesting help millions of people to face tomorrow and the day after. We have seen social problems grow up all around us where there is military or civil strife. Elsewhere people are herded into multi-storied skyscrapers, in which they are expected to make something of a success of their lives, whilst others are left to see their time go by in utter squalor. In every sort of circumstances where people are subject to strain, hobbies and pastimes are becoming increasingly vital in the sociological sense by leading their participants directly to a particular form of happiness which is not so easy to find elsewhere.

I am more inclined, therefore, to look to the future than to the past, and since I am no clairvoyant I will confine myself to uttering some hopes for the next 10 years rather than a series of wild guesses as to what might or might not happen between now and 1980. I wish I could be optimistic, though. Most of the shortcomings of the fishkeeping hobby as seen from the aquarist's point of view could be put right by sound business enterprise, but since there seem to be no 'giants' in this line—perhaps they are all extinct—much of what I say will remain in the 'pipe dream' category.

Ten Hopes, then. Each for 1 year of the next 10, but in no sort of priority order. The first is for Better Publicity. Despite the efforts of the aquatic press and the hobby at large the fishkeeper is still regarded as a bit odd, and it is still thought to be not quite the thing to feature tanks in your best rooms. Perhaps by getting Municipal and large commercial undertakings to employ public displays wherever appropriate, folk at large might become more aware of the artistic possibilities of smaller scale arrangements in domestic surroundings. The Parks and Gardens Superintendents or Entertainments Managers might be suitable people to give a local lead, so let us get to work on them.

Hope no. 2 is for More Artistic Approach to the hobby. By this I suggest that before Tank no. 2 is bought, no. 1 is made as artistically perfect as the owner can manage, and that before no. 3 arrives, a similar standard has been reached for no. 2. The quarantine tank is, of course, regarded as a bonus in this respect. Perhaps this policy of perfection might enable more beginners to stay the course, and to avoid that drop-out because they have overplayed their hand.

Hope no. 3 is for manufacturers to co-operate in achieving Hope no. 2 by marketing More Attractive and Cheaper Aquaria and aquarium settings. In the letter 'Mass-Tanks for Me' Mr Opston draws attention in the January 1968 to other means of meeting the real demand of fishkeepers (as opposed to that notional real demand which is claimed by the manufacturers), and I join him in a not so silent prayer.

Hope no. 4 is for More Professional-looking Aquarium Equipment at realistic prices. I am sick of plastic this and plastic that which neither lasts nor looks good, and I hope that where wood or metal are legitimate substitutes for plastic they might be brought into play more often. Air-line control valves are a case in point where I would never use a plastic version if a metal one could be had. Marine enthusiasts, however, will probably disagree with me here.

As consolation, perhaps, I will therefore make Hope no. 5 for better and More Versatile Marine Tanks. The present cost of a 24 in. or 36 in. tank suitable for brackish or marine use is quite frightening and puts off many would-be "devotees." This area of the hobby is a quite fascinating one and if that large initial financial hurdle can be lowered a bit, more would be able to face the genuinely high costs of fishes and furnishing. I find it rather hard to believe that the production costs of salt-water-proofed tanks are as high as their prices suggest, and perhaps the trade may see a way during the next 10 years of tackling this problem.

If we are to have cheaper marine tanks, we should have Cheaper Marine Fishes, so Hope no. 6 is for improved means of transporting them and keeping them in good health for a reasonable time after purchase. It is almost certain that it will never be easy or cheap to catch the majority of marine fishes, and that prices will always remain on the high side. However, no-one minds a good investment, but this means that the creatures must have a lasting power which they do not now seem to possess.

My seventh Hope is that the government of the day will impose Health of Stock Regulations on the retail and wholesale trade designed to prevent the spread of imported disease, and to ensure that dealers' tanks are maintained to the highest possible standards.

Hope no. 8 is that there may be Greater Research into Fish Disease than hitherto. Tragically little is known about what really goes on in our tanks when a marine fish gets what may be termed 'coddle', and the wholesale deaths of some of our wild fishes is sad witness to a very real gap in our scientific knowledge. This is not to say that the enterprise of many firms who specialise in aquarium remedies is not appreciated, as there is little doubt that great strides have been made in this direction. What is lacking is a penetrating understanding of the potential of the individual chemicals, and of the nature of the diseases themselves.

Hope no. 9 is that members of the hobby will become More Outward Looking than they now are, and that
they will give a little more and compete a little less. I should like to be assured that every hospital, Children’s Home and so on that would like a fully maintained tank, will actually get one, and that aquarists living nearby will guarantee its upkeep even though this might perhaps mean a few less table shows on the club’s calendar and a few less red cards to hang up.

My final hope is that, 10 years hence, the hobby won’t have changed so radically that we shall be unable to recognise it. Certainly, we shall then be thinking of millimetres and perhaps degrees Celsius, but neon will still be neon and water will still, I hope, be wet. I hope not for a rationalised and systematised hobby, nor for one where all the mysteries have been removed, but for one such as I have enjoyed for many years, whose charm is its timelessness and which entraps us by its unpredictability.

Aquarium backgrounds can be something of a problem. I have never liked the commercial solutions, which usually consist of tortured plastic or very contrived pictures of divers and submerged castles. Even the latest attempts at scenic art which include pictures of fish and plant life leave me cold, and until recently I used plain backdrops of pure white or jet black. When winter has settled over the land and we sink into the comfort of our armchairs during the long evenings we are likely to become more critical than usual of any imperfections in the overall appeal of our aquaria. A few weeks before the end of 1969 I got this feeling in a big way as regards my display tanks and I thought it might pay to experiment in the use of other colours. As it happened I have only got one step along the line so far, but the results have been so satisfying that I pass on the details for the benefit of those whose affections may be the same as mine.

We have farmers as neighbours and they use many tons of fertiliser on the land each year. Some of it comes in blue polythene sacks which I can have for the asking when their contents have been distributed. I cut up a number of these, discarding the tape bearing the lettering and shaped the plain side to fit exactly the outside surface of the rear glass panel of each tank. I then ‘stuck’ the polythene to the glass by first wetting it and smoothing a tablet of soap over it. In places the sheet adheres closely to the glass, and in others it doesn’t. The result is a fascinating series of patterns that you can change at will by smoothing a bit down here or pulling a bit away from there. When the overhead lights are on, the bits sticking to the glass appear as light shapes and the areas not in contact with it are dark blue or even black. The wheels and bubbles sometimes appear silvery and the overall effect is completely natural.

You can, of course, use any form of coloured polythene sheet—perhaps you have some left over from that pond you put down last season. At any rate, I think it worth a trial. All our visitors have been most taken with the ‘livening up’ which this had done to the tanks. All so cheaply, too, even if one had had to pay for it!

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**Readers’ Queries Answered**

**Background Effects**

I hope soon to set up a 36 in. tank for tigers and wish to paint the outside of the rear glass matt black. However, this would leave the pale-coloured putty still visible at the corners, spoiling the effect. Is there anything I can use to paint the inside of the tank before I set it up, that is not harmful to the fish?

A polyurethane paint or a lino paint can be used to paint the glass inside the aquarium without ill-effects to fish (wash it with water after it is thoroughly dry, as a precaution). However, painted glass is liable to flake after a period of use under water and can also be disfigured during cleaning; we consider that the effect then would be more unsightly than the aspect you are trying to conceal. If you plant something like a swordplant or a clump of Vallisneria in the corners you will find that the angles will not be noticed, and if you keep the water level only just above the bottom of the top frame this putty would not be seen (it is not usually noticeable because of the angle of viewing in any case). We would also prefer to place a painted board against the glass rather than paint the outside of the glass—then the colour can readily be changed if required.

**Breeding Spotted Danios**

I have been keeping tropical fish for about a year and would like to try breeding spotted danios (Brachydanio nigrofuscatus). Please give me some advice about the breeding tank, temperature and rearing of the young fishes.

Like their cousin the zebra, these fish are not too difficult to breed, though the female does tend to become a little egg-bound at times (should that happen, a little live Daphnia in the diet usually cures the condition). Like all egg-scatterers, the female sheds her eggs willy-nilly all over the aquarium, the male following close behind and covering them with a film of milt (active sperm). A suitable tank is the 18 in. by 10 in. by 10 in. containing about 6 in. of water—well filtered water from another tank can quite well be used. The female can be placed in this tank on her own (in sexing, only the fullness of the female indicates her sex) until she is really plump and full of roe. Then, in the early evening, the male can be introduced. At a temperature of 75°-78°F (23°C), spawning should take place within a
few hours. The male and female come to each other head on. They suddenly move into a vertical position, 'embrace' for a short time and then the female sheds her eggs (this 'embrace' can be just an apparent bump between the two, or a glancing blow as they pass).

When being set up the bottom of the tank will have been covered with marbles, broken brick or similar nontoxic material that can form interstices into which the eggs will fall. In this way, the parents are prevented from eating them, but the parents can be removed after spawning is finished. The eggs hatch out in about 24 hours. Any fry food is suitable when the young are free-swimming. The various liquid foods are especially useful.

COLDWATER SCENE

World's Largest Producers of Goldfish

GOLDFISH keepers in the U.S.A. do not believe in applying to their fish rigid show standards such as British coldwater enthusiasts use. Although they support the strict propagation of distinct basic varieties, American goldfish-keepers think that breeders should be free to develop and concentrate upon whatever special features, of finnage or eye development, for example, that might attract them. Thus the blue of the shubunkin is a characteristic that could be developed and recognized in other goldfish varieties according to this viewpoint.

This was but one of the many interesting facts that emerged from the talk and film show given in London by Mr. Neal Teidler, co-founder of the American Goldfish Society and editor of THE GOLDFISH, OCT. A special meeting was organized by the Goldfish Society of Great Britain at short notice to enable members to meet Mr. Teidler while he was in Britain on a short visit.

Part of the reason for the very different attitude towards fish 'standards' in the U.S.A. has its roots, Mr. Teidler explained, in the fact that the number of amateur hobbyists deeply interested in goldfish breeding is quite small there. The majority of serious breeders are involved also in the goldfish trade, which in the States is immense. American fish farms are the largest producers of goldfish in the world. A single farm, for instance, supplies for sale each week 1-2 million fish of one of their varieties alone. No goldfish breeder on such a scale is prepared to accept rigid standards that make his particular strains 'poor' fish! Efforts by amateur groups in the past to achieve such standards have resulted in the ultimate collapse of the amateur group. For this reason, the American Goldfish Society believes that 'progress by inches' is likely to be the most successful policy.

Mr. Teidler showed films of a tour of fish farms in Missouri that made it very clear what an enormous area many of them covered. Ozarks Fisheries, for instance, had 400 acres under water, divided into some 400 natural ponds each of an average size of 100 ft. by 25 ft. Six springs (four of hard water and two of soft) and two or three wells supplied 30 million gallons of water every day, which enabled every pond to be given a 10% water change daily.

A thriving farm devotes much time to ensuring that ponds are not allowed to flow into each other and to preservation of stock varieties by keeping strains in distinct areas. Thus if marauding birds accidentally drop their prey the fish are likely to be still within the confines of the pond area of their own particular variety. Ponds receive a carefully controlled amount of pest-killer each
Goldfish netted by seine net are graded for size by the use of boxes so that only the larger ones are selected for market.

Month and although infestation by tadpoles of amphibians is still a problem, crayfish have been eliminated and so has the anchor worm parasite.

Some of the film shots, taken by Mr Teitler himself, caused the audience much amusement. Feeding was done by the bucket load, from lorrys, but although feeding looked haphazard it is in fact very carefully and scientifically assessed. Fish are deliberately crowded in ponds so keep down their size for popular sales, and the collecting of breeders from a pond in a huge net pulled right across the width of the water produced such an abundance of fish that they had to be dealt with by the handful. Rods set at different widths from each other in the holding tanks enabled the fish to practically sort themselves into four different size groups.

Breeding was carried out on a vast scale. For instance 400 male and 300 female fantails (with a red and white fish to keep up the intense red colour) are used at a time in a pond, and the percentage of good quality fish is very high. Only about 3%, "cults" result.

Answering questions, Mr Teitler explained that Missouri is particularly favourable for goldfish breeding. As part of the "hog belt" of swampy land that runs from Maryland, the water shed is sufficient to provide areas for natural ponds and, unlike the west coast of America which had no cool period, the Missouri area enjoyed 8 months when the water would be at a temperature of 75°-78°F (23.5°-25°C), but then has a 4-month period, ideal for resting the breeding fish, when temperatures are down to 58°-60°F (14°-16°C).

On the subject of feeding, Mr Teitler expressed his firm belief that correct feeding played a larger part than movement of water in producing deep-bodied fish. A heavy protein diet is required. He had, for instance, found that heavy protein diet, compared with a largely carbohydrate one, produced very superior brambleheads.

With regard to goldfish names, Mr Teitler agreed that as much common usage as possible between American and British nomenclature should be aimed for but he thought that certain British names could be improved. For instance 'bramblehead' he would personally prefer to be replaced with 'basshead'.

'Broadtail' was the name given by Mr F. Barrett and Mr Schaffer to the breed of fish that they fixed from mutations found in a batch of Japanese ryukin goldfish and from which all subsequent fish known as 'veiltails' to British aquarists have come. Mr Teitler traced the spread of this fish from the original five specimens that appeared in 1884, through the turn of the century (by which time the broadtail had become established) to exporting of the fish to Germany in 1905 and England in 1908. By 1920 every aquarium magazine in the U.S.A. carried advertisements offering them for sale. The name 'veiltail' was popularised when Mr W. T. Ives used it in his writings. As a name for the variety, Mr Teitler considers that 'veiltail' is quite unacceptable.

Ryukin breeders are selected from goldfish netted in mass in one of Ozarks ponds.
THE skin of Poecilia reticulata contains a number of different pigment cells (chromatophores) with such impressive names as 'melanophores' (carrying black pigment) and 'xanthophores' (yellow pigment), to mention but two of the more important ones. Whether these pigments are concentrated in a small area at the chromatophore centre or dispersed throughout the cell determines the intensity of colour presented to our eyes.

The colour blue is not a true pigment but a structural effect; if the black melanophores are deep seated in the skin tissue then they appear blue—the same cause by the dispersion of small dust particles in our atmosphere that makes the astronaut's black sky appear blue to us on earth.

Now, those readers who have tried consistently to produce a good strain of blue fish will know that close inbreeding causes them to lose some of their original intensity. The guppies look washed out as far as their colour is concerned. To improve them I have always outcrossed some of the deteriorating strain with the blackest guppies I could obtain... like a certain beverage, it works wonders!

By PETER UNWIN

Some guppy keepers have been experiencing condensation inside the glass protective tubing of their thermostats. If neglected this could cause the make-and-break points to rust and stick together with disastrous results for the aquarium occupants.

One simple remedy is to disconnect the thermostat from the live supply and, after removing the rubber stopper and works, deep a small amount of silica gel into the bottom of the glass tube. Replace the mechanism, ensuring thebung is a good fit—but don't force it back too hard or it may burst the glass neck.

Silica gel as crystals is often packed with good quality optical instruments to absorb any damp that may occur during transit from factory to consumer. Perhaps some reader knows of a cheap, reliable source?

I did wonder whether modern electronic wizardry has finally produced the flawless thermostat for chilled guppies aren't as common as they used to be, judging by the correspondence (or lack of it) received in answer to my question on the subject.

Only P. Scott of Devon (Letters, 17th November, 1965) and James Philip Chestney, from that centre of the wool trade, Bradford, Yorks. (Letters, 23rd January), had anything to say on the matter. Or is it that guppy breeders are such a modest lot that they shun the publicity of the printed word? It cannot be they are selfish, surely, and have no wish to disseminate information for the enrichment of the hobby in general and the beginner in particular?

I suspect that the answer nearer the truth is that my plea wasn't important enough to raise a protest—almost everybody has already done that about almost everything.

Q. When was the first Gold Medal awarded to a guppy on the show bench?

A. In the month of October, 1934, the Bay Ridge A.S., from Brooklyn, New York, held their usual exhibition of tropical fish but as a special attraction offered such a prize for the winner of a special section devoted entirely to fancy guppies—quite an innovation for those times, and shows. This attracted many top guppy men of the day and the prize eventually went to Charles E. Vredenburgh, a local chap, who some years previously had been one of those actively employed in getting the hobby started in Manhattan. The fish was what we would term to-day a half-black veiltail, and reports (authentic, I might add) by people...
who knew fish claimed it to be every bit of 2 inches in length.
I hope my answer will settle a few arguments that I know have raged on this subject in quite a few guppy clubs.

If you have any question you would like us to do research on for you, why not send them in and let us at least try; if the two authors

Ida M. Mellen and Robert J. Lanier, could fill a book with over 1000 I'm sure our thousands of intelligent readers can think up a few they missed.

What is 'Tropical' and What is 'Coldwater'?

This question arises from experiences I had last year at a number of open show judging engagements. The existing two main groups 'Tropical' and 'Coldwater' have no doubt served a useful purpose for a number of years, but with the increasing numbers of new fishes, especially 'native and foreign coldwater', things are becoming a little chaotic.

There is the case of a Japanese weather loach winning a prize in the Coldwater Native and Foreign class and another gaining an award in the A.O.S. Tropical class at the same show. I have seen the golden medaka exhibited as a coldwater fish, the pigny sunfish as a coldwater fish and the black-banded sunfish has appeared in both tropical and coldwater classes. Will we soon be seeing the paradise fish or mountain minnow exhibited in coldwater classes? There is little doubt that many fishes having a wide temperature range and wide distribution can be successfully kept under both conditions.

Although the terms coldwater and tropical are meaningless scientifically all show managers know that they are expected to maintain a temperature of about 75°F for tropicaIs in the show room whereas the coldwater fish need only to be kept at the prevailing temperature.

I recently asked a number of well-known aquarists what their definition of a coldwater fish was and in the main I received two replies: (1) Fishes that will live out of doors through an English winter; (2) fishes that over the years have been accepted as coldwater.

The first definition fails for two reasons: variation between English winters in the north and those in the south; not all goldfish varieties will stand wintering outdoors.

The second definition just isn't working—hence this article!

Three possible answers come to mind in solving this problem, each brings with it other problems, so that all we can hope for is the best compromise.

First possibility. To have a grouping for 'temperate fishes'. I think that this would be even less practical than the existing classification; with three groupings even more chaos could arise.

Second possibility. To have the controlling body, the Federation of British Aquatic Societies, stipulate the classification under which a fish must be shown. It is difficult to imagine which criteria would decide the issue, as there is by no means unanimity on this question. It would also be impossible to keep up with new imports, especially from the North American Continent.

Third possibility. To have two new groupings: 1, Goldfish, and 2, Any Other Species of Fish. This would completely settle once and for all the issue, as all fish would then be shown under their generic or family groups according to the classes on the show schedule, with the result that the Native and Foreign coldwater fish class would virtually disappear from the schedule. Although this at first seems to be ideal this, too, presents problems—problems of benching rather than of classification.

All fishes except goldfish, particularly in shows lasting several days, would eventually be subjected to tropical temperatures unless several water changes are made. The barbel, which likes cool, fast-moving water, would have to go in the barb class and it is doubtful if one could expect it to survive under these conditions. The same goes for some of the loaches; they certainly would not be at their best. There is also the problem of stagging exhibits. Imagine a large barbel flanked at either side by a cherry barb.

One point in favour of the third possibility is that there would then be two kinds of judges for goldfish and others. Not all goldfish judges are prepared to judge other 'cold-water' fishes. The pointing system for river and pond fish is the same as for tropical fish.

As a judge of both Coldwater and Tropical classes I am concerned that a system that is fair to both sides is formulated, and I would be very interested to receive your comments and observations, even if you think the present system is adequate. All correspondence received will be put before the Federation, who will consider what is the most acceptable system and whether indeed the present one is adequate. Please write to Mr J. Stillwell, 34 Salcombe Avenue, Copnor, Portsmouth, Hants PO2 6LD.
Killie for the Community

STEINDAECHNER first described *Epiplatys bifasciatus* on the basis of specimens obtained from Bahr-el-Seraf and Bahr-el-Gebel of the Nile drainage areas in 1881, but *bifasciatus* has been reported (sometimes under different names) from all major drainage areas of West Africa and from the Chad drainage. *E. bifasciatus* is exclusively a savannah species, and has not been found in forest area.

It is characterized by the vertical red lines or bars in the spear-shaped caudal fin, but colours do have slight variations according to the area inhabited by the species. The size of the male is up to 2½ in, the female is slightly smaller at 2½ in and this fish is very slender compared with other members of the *Epiplatys* group.

*Epiplatys bifasciatus*

By R.C. ARMSTRONG

Photograph by the author

All fish have a series of slightly oblique red bars running from the eye to the caudal peduncle, which may become blotched along the lower part of the body towards the caudal. The dorsal fin is small and set well back, a blue sheen with red spots often showing, with red bars on the trailing edge of the fin; the caudal fin is large and spear-shaped, covered with many red and blue spots; sometimes a few large spots combine to form bars. This fin is often edged with a red or black band when the male is showing off to the female. The anal fin is large (and in some males from the Volta area it develops a streamer at the lower edge), and edged with a red or black band spotted with red dots on a background of blue or green. Pectoral fins are greenish yellow with a few red spots; on some fish the pectorals have a red sheen all over the fin.

Females have the same shape as the males, with all fins rounded and clear, body colour green and having a few red spots scattered over the area above the centre line of the body. *E. bifasciatus* reproduces well in hard, alkaline water at 72–76°F (22–26°C). Although very easy to keep and breed, it is a very shy fish if not kept in a well planted tank. When individuals are kept together for a few weeks without the presence of other fishes many will overcome their shyness and show themselves off in their true jewel-like colours.

I bred them in a 24 in. by 15 in. by 12 in. tank that is well planted and has plenty of floating plants. A few mops are placed in the corners of the tank. Tightly fitting tank covers are essential as all the species of *Epiplatys* are excellent jumpers, and can aim at the smallest exit in the tank cover—basser cable holes, filter tube holes, etc.

*E. bifasciatus* will reproduce in a well planted tank, but as I also require eggs for passing to other interested killie fans, I remove the mops when required and pick the eggs, which are very small, from the mop, and place them in a small clear plastic box containing 1 inch depth of tapwater at the same temperature as the tank from which the eggs and mop came. The eggs hatch in from 8 to 20 days, depending on the water conditions and temperature. When the fry hatch they are able to take micro worm and fresh hatched brine shrimps immediately. The young will grow very quickly if fed well and after a few weeks will be able to take all types of dried and live food.

This fish has been mistaken many times for *Aphyoplatys debise* (Poll, 1953); the colours are similar in some specimens, but *A. debise* has a pointed caudal fin whereas all *Epiplatys* have a rounded, sometimes spear-shaped, caudal fin without a point, and maximum size for *A. debise* is about 1½ in. total length.

*E. bifasciatus* is a real jewel in the aquarium. It will live with neon, glowlights, small pencil fish and so on in a community tank and can add the touch of extra colour required. The male often shows himself off to the female with fins spread and glowing with colour, near to the front glass or in front of some cover plant in which they intend to spawn. It is a fish I hope always to have a few specimens of, brightening up the dark corners of my aquarium.
AQUARIIST IN GHANA

Never on a Wednesday

SOME days before dispatching the collected fishes as I described in my last article, I had gone to the Togoland Embassy in Accra to get visas for Togo and Dahomey. That afternoon, after dispatching the fish, I went to Lome, the capital of Togoland, about 120 miles east of Accra-Tema. About 5 p.m. I arrived chez Paul Lomelle, an American Peace Corps volunteer, working on freshwater fish in Togo. Another visitor had arrived shortly before me—Paul Opel—son of the Peace Corps director in Accra, and also interested in fish.

We started off fishing the next day with a visit to a temporary pool near Lome, where we thought we might find the anual Fundulina thoryi—originally, but wrongly, called Aphysemis authori. Anyway, the pool we started work in looked a reasonably likely habitat, except for one small defect—it contained no fish. There were thousands of huge tadpoles of Xenopus, the clawed toad, and some other tadpoles shaped a bit like angel fish. As well as these, a in, 'fairy shrimps' with red tails were abundant, and something in the water gave us some beautiful stings, which came up as red welts. We preserved a few of the invertebrates, then retired to Lome to recover and feed.

Despite our lack of success on that trip, we caught huge numbers of Fundulina a day or two later. The localities in which we found these little toothcarps were all in the Transvolta basin, which drains into the systems of lagoons and channels towards the mouth of the Volta River. To reach these little streams we took the train from Lome up the west side of Togoland towards Palime, visiting towns with names that sound as if they belong in a fairy-tale—Noépé, Glekove, Antemen.

For those who have never experienced the Chemins de fer Togolaise, here is an introduction. Railway regulations insist that freight must not be put in the passenger carriages—or so said the guard, who rushed around the train until the piles of yams, plantains and firewood reached waist depth. Then he retired to a corner and walked amidst a collection of howling babies and tin boxes.

It was at Noépé that we had our first luck. Right on the Ghana/Togo border runs an intermittent stream, the sole source of water for the town. Recently a small dam was built on the stream ensuring a year-round pool of water, where previously the village women had had to walk 20 km for water in the dry season. The little stream below the dam had been full for some weeks when we arrived (about half-way through the rains) and we found many Fundulina, often swimming close to the surface with their eye spots showing. The coloration of this strain was much less intense than in the brilliantly colored individuals near Asop.

North of Noépé, towards Palime, there are old forest fragments, patches of dense vegetation and tall trees, usually found overhanging streams. In these streams we found...
more Fundulosaoma: obviously this is a species that is more catholic in its habitat requirements than the books would have us believe. This has always been thought of as a fish of the dry savannahs. The Ewe name for small cyprinodonts, especially Fundulosaoma, can be translated as 'The first fish in the river'. Even the village children can recognise that these fish appear first in the newly filled streams at the start of the rains.

In these same streams were quite a collection of good-looking fishes. Grubbing along the bottom was a Gnathonemus species (a mormyrid). Ctenopoma hinglaysia—the young have a very attractive colour pattern—were abundant, as were various barbs, Hemichromis bimaculatus (jewel cichlid), Neolobus umfumcatus, Pterophyllum intermedius (a small tetra), and we also caught an undescribed species of Clarias with a small, rounded tail. Paul Loiselle told me that some villagers catch young Ctenopoma, and keep them for a while, feeding them well. At the start of the rains the little fish is released into the river and told to pass on the message: 'Look how well fed I am. There is food for all the fish if they will visit the fisherman's net.'

Despite the forest cover there were no forest Epilatus. However, to the north and east of the Transvolta basin, E. sexfasciatus is found with E. chaperi in Ghana to the west.

Right: many fish were caught in roadside streams like this one (on the Palimé Road, W. Togoland). Paul Loiselle is seen examining a haul of Fundulosaoma in his net.

Below: the barrage of stakes and rods placed across the lower Mono River (near Anécho, S.E. Togoland) is used to trap fish in basket-work containers set in the spaces through which the fish swim.

One afternoon we went to Anécho, near the Togo/Dahomey border. This is a straggling town winding among the palm groves along the estuary of the Mono River. A small fisheries station close to the river has set up a local fish-culture device as an experiment. This consists of placing a mass of sticks, twigs and brushwood on the bottom of the shallow estuary. Fish then tend to accumulate in these and use them as hiding places. Any waste food thrown into the device (known as an acaja) then boosts the size of the fish. The fish in the acaja can be harvested at intervals (by taking out gill nets all round it, and removing the brushwood).

Both up- and down-stream of this particular acaja, large fish-trapping barrages had been set up by arranging lines of poles in a zig-zag manner across the river. At the apex of each 'zig' and 'zag' was the only space large enough to allow a fish through. Behind each of these spaces a trap was set to catch the fish as they moved up and down the estuary. The traps were beautiful basket-work constructions, about 4 feet long, and could hold large Tilapia, mullet etc., which are the main species caught.

On the bank, facing towards the barrage, was a mud statuette of, I suppose, a river god, food stuffing up its open mouth and littering the ground around. These fishermen will always deny knowing anything
about jujus, and yet they adhere to old tribal taboos. Most coastal tribes in Ghana will never fish in the sea on Tuesdays or in fresh water on Wednesdays, but usually refuse to give reasons. The commonest story is that, long ago, a fisherman called Kofi (a name as frequent as John or Jack) caught the sea-god in his net, one Tuesday. Since then, no fisherman will go to sea on that day for fear of the god’s revenge.

One of the last places I visited during my stay in Togo was the Lagoon of Lomé, just outside the capital. We caught many Epibates bifasciatus among the reeds and Pintia mats there. Close to the lagoon is Lomé’s jujus market, with the usual collection of dried monkey heads, bird claws and herbs. Large charcoal ovens can be bought there alive—unusual souvenirs of an unusual place.

A Little-Known Fish Food

By ALAN CHARLTON

Many aquarists will be familiar with the copepod genus Cyclops, either as an occasional aquarium visitor or as a live food, but the related genus Diaptomus seems to be much less widely known. Yet in my experience Diaptomus is no more difficult to obtain—the animals can be available in large quantity at favourable times, and it is at least as good a fish food. It can be collected with a fine net from ponds and lakes in the same way as Daphnia and Cyclops, often occurring with them; probably some collectors miss it on account of its size since it will pass through a net which is quite adequate to collect other live food. I use a fine nylon net with 290-360 meshes to the inch.

There are several species of Diaptomus in the British Isles but only an expert can distinguish them. From the aquarist’s point of view it is worth knowing that some species are most abundant in the summer, others during those difficult months November to March. The animal itself is most easily recognised. It has a pair of very long antennae, held at right angles to its body, and a number of short appendages which are difficult to see except under the microscope. Females usually carry a single egg mass. The animal may be red, green, blue or brown.

Undisturbed, Diaptomus glides slowly through the water propelled by its forward limbs while filtering out algae and other small food particles. If a fish or anything else approaches closely, however, Diaptomus leaps with amazing speed. Consequently only fishes that are able to pounce rapidly can catch it. I have used it successfully as food for livebearers, from newly born onwards, and for fry of small active egglayers such as tetras and rasboras. These will take it after they have taken brine shrimp for 3-4 days. Fishes that I have found unable to cope with Diaptomus are the egg-laying toothcarps of Aplocheilus and similar genera.

For some of the characins with a red colour or a reddish cast, such as neon or copper tetras, it appears that an early period of feeding with copepods, either Cyclops or Diaptomus, is essential for development of really good colour. I suspect that this effect may be a matter of supplying the fish with a good initial supply of carotenoid compounds to incorporate into their red pigment cells. But one would expect brine shrimp feeding to be as effective, as the orange colour of the shrimps is due to carotenoids; it isn’t effective, as witness the pallid colour of shrimp-raised stocks, so some other explanation of the colouring effect of copepods might be sought.
**Club News**

**MERSEYSIDE A.S.** enjoyed a most successful year in 1969 and steadily recruited new members to its ranks. Services of Mr Fred Mullis (Secretary, Waikiki), Mr J. M. Hamilton (Membership Secretary, Hamilton), Mr J. R. M. Wallis (Secretary, Wallis) are acknowledged gratefully.

**TROUBLED with algae?** Editor Mr G. B. Hamshy's reports in the YORK & D.A.S. 'Lateral Lines' on the algae-consuming abilities of his two pink-lacing gouramis. The first one, when obtained, was "all hand and almighty". As many of these fish appear when first bought, Mr Hamshy continues: "His first home was a 3 ft. tank overgrown with algae. Inside a month he had got more normal proportions and in the process thoroughly cleaned every visible sign of algae from everything—glass, plants, rocks etc. When I moved everything into one and fed him more he still got an abundance of algae due to too high water and too little shading. This we don't mind now as he just goes from tank to tank literally vacuming the algae away. I bought another one so we have 5 tanks, between them they manage this number every fortnight. They are so good at their job I'd place them near in front of sucking tanks, obsticles, meater, Precholdos imagines etc."
view microscope slides of live foods, plant sections and diseased fish and dissection techniques were demonstrated. 'Guppyias' were catered for when the slide show 'So You Fancy Fancy Guppies' was hired from the F.G.A. and the high standard of the photography and the commentary packed with useful information was greatly appreciated. A recently seen cine-film was that presented by Mr F. Byers of Tunbridge Wells that included some of his own film of aquarium fish with a particularly interesting sequence showing Siamese fighters nest-building. Table shows have produced some interesting fish recently, Judge of the livebearer breeders class, Mr Iain Mathieson, found the winning entry from junior member Mark Bromwich (who had never shown before) really exceptional fish and foresees a promising future for these red plaits in open shows. Another table show was judged by the three leaders in the club championship.

THE Fish of the Year table show was well supported by BRIGHTON & SOUTHERN A.S. members, who brought 36 fish. A knife fish entered by Mr D. Soper was awarded the highest number of points (83) (1, Mr P. Twigg, bonsa, 81; 2, Mr J. Pelham, clown barb, 80). Another annual competition, the Members' Quiz, was won by Mr K. Oranje who achieved a total of 371 points out of a possible 50. The junior winner was C. Wickham with 36 points. A furnished aquarium competition was won by Mr H. Madison (2, Mr D. McFarlane; 3, Mr W. Wickham). The Society is always pleased to greet visitors and new members and anyone interested in joining should contact secretary Mr Bert Shelton, 45 Coventry Street, Brighton.

THE Aquaria section of the Fur, Feather & Aquaria Show organized in association with the Essex, North

and East London aquarists' groups by the London Borough of Hackney was held this season at Shoreditch Town Hall. Mr J. Gower entered the fish judged to be the best in the show, an X. maculatus. The Inter-club Challenge Shield was won by Walhampton & D.A.S. (82 points; 2, Bethnal Green and 3. Croydon). The individual furnished aquarium class was led by Mr A. Chandler. Class winners were:

- Common goldfish, London shubunkins, Mr W. Wickham (Walhampton), A.A. group 
- A. group, Mrs L. Smith (Hampstead), A.A. group 
- A. group, Mr R. Wood (Croydon), A.A. group 
- A. group, Mr G. Savage (Walhampton) 
- A. group, Mr J. Gower (Bethnal Green) 
- A. group, Mr J. Gower (Shoreditch) 
- A. group, Mr W. Wickham (Walhampton) 
- A.A. group, Mr E. Morse (Bethnal Green), A.A. group, Mrs L. Smith (Hampstead), A.A. group, Mr A. Arnold (Shoreditch), A.A. group, Mr F. Arnold (Shoreditch)

THE MIDLAND AQUARIUM & POOL SOCIETY are planning well ahead for the Bingley Hall Show, which is traditionally held for September 15th. One or two changes are being made, the most important of which is that early removal passes for fish will no longer be issued. All exhibitors are expected to comply with the general times for removal of their exhibiting marine by the removal of the distances to be travelled. The Show Committee regrets any difficulties that this may cause to exhibitors outside the Birmingham area but believes that the new Trades Description Act prohibits the Society from allowing this early removal.

BULK supplies of brine shrimp (Artemia salina) eggs are packed in air-tight, sealed cans, usually to be opened by a can-opener. They also include a plastic lid so that the drum can be sealed again after use. If such a container isn't available then empty your supply into a screw-top glass jar, but first make sure that it is absolutely dry. Being hygroscopic, these eggs will soon absorb moisture. Another method to use, if the eggs seem reasonably free from moisture, is to place them in plastic bags, which are tied and stored in the cool part of your fridge. The eggs won't freeze if no water is present. This method is the one adopted by most professional aquarists who obtain their supplies of eggs in bulk. Always air-dry your Artemia eggs; trying to dry them out by placing in front of a fire or on a radiator can be disastrous.

When changing the brine shrimp hatching mix, run the old water through a fine net and place the residue in fresh saline mix. It is amazing what a wealth of extra shrimp this will provide. The residue filtered out isn't always just the dead cases of the shrimp!

BILLERICAY A.S. officers were able to report on a very successful year at the Society's A.G.M. The treasurer reported that the club's assets stood at well over £50 and the list of activities that members had taken part in during the year had been varied and well supported. Lectures by prominent aquarists such as M. Kratky, Mr. C. T. Brown, Mr. Creed and Mr. G. Jennings, outings to the London and Colchester Zoos. The Aquarium Show, the Hendon Convention and inter-club activities with Whitham, Blackwater, Southend, Thurrock and East London societies had all helped to maintain a lively and interested membership. Any fishkeeper in the area who would like to join in similar activities should contact secretary Mr. Nigel Latham at 45 Tennyson Road, Hutton, Brentwood, Essex.

Guppy buffs throughout the world are pleased to read that Martha Hahnel, wife of the late Guppy King David Hahnel, intends to carry on breeding his strains of red fantails, visiting clubs and encouraging the keeping of his favourite fish according to the principles laid down by her husband.
In Brief...

NUNEATON A.S. is to keep a register of any fish bred by members who wish to show in any breeders classes, the fish to be registered within one month of birth.

MEMBERS of HAMPSTEAD & D.A.S. awarded annual trophies are: Mrs. Reich, Tropical Points Cup, Cichlid Cup, Labyrinth Cup, Catfish trophy; Mr. and Mrs. Luff, Coldwater Points Cup; Mr. L. B. Camden, Livebearer Cup, Breeder Cup, Fighter trophy; Mr. J. Hiscock, Characin Cup, Carp and Minnow Cup; Mr. T. Cusack, Angel trophy.

WHEN 'lu struck down the panel of experts who were to talk to members of YATE & D.A.S. various club members were able to devise a most interesting meeting for their fellows by describing their adventures in breeding various types of fish. In the end, all members present gave an account of their tanks, types and number of fish, and thoughts and ambitions on future breeding programmes.

Mr. K. ATTWOOD of LONGBRIDGE & D.A.S. won the Ron Whirfield shield for the fish of the year award and N. Furness the Junior shield.

FISH owned by members of NEW FOREST A.S. do not suffer from a monotonous diet. In the discussion that followed a talk by Mr. Henry Earle of Bournemouth A.C. on food and feeding, a wide variety of foods was mentioned as part of the fish's diet, from cereals to chopped earthworms and spinach. The class for fighters was led by a blue fighter entered by Mr. M. Lee, and the R. elegans of Mr. D. Harding was awarded first place in the rainbow class.

A CONTENTED MAN is Mr. R. B. THURSDAY, a member of NUNEATON A.S. He has won four of the seven trophies presented to club members annually, 1969 awards were: Swansbury shield: 1, Mr. F. Harkins; 2, Mr. E. Nicol and Mr. G. Eaton. Trophy: 1, Mr. F. Harkins; 2, Mr. P. Hinkley; 3, Mr. H. Juson. Holland trophy: 1, Mr. D. Durrant; 2, Mr. P. O'Bryan; 3, Mr. E. Nicol. Table show medal: Mr. F. Harkins. Fry rearing, Mr. F. Harkins. Home Aquaria, Mr. L. Sishford, Member of the Year shield, Mr. R. Nicholls.

SCRIVIN of BISHOPS CLEEVE A.S. was awarded first place in the table show for Australian rainbows when his club were hosts to STROUD & D.A.S. Stroud member Mr. R. J. Beard took second and third places.

WHEN Mr. A. D. Jeffs, who is himself an F.B.A.S. judge, spoke to fellow club members of VAUXHALL MOTORS A.S. on setting up home aquariums and judging fish, he provided a dozen or so fish for members to practice judging on and to compare their results with those arrived at by Mr. C. Upton of the Pet Shop, Northampton who was also judging the table show. Member Mr. M. Hakes showed himself to be an excellent judge of good specimens by walking off with first, second and third places in the table show for a.v. tropical.

FARNBOROUGH & D.A.S. scored their first success of 1970 when they defeated DIDCOT & D.A.S. by 157 points to 145 in a 'best of 8' competition. Mr. R. Wynd of Farnborough took first place with a fine half-handed barb and fourth place with a redtailed shark. Judge Mr. R. Armstrong (F.B.A.S.) pointed out that a general smallness in body size of the fishes bunched should be remedied.

AWARDS in the LOUGHBOROUGH & D.A.S. annual Shield Event were presented at the Society's very successful dinner and dance by the principal guests Mr. and Mrs. T. Stapleford to: livebearers, Mr. M. Walker; barbs, Mr. M. Delaney; anabantids, Mr. I. Purdy; characins, Mr. T. Parry; catfish and loaches, Mr. Vesey; cichlids, pairs, Mr. M. Delaney; a.o.v. Mr. N. Vesey; Chapman shield for most points at table shows, Mr. M. Delaney. Fish of the year award was won by an A. afraeasi owned by Mr. N. Vesey.

NORWICH & D.A.S. members lost many of their fears about keeping marine tropicaals after hearing Mr. M. Burch of the Mickelfield Fish Centre explain how to set up a marine aquarium. The Philip Wayne Annual Trophy for table shows, after a closely fought contest throughout the last 6 months of the year, was finally won by Mr. D. Lansdell (2, Mr. M. Barker; 3, Mr. D. Ajer and Mr. A. Langham). With the summer in mind, members of other societies who might be in their part of the world on holiday are warmly invited to attend Norwich meetings (first Thursday of month at Co-op Hall, Eastham Green Lane.)

FINAL positions in the LEAMINGTON & D.A.S. annual competitions are: Member of the Year Trophy: 1, Mr. F. Underwood (182); 2, Mr. P. Taggart (147); 3, Mrs. J. K. Smith (137). Junior trophy: 1, P. Taggart (147); 2, E. Clarke (81); 3, Master D. Beard (60). Furnished Aquarium trophy: 1, Mrs. J. K. Smith; 2, Mr. R. Woodward; 3, Mr. E. Clarke. Show trophy: 1, Mr. F. Underwood (186); 2, Mr. P. Taggart (101); 3, Mrs. J. K. Smith (98). Jack Clarke trophy for best in show: 1, Mr. F. Underwood; 2, Mr. P. Taggart; 3, Mr. E. Clarke. Breeder's trophy: 1, Mr. F. Underwood (42); 2, Mr. P. Taggart (19); 3, Mrs. J. K. Smith (15).

THE EPIDIASCOPE that is EALING & D.A.S.'s newest acquisition was put to good use when members took part in a judging competition. The classes on the bench were illustrated on the epidiascope and vital points outlined before the competition began. Two or three members achieved results very close to the judge's decisions and a new club member, though not apparently a new hobbyist, Mr. Turner, won the competition.

IMPORTANT REQUEST TO ALL AQUARIUM SOCIETIES

ANY aquarium society interested in the idea of staging a display at THE AQUARIUM SHOW in London this year (Thursday 29th October—Sunday 1st November) is requested to notify Anthony Evans (Show Organiser, 554 Garratt Lane, London SW17 7HS) as soon as possible. Such notification of interest is not intended to be a commitment to making a display, but the information now requested is essential for an early appraisal of the likely extent of society participation to be made.
Dates for Your Diary

1st March. KINGSTON A.S. Open Show. Details from Mr. H. F. W. King, 53 Colmer Drive, Ipswich, Suffolk.

3rd March. BOURNEMOUTH A.C. Open Show. Details from Mr. S. J. Bowden, 11 Seaview Avenue, Bournemouth, Dorset.

4th March. BRENTWOOD A.S. Open Show. Details from Mr. G. M. Williams, 12 The Drive, Brentwood, Essex.

5th March. BIRKENHEAD A.S. Open Show. Details from Mr. H. G. Brown, 23 Priory Road, Birkenhead, Merseyside.

7th March. BROMLEY A.S. Open Show. Details from Mr. J. H. Johnson, 12 Park View, Bromley, Kent.

9th March. NUNEaton A.S. Open Show. Details from Mr. J. A. Evans, 12 London Road, Nuneaton, Warwickshire.

11th March. BIRMINGHAM A.S. Open Show. Details from Mr. J. T. Brown, 12 London Road, Birmingham, West Midlands.

12th March. LONDON A.S. Open Show. Details from Mr. J. T. Brown, 12 London Road, Birmingham, West Midlands.

15th March. IPSWICH A.S. Open Show. Details from Mr. J. H. Johnson, 12 Park View, Bromley, Kent.

17th March. NOTTINGHAM & D.A.S. Open Show. Details from Mr. G. M. Williams, 12 The Drive, Brentwood, Essex.

18th March. LONDON A.S. Open Show. Details from Mr. J. T. Brown, 12 London Road, Birmingham, West Midlands.

20th March. IPSWICH A.S. Open Show. Details from Mr. J. H. Johnson, 12 Park View, Bromley, Kent.

21st March. LONDON A.S. Open Show. Details from Mr. J. T. Brown, 12 London Road, Birmingham, West Midlands.

24th March. BIRMINGHAM A.S. Open Show. Details from Mr. J. A. Evans, 12 London Road, Nuneaton, Warwickshire.

26th March. IPSWICH A.S. Open Show. Details from Mr. J. H. Johnson, 12 Park View, Bromley, Kent.

27th March. LONDON A.S. Open Show. Details from Mr. J. T. Brown, 12 London Road, Birmingham, West Midlands.

The judging of the Society's home aquarium competition. The quality of the fishes was very good and the rock collections were suitably varied. A little more attention might have been paid to planting to ensure the removal of dead leaves and broken shoots. And to make certain that the right depth of stems showed above the gravel, and the selection of tank backing could have been rather more carefully made. Witness was Mrs Ivy Bulleyment (26 points); 2, Mr Bill Pyckett, 73; 3, Mrs Barbara Goodlad, 70.
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Continued on page 508
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