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Comments and Quotes

- Aquaria not-so-beautiful
- Ban on Crocs
- Award to Aquatic Firm

On Public View

NOTHING is as pleasing to the eye of anyone with the interests of the hobby at heart as the sight of a well-kept and set-up aquarium in some position where it is on public view. Such a picture cannot fail to win newcomers to aquarium keeping, we believe. One large, well-planted aquarium that gave us this kind of pleasure was placed in the foyer of a large office block in London and someone was undoubtedly doing a first-rate job in keeping the tank as it should be. Was—fortunately, the last time we saw the tank, an unsound decision had been taken to ‘go marine’, and there was the once beautiful aquarium looking like most seawater tanks that are not kept up by true experts, salt-splattered and obscurated with algae, unattracively bedecked with lumps of dead coral, and with a few coral reef ‘jewels’ from which the shine was disappearing fast. Not a pretty sight at all. What harm it now does and will do until its inevitable shut-down in putting people off we hate to think.

Another sight that really caused us to shudder this summer was on full view in a Somerset inn. This was a large aquarium that had started life as a furnished tank with a mixed community of tropicals, and probably (one cannot now be sure!) was at first all that such an aquarium should be. The sequence of events that followed could be constructed from the sorry evidence now on display. The presence of the few medium-sized underfed cichlid singles of various common species, living in a state of nerve-jangling semi warfare, suggested that someone had unwisely included these as tiny specimens in the first community without knowledge of likely future developments. The leafless stalks of plants to be seen here and there denoted the end of the impossible struggle to keep the aquarium greenery thriving with such fishes in the tank. The general signs were that the owner was losing interest fast — he was probably quite unaware of where he had gone wrong, and in fact the sooner this sad display gets removed from public view the better. Unfortunately one can visualise how, for years to come, mine host will be dissuading all who will listen to him from owning an aquarium by his experience of how difficult he found it all.

It's not easy to say what can be done about such failures on public view. In theory they should never happen, for books giving the proper guidance for success are plentiful, most dealers are free with good advice and there is nothing intrinsically difficult about aquarium maintenance. But happen, they surely do. Societies can perform good work here looking out for and (tactfully) dealing with any aqua-horror in their localities.
Aquarium Suppliers Gain Top Award

YET another of the firms whose names are so well known to us in our hobby has received an award from an outside body. Our congratulations to the Liquify Co. Ltd, trading internationally and in the UK under the name of Interpet, on being awarded the Distributive Training Award. This award, made to retailing, wholesaling and mail order companies achieving the highest standard of staff training was introduced by the Distributive Industry Training Board and managing director, Dr Neville Carrington, thinks that the management advice Interpet has received from the Training Board has contributed towards the firm’s success in home and overseas markets. Increased efficiency amongst the hobby’s suppliers is to be applauded wherever it is found as only by such means can some of the inflationary costs we are all suffering from be absorbed.

Reptile Restrictions

IN JUNE, Mr Anthony Crossland, Secretary of State for the Environment, laid before Parliament an Order under the Animals (Restriction of Importation) Act 1964 to extend existing controls on the importation of certain species of live animals to include all species of the alligator, crocodile and gavial families of reptiles. The Order came into operation on 18th July, 1975. From this date a licence granted by the Department of Trade is required to import any live animal in these families. Every application to import any of these animals will be referred to the Advisory Committee on the Importation of Animals for its individual consideration.

There is widespread acceptance among specialists that all species of crocodilians stand in need of conservation.

The Order also extends existing controls of the importation of certain species of turtles to include all species belonging to the family Emydidae.

The Department of Trade will shortly publish in TRADE and INVESTMENT a list of the species which will be subject to control under the Act.

The Aquarium Show ’75

ENQUIRIES reaching us about this year’s Aquarium Show have exceeded the number we have had at this time in previous years, so it is evident that many people are looking forward expectantly to the event. This is the eighth consecutive show in London, presented as usual by the Federation of British Aquatic Societies.

Entries from societies for the Tableaux Section have already been received and generally clubs have been appreciative of the changed arrangements giving each society entering an increased grant towards expenses—big prizes are fine for the successful but there can be only one winner!

Meetings and Changes of Officers

BISHOPS CLEVEY AS. New Secretary, Mrs. M. Vevers (13 Ely Road, Lower Kingsdown, Kent).

HASTINGS OYSTER FISH CLUB. Chairman, Mr. R. G. H. Heath; vice-chairman, Mr. W. D. Whitfield; secretary, Mr. L. C. Tristram; treasurer, Mr. G. H. East; local secretary, Mr. T. B. Smith. Meetings: alternate Tuesdays (5th & 18th August; St. Leonards Sweet Working Man’s Club, Lewis Street, St. Leonards, Sussex). Mail, Hospitality, Advertising.

BRITISH KOI KEEPER’S SOCIETY. Chairman, Mr. M. W. L. Ruston; vice-chairman, Mr. P. J. D. Everitt; general secretary, Miss M. A. Jones; treasurer, Mr. G. H. East. New members, Mr. M. M. Ruston; Mr. J. P. D. Everitt; Mr. G. H. East. Meetings: 1st and 3rd Mondays, D16 (80). Secretary, Mrs. H. E. Edge (152 Ely Road, Faversham). Mid-Sussex: New venue, The Plough & Harrow, Haywards Heath, 2.0 p.m. Secretary, Mr. R. D. Smith (Drummond Rd, Haywards Heath, 53474). Chairman, Mr. R. J. Barker; vice-chairman, Mr. W. G. Price; secretary, Mr. G. G. Poole; treasurer, Mr. R. G. H. Heath; assistant treasurer, Mr. J. R. Pratt. New venue, The Courtyard Inn, Ely Road, St. Dunstans, Maidstone.

JERSEY AC. New Society Secretary, Mrs. M. D. Osburne (43 St. Helen’s Road, St. Helier, Jersey). Meetings: 1st & 3rd Mondays, D1 (12). Secretary, Miss G. P. C. O’Dwyer (137 Greenfield Avenue, St. Helier). treasurer, Mr. J. H. T. C. Osburne. Meetings: 1st Saturdays, D1 (12). Secretary, Mrs. M. C. O’Dwyer (137 Greenfield Avenue, St. Helier). treasurer, Mr. J. H. T. C. Osburne.

MIDLAND AQUARIST LEAGUE. Chairman, Mr. M. G. Price (Loughborough); secretary, W. B. Baxendale; treasurer, Mr. B. Underwood (35 Woodbridge Road, Loughborough). Meetings: 1st Sundays, D14 (28). Secretary, Mr. R. G. H. East; treasurer, Mrs. G. H. East (35 Woodbridge Road, Loughborough).
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LETTERS

Less Bits and Pieces

I was interested in the editorial about the production of sealed heater units, thermostatically controlled, that could just be plugged into the mains, but I would like to add to it even more, and not just because of those who think a tank might be electrically dangerous. Most people now in the aquarium hobby seem to be keen do-it-yourselfers, and I don’t think enough allowance is made for those who are totally unable to do more than change a light bulb when it comes to electrical things. There really are enormous numbers of people, men as well as women, who won’t touch anything electrical — they wouldn’t change a fuse until the modern fuses came in that just slip into place. Out of the men in my family, cousins, relations and friends’ husbands, etc., at least half can’t be persuaded to pick up a screwdriver, let alone wire up a tank. It’s not that they couldn’t do it if shown — it’s just that the idea puts them off even taking the first mental step of having a tropical tank.

I’m sure ‘instant fishkeeping’ would make the enthusiasts laugh, but if manufacturers want to get ordinary people interested then they should try to produce a tank that only needs water, plants and fish before it can be plugged in. If you buy a frig. or T.V. you don’t expect to have to fiddle around buying the bits separately that are necessary before it will work. Let the tank makers, heater makers, pump makers, thermometer makers and so on do the hard work for us. A ‘tropical tank’ ought to mean, just in the everyday way of things, a complete unit in which tropical fish can be put, ready for plugging in.

(MRS.) V. BRAINTEE

Torquay, Devon

Clubs and Shows

It’s going to be interesting to see how the new Romsey Association of Fish Hobbyists gets on with its decision not to become involved in showing. Of course, clubs that take part in fish showing also fail and a successful club seems to depend in the long run on the enthusiasm of just a few members. But I think that fish showing as part of the organised hobby is useful in spite of the jokes about ‘pot-hunters’. It’s all very well to have isolated groups of people meeting to learn about fish but unless there is some competitive element introduced the separate groups never coalesce. There has to be some sort of activity going on into which all groups can join and nobody’s ever thought of anything better than a competition of some sort. Fish showing makes hobbyists produce better fish and gives us a chance to see better fish — after all, people aren’t going to travel to 50 different places to see 50 fish but if all the 50 fish are in one place there’s no problem. I honestly can’t see why a club can’t contain those who want to show fish and those who don’t as long as all the club activities aren’t slanted to just the one end of fish showing.

V. DESMOND

London, W.11

GOOD for the Romsey Association of Fish Hobbyists, saying they don’t want to get involved in fish showing. There seems to be far too much chat in this hobby about rules and regulations and how to show fish and not enough about how to keep them. I wouldn’t want to shift my fish about all the time and I know some fish never recover from the experience. I did try joining a club but there was so much emphasis on taking fish to table shows and supporting the showing team and so on that I began to feel quite guilty and gradually drifted away. All I wanted to do was to hear a few lectures once a month.

SOLIHULL, WARWICKSHIRE

B. TREDEGAR

I SHOULD have thought it was possible for a club to be organised to cater for those who wanted to show their fish and

Continued on page 166.
A New Malawi Cichlid Spawns

_Labidochromis Opaline_
Male: Body length 3 inches
Body: Colour — blue/mauve/orange/tan
Nine light shadowy vertical lines
One light shadowy horizontal line (lateral)
Eye: Iris dark with gold band surrounding
Spot on gill cover: bright fluorescent
Fins: Dorsal: tips orange, more prominent at caudal end — dark line midway
Caudal: tips slight tinge of orange, rays tan, orange spots base peduncle
Anal: edges orange, two deep orange 'egg spots' between 2nd/3rd rays and 4th/5th rays, diffused black line
Ventral: orange tipped, black line along 3rd/4th rays, one small light orange spot
Pectoral: clear
Female: Body length slightly shorter than the male
Body: Colour — golden tan/blue/mauve
Base dorsal dark tan horizontal line and four broken tan lines
Nine dark-blue shadowy vertical lines
Eye: Iris dark with gold band surrounding
Spot on gill cover: bright fluorescent
Fins: Dorsal: tips orange, countless orange spots, more numerous at caudal end
Caudal: tips slight tinge of orange, countless orange spots, orange line at base
Anal: whole of fin, except base, golden tan with two light small 'egg spots' close together
Ventral: suffused golden tan throughout with light fluorescent blue on the edge
Pectoral: clear

AFRICA'S cichlids, like her minerals found in the earth's crust — both gifts of Nature, are tremendously rich in colour. Our living gems are lively, demanding, at times pugnacious and infinitely more interesting than precious stones.

I am most fortunate in having a few of the African cichlids; each and every one a friendly individual with an astonishing awareness — as soon as I set foot in the fish room they swim frantically back and forth to attract my attention. What a surprise then, one day, when Mr T. J. Horeman turned up with yet another beauty to condition and breed.

We selected for our new species an unlit tank size 24 in. by 15 in. by 15 in., installed an undergravel filter, filled it with mature tap water to which we added four level tablespoons of sea salt and adjusted the temperature to 80°F (27°C). An assortment of broken clay pots was arranged to form retreats; in addition we put in two 6 in. lengths of 2 in. diameter hose to float on the top — the females find these particularly useful when escaping the pursuing males. Not beautiful, but very effective for spawning tanks and easy to keep clean.

As the six fish swam out of the plastic bags into their new abode the sun was shining and we were enchanted with the opalescent beauty of our new cichlids...
The cichlids described as opaline Malawi by the author are believed to be species of Labidochromis. This fish is known to be the male from the author’s observations.

(Tentatively identified as Labidochromis sp.: Dr. Herbert R. Axelrod, AFRICAN CICHLIDS OF LAKES MALAWI AND TANGANYIKA, p. 224, TFH Publications, U.S.A.) Smaller than most Malawi cichlids, 3 inches in body length, this slender iridescent fish with its constantly flashing and shifting colour patterns of blue, mauve, tan and orange seemed to exemplify everything one could wish for. A truly beautiful fish.

One month of live food — white worm, daphnia, tubifex and minced ox heart, plus vegetable matter daily in the form of shelled peas, spinach or chopped lettuce, and the fish had lost their ‘pinched’ appearance and were in excellent condition. The male’s sudden desire to remove all the gravel under the pots in which he had

Female of the un-named species tentatively assigned to the genus Labidochromis. Pictures on this page are reproduced with permission from colour plates in AFRICAN CICHLIDS OF LAKES MALAWI AND TANGANYIKA by Dr. Herbert R. Axelrod (TFH Publications, U.S.A.)
established his territory suggested that they were ready to spawn. Next morning one of the females refused food and there was a slight bulge in her lower jaw.

Elated, I carefully moved her into a small hatching tank with a thin layer of gravel, one clay pot and an air-diffusing stone; she settled down comfortably to hatch out her fry. Her buccal cavity darkened and by the twentieth day the fry were clearly visible peeping out of her partially open mouth. Late afternoon on the twenty-second day she released two fry; the following day I was torn between staying with the fish or going to the Old Vic to see a play to which I had been looking forward for months. Reassuring myself that she was comfortable and would probably release the fry over a period of some hours — I left for the theatre.

Late that night I found she had released all the fry, numbering 30, nine of which were dead. I cannot account for this, as invariably with mouthbrooding cichlids mortality is minimal. I carefully netted the remaining 21, these were from \( \frac{1}{4} \) to \( \frac{1}{2} \) inch in length, and put them into a small bare tank previously prepared. They readily accepted brine shrimp, while the mother fed hungrily on white worms.

The fry are now 20 days old, growing fast on a diet of finely sifted daphnia, micro worms and brine shrimp. A second female has just presented us with fry — all survived this time.

After the second female spawned the dominant male attacked the smaller male — clearly showing the former was more than adequate to attend the female's needs; this was the first time there had been any conflict in the tank. The smaller male is now happily lording it over a tank of young juvenile \textit{Pseudotropheus novemfasciatus}.

This new fish is a friendly species and will readily nibble food from the fingers — even the fry come to the front of the tank whenever I pass. The cichlids are ideally suited for the Malawi community tank. In short, perfect gems.

---

**Books of Every Kind**

**Siamese Fighters**

\textit{Fish of the World} by Hans Hvas. (Methuen's World of Nature series) Eyre Methuen Ltd., Andover, Hants. 156 pages, colour illustrations. £1.75.

The title of this book appears to be ambitious for a paperback work of 150 or so pages. Fishes selected for inclusion are representative of the genera of the groups of the classification system used, and species of importance in commercial fisheries and to anglers are given prominence along with a number of common and not-so-common aquarium species. Each fish is illustrated in a colour drawing, most of the illustrations giving a useful guide to the appearance of the living specimen. The text notes for each fish give common names and scientific names, sizes and place of origin with a tantalisingly brief summary of special features, habits or commercial use. In three companion volumes of this series, the same author has written about the world's mammals, birds, and reptiles and amphibians.

\textit{The Siamese Fighting Fish: Its Life Cycle} by William White, Jr. The Oak Tree Press Co. Ltd., London. 60 pages, colour photographs. £2.75.

Several mysteries are presented by this book. It is not easy to decide the kind of reader for whom it is intended. It is not clear why the main title has been given, the text concerns itself with the paradise fish as well as the fighting fish. It is a puzzle how, with a fish having such bright and colourful varieties, the colour photographs of fighters in the book can possibly have been selected as doing the species justice. The aquarium specialist in fighting fish could find the scanty text interesting but hardly gave him all the technical information he would like to have (no mention is made, for example, of the genetics of the fish, despite the many genetic studies with fighters). The beginner attracted to the fighter will rightly complain of lack of detailed practical help in how to keep and breed the fish. The general natural history reader will be left wondering what to make of the pictures of dissections and anatomical features more suited to a zoology text-book. Although the publishers describe their work on the back cover as "a beautiful volume", in typography and lay-out it unfortunately leaves much to be desired.
MARINIST'S NOTEBOOK

Caution in the Early Stages

By ROY PINKS

A SHORT time ago I received a letter from a reader asking me for my opinion as to where he had gone wrong in his initial steps in marine fishkeeping. He was an experienced aquarist, already successful in conventional culture, and he had clearly gone more than ordinary trouble to get everything right. His letter was a masterly effort in setting forth the sort of detail one only dreams about, and I read it with considerable interest. In a subsequent article I will quote freely from this account, and will summarise my reply, but the incident itself prompted these preliminary comments, and may be of interest to other beginners.

In general terms the writer had read most of the available books (with the notable exception of the Pet Library MARINE AQUARIUM), and had handled his setting-up procedures perfectly competently. He had also invested in an isolation tank, which is a luxury even when the most devout by-pass on occasions, and in stock- ing his tanks he had indulged in none of the extravagances which surrounded my own excursion into this specialisation.

On first reading I was nonplussed, but a few points did emerge which provided rather dimsy clues. Had I seen the aquaria with my own eyes I doubt whether I should have been very much better off, and even had a chemist got to work on a specimen of the tank water, it is unlikely that he either could have pointed with any certainty to one particular source of danger.

This aquarist was understandably perplexed by the failure of nominally hardy species, even after the so-called seasoning period, which is theoretically the sort of time at which one might be forgiven for considering butterflies as part of one's collection. After all, it has been proved, chemically, that there are only minute traces of nitrates present, and it is a hard fact that the water is quite new and unsullied by all those aggregating poisons, which, so it is said, ultimately kill off all our marine fishes, however carefully we try to control their environment. There does, however, seem to be a period of some weeks after the nitrates reading is first seen to signal 'clear', during which it is extremely risky to introduce nitritesensitive fish. The reason seems to be that the density of the colonies of bacteria which are forming at this stage are sometimes defeated by the volumes of the waste materials with which they have to cope, and there are regressions (invisible to the observer) which may cause havoc in your tanks.

The only way round this is to understand stock till it hurts, and to resist introducing delicate species until those fishes present are obviously thriving. A good pointer to this is a visible increase in their size. I hope that no-one will conclude from this that new water as such is inimical to the well-being of the less-robust species — indeed the water quality is only part of the story at the early stage. The state of the bacteria is what really counts.

As it becomes clear, both from visible and chemical tests, that the state of the tank is capable of supporting additional life, single specimens may be added in discreet doses, avoiding excesses at all costs. It may be found that a wrasse or two and the odd butterfly will settle down quite well, and as this period lengthens it must be remembered that the water quality will be deteriorating all the time. Whilst the nitrifying bacteria will have reached an optimum level for the capacity of the tank, toxins will have been building up in the water and the pH will have been shifting towards the acid side of the spectrum. Balancing of the pH by additions of sodium carbonate and sodium bicarbonate may well restore this particular fac-
tor, but only a water change (about a quarter of the total volume) every few months will — theoretically, at any rate — take care of the toxin content of the original water.

Some aquarists have found that water changes have, in themselves, brought about the onset of disease in their tanks, though I am inclined to the notion that it is the maladministration of the changes, rather than the changes themselves, which have given rise to this sort of mishap. Crude addition of a few gallons of unwarmed, brand new artificial salt water can certainly induce shock conditions even in some of the hardier fishes, so no liberties are permissible in the case of the lesser-robust species.

One of the keys to successful marine fishkeeping will undoubtedly be the accurate assessment of the precise stage at which the reconditioning of water should take place. We are obviously going to avoid changes until they are necessary — salt mix is too expensive to lavish around — but it does seem that untold and irreversible damage can be done to outwardly healthy fish by tardy action over water conditioning. The present imprecise guidance over this causes a lot of trouble and misgiving, and I make no apology for labouring the point that until more reliable indicators are available for general use the lives of captive marine fishes will continue to be recorded in months rather than years. At the same time, those like my correspondent, who have done a really honest job in setting up their aquaria, will view many marine writers with the suspicion they fully warrant if they set out as they so often do, to prove that it is all so very simple.

**Letters**

continued from page 161

those who did not. Or does there always have to be a battle between the two sides on how to run the club? Or does the very term ‘fish club’ at present merely mean a group of people gathered together to show fish? I can’t understand the implications of the letter from the new Romsey Association of Fish Hobbyists (PPM, June).

Tenby, S. Wales

B. DAINTY
Water Problems in Glowlight Breeding

By

DR. STANISLAV FRANK

Microphotographs by the author

Photo: R. ZUKAL

The glowlight tetra comes from Guyana and belongs in the category of smaller fishes, with even the largest female hardly exceeding 1½ in. (4.5 cm.). For years, aquarists confused it with H. gracilis — which is still finer and smaller although the two species are very similar in colouring.

For breeding the glowlight tetra we use a small, all-glass tank of about 2 gallons (30 litres) capacity. In the literature it is always stressed that the breeding water should not be completely soft. It seems that better spawning results are achieved in a rather harder water, and the literature quotes up to 8 degrees general German hardness (DH) as possible. So how can we explain the surprising failures that so often occur with breeding these fish that put them among the more ‘difficult’ fish to propagate?

I tried all possible water combinations of degrees of carbonate hardness, of non-carbonate hardness (sulphate hardness) and of pH values. In this way I established that embryonic and larval development is almost completely unrelated to and unaffected by non-carbonate hardness, in a range of 1 to 8 degrees non-carbonate DH. On the other hand, if carbonate hardness neared 1 degree carbonate DH (regardless of the sulphate hardness), the death rate of the embryos during development in the egg membrane increased sharply; many of the surviving, relatively well-developed, larvae were unable to fill their swim bladders when they became free-swimming, and moved jerkily and diagonally with their heads up, dying within a few hours or at the most days, largely without beginning to feed.

With too low a total hardness or non-carbonate hardness, that is under 1 degree general DH or non-carbonate DH, or in completely soft water (such as distilled water, or clean melted snow water) many embryos and larvae developed constitutional (not infectious) dropsy — they developed no further and died mostly before they became free-swimming. In
these cases also the condition of the water produced a hypotonic state in the fish and gave rise to physiological and physico-chemical interruption of development.

Another point made in the literature is that the addition of peat is recommended as required. But I established that such an addition is not entirely beneficial. In small quantities peat did no harm, but in unfavourable water conditions it did not help. (Indeed, too high a concentration of peat during egg development is poisonous to all fishes.) I observed practically 100% correctly developing embryos and larvae of glowlight tetras and of free-swimming ones in water with 2-4 degrees general DH, but during this time the carbonate hardness constituent must not reach 1 degree carbonate DH, and if possible there must only be a trace of carbonate hardness present. The most favourable pH value is between 6.4 and 6.8. It does not matter by which method the spawning water is prepared. I myself worked with natural spring water or with distilled and well water mixed, or even with carefully hardened tap water of medium pH. All the results compared favourably without visible variation. The pH value was brought up to requirement and made quite stable by the addition of acid sodium phosphate (sodium dihydrogen phosphate) to make acid, and of caustic soda or sodium phosphate to make alkaline.

The pair will spawn in a thicket of fine feathery water plants (Java moss etc.). At the end of the spawning act the fish turn round in a fast horizontal spiral with the belly uppermost. The female, at this moment, ejects the eggs and the male the sperm. During the rearing of the fry, frequent changes of water are recommended since the young fish are very susceptible to an increase in the nitrite content. They
must also be accustomed, very slowly, to hard water.

About 3 days after they became free-swimming I began adding tapwater of the correct temperature that had been allowed to stand (about 14 degrees general DH, 8 degrees non-carbonate DH and 0 degrees carbonate DH), first in a very small quantity of 5-10 ml per day and later 50-100 ml daily. In this way also an undesirable fall in the pH value can occur and addition of carbonate to a small glass tank over a period can be very perilous to the young fish. If a sharp fall in the pH value occurs (acid conditions), the water can be neutralised without danger (if there is good aeration of the tank with the young fish) with dilute caustic soda or sodium phosphate solution (1%) added very slowly drop by drop and with gentle stirring. I did not observe any damage to the young fish by this method. The sodium bicarbonate is often recommended in the literature is not always safer and the possible addition if necessary of calcium carbonate is still more difficult to effect. The broodstock is quite sensitive to a swift increase in carbonate hardness but not to its decrease! Once they are free-swimming the fry are at first yellow but later darker marks appear over the entire body. From the start they like relatively large live food like newly hatched brine shrimp and their rate of growth is fairly quick.

I have supplemented this series with a few microphotographs, for most experienced breeders have only a relatively superficial and imperfect idea of the development of the eggs and larvae of their favourites. The cross-sectional diameter of the glowlight tetra egg is 0.90 (0.80-1.00) mm. The overall length of the newly hatched larvae is 3.00 (2.90-3.20) mm. The overall length of the fry when they become free-swimming is already 4.20 (4.10-4.40) mm.
Cultivation of the Lace Plant

By KARL RATAJ

Photographs by RUDOLPH ZUKAL

Madagascar lace plant, now known as Aponogeton madagascariensis
APONOGETON madagascariensis is, without doubt, the only plant in the world whose leaf surface is made up only of veins with the fabric missing. The stems of the first and second rows form a net that resembles lace, with more or less regular apertures. Because it is a curiosity, this plant has been cultivated, not without difficulty, in the tropical glasshouses of botanical gardens and in public aquaria for more than 100 years.

In numerous aquarist publications and water plant catalogues, A. madagascariensis is mostly described under the name Aponogeton fenestralis Hook. f. This name is based on the original names — Hydrocharis fenestralis Pers. in 1803, and Ouvriandra fenestralis Poir. in Lamk. in 1824. However, in 1968, in his revision of the Aponogeton from Madagascar, van Bruggen stated that this plant was first described in 1892 as Uvriandra madagascariensis Mirbel, and this must be regarded as the correct name.

A. madagascariensis has two basic forms, one with long, narrow, elliptical or lance-shaped blades and the other with short, egg-shaped or broad, elliptical blades. This latter form was described incorrectly, as A. henkelianus Baum (with the further synonym A. guillotii Hochr). In the old literature three species of the genus Aponogeton are mentioned, all with leaf blades formed only of vein lattice. They are A. madagascariensis (= A. fenestralis) and A. henkelianus. As I have explained, these are really one and the same species. A. bernieriana (Decaisne) has also cited. This name, according to van Bruggen, actually occurred through an error. When W. J. Hooker transferred the species Ouvriandra bernieriana to the genus Aponogeton, he provided for it, by error, a descriptive sketch of a plant with tiny apertures in the leaf blade. Because of this, the plant was incorrectly classified and later authors were led into an error that lasted for rather a long time. Today, it is clear that only one species exists with apertures in the leaf blade and that is A. madagascariensis.

The rootstocks are globular, egg-shaped or elliptical and up to about 1 inch (3 cm.) thick. All leaves are submerged. The leaf blades have apertures, are made up of veins and consequently are very varied. Their lobe-shaped, lance-shaped or elliptical, up to 6 in. (16 cm.) broad and 2 1/4 in. (5.5 cm.) long. van Bruggen gives the commonest measurements as 8 in. by 1 in. (20 cm. by 2.5 cm.), 9 in. by 4 in. (22 cm. by 10 cm.), 12 1/2 in. by 5 in. (32 cm. by 5.5 cm.) and 21 in. by 3 1/4 in. (55 cm. by 9 cm.). Although all transitional forms with regard to leaf blade size can be found in botanical collections, in cultivated plants two stabilised forms are found more than others. One has the short, broad elliptical leaf blades described by Baum under the name A. henkelianus (blades mostly 4-4 1/4 in., 10-12 cm., long and 2-2 1/4 in., 5-7 cm., broad). The base of the blade is wedge-shaped in both forms, chopped off to form ragged rough heart shapes, often irregular. The tops of the leaves are mostly blunt, round and sometimes notched. The middle vein of the leaf is remarkably strong and parallel-running veins (three to ten in each side) are connected by countless horizontal ones. Leaf fabric (mesophyll) is missing between alternate veins or even entirely, when the leaf is reduced merely to a system of veins. If the mesophyll is only partly missing, then there are tiny round windows in the leaves. Some leaves, just here and there, have a normally developed leaf fabric. Leaf stems are

![Detail of the lattice structure of the leaf of the lace plant](image-url)
usually very short, though there is the occasional long one, and so vary between 1 and 14 in. (3-35 cm.). Flower stems are generally 12-16 in. (30-40 cm.) long, but do sometimes reach a length of up to 51 in. (130 cm.), and under the inflorescence itself the stem may be thickened (up to 3/8 in., 1.5 cm.). The inflorescence consists of two to four, exceptionally six, heads, which are 1 to 3 in. (4-9 cm.) and exceptionally up to 7/8 in. (20 cm.) long. Corollas are white or violet.

The ripe heads contain characteristic, pointed fruits about 8 mm. long. Immediately after the fruit disintegrates, very tiny seeds (3.5 mm. or 1.25 mm.) float for up to 10 hours on the surface of the water. They are covered with a fine membrane (the testa) which is transparent, usually colourless but sometimes purplish red. This testa enables the seeds to float for several hours on the water surface, so that they may sometimes be taken by the current some way from the mother plant. After the testa falls away the seeds sink and germinate in about 1-4 hours.

Aponogeton madagascariensis occurs in central, west and eastern Madagascar and has also been carried on to the isle of Mauritius where it grows wild. It grows in both stagnant and flowing water on a variety of geological bases including chalk formations, and is to be found in marshes and open country. In Nature the plant blooms and fruits the whole year round without interruption.

Since A. madagascariensis is a most attractive plant it is naturally imported for the aquarist. Rootstocks are brought in, which, after they are put into the aquarium, quickly produce wonderful leaves and even, within 3-4 months, bloom and quite easily produce fruit. Unfortunately, in artificial surroundings, the life span of the plant is, at the most, only 5-6 months. The plant develops only as long as the reserves in its rootstock, grown in natural surroundings, last. Although these rootstocks are capable of producing a relatively good root system, they will begin to decay and the plants to die in the autumn months even though the tank should be lit every day for the length of a tropical day. For community tanks, planted with a variety of plants and inhabited by fishes, we must be satisfied with the fact that to keep these wonderful plants at all must involve us in buying new stock every year.

Nevertheless, it is possible to achieve successful artificial cultivation. But to do it, it is essential to grow A. madagascariensis in a separate tank with crystal clear, filtered water without fish or other plants. According to experienced growers, success is achieved with clean, coarse sand to which has been added a little clay soil. The water should be very soft (clean rainwater that has been allowed to stand) and now and again — about once every 1 or 2 months — part of the water should be renewed.

A. madagascariensis is self-pollinating, but the seeds develop better and in greater numbers when two plants bloom at the same time and cross-pollination occurs. Compared with those of other species of this genus, the seeds are very small and because of this spontaneous germination on the bottom is not recommended. It is better to sow them in a bowl and to cover them with a 1-2 in. (3-5 cm.) layer of fine sand. If the seeds are left to germinate naturally on the sand surface they move with the slightest move-
ment and rooting is delayed or even pre-
vented altogether. The stock of reserve
material in the seed is very small and
seeds moving about on top of the sand
turn yellow and wither.
Although many experienced growers
obtain good results with the growth of
A. madagascariensis by the above method,
it is still not entirely clear why this is so.
The method is contrary to what is
observed in Nature. The artificial cul-
tivation maintain that the culture should,
and must, take place in specially soft
water but in Nature the plants can occur
where there is a chalk bottom. Also in
Nature the cleanliness of the water is
often questionable, particularly where the
plant is growing in a marsh. The species
is rather easier to propagate in the tropi-
cal glass house than in the aquarium but
even here it happens that plants that have
vegetated safely for years suddenly wither
during the winter months although the
conditions may have remained unchanged.

by
ARPEE

Personal COMMENT

Now that we have looked at some of the
main colour groupings in our search
for fish which will 'go with the furnish-
ings', it is worth turning to species which
have patterns distinctive enough in them-
seves to comprise subdivisions. Regency
scope demands that we should, perhaps,
seek fish with gold bars, but it is rather
up to the user to decide whether he wants
them arranged vertically or horizontally.
In point of fact, there are not so many
fishes with horizontal barring, but there
is plenty of material if verticals are re-
sorted, and of course there are lots with
patches, blues and comparable markings.
Some of these appear as black under nor-
mal conditions, and are Nature's way of
providing the bolder accents of camou-
guage which is the sole means of protec-
tion for many species.
I exclude livebearers from this discus-
sion, partly because there are few qual-
ity, anyway, but mainly because the
breeder who is looking for purely visual
effects scarcely wants all the culling work
necessary in the management of fish
which so easily and regularly reproduce
themselves. As a group, the barbs are
designed in providing vertically barred
patterns, though the spanner is admittedly
a bit of a mix-up: despite its many good
points it does offend the more sym-
metrically minded, and I put it in the
'muddle' category. Perhaps the ever-
popular tiger barb (Barbus tetrazona) is
the most striking of all, and it is a re-
markably perfect species in every way
excepting temperament, and it can be a
horrible bully. All the more reason,
therefore, to assign a whole tank to a col-
lection of these fish, as they richly deserve
this treatment. They are always on the
move, and specimens in prime condition
are a joy to watch as they range through
their territory in a particularly athletic
sort of way for such a chubby species.
When it comes to mixing barbs, Cuming's
barb (Barbus cumingii) and the black ruby
barb (Barbus nigrofasciatus) will go well
together, though they somewhat lack the
spirit displayed by their aforementioned
near relative. They are most attractive
and present no cultural problems, and may
be thoroughly recommended.

The black widow (Gymnocorymbus
ternetzi) is another vertically striped fish
which is a perfectly good mixer, and be-
cause of its near-circular shape, it has
wide appeal as a curiosity. Rather unfor-
tunately the jet-black markings, which are
so necessary if this species is really to
make its presence felt, are often lost in
the overall pewter coloration which char-
acterises it. I suspect that breeders have
been concentrating on messing about with
the finnage of this fish, and they have
produced some perfectly horrible results.
More attention to its basic character would
have done it a power of good, and I hope
that those possessed of some degree of
responsibility will put the clock back and
bring back the contrast. If you see good
specimens, therefore, snap them up. They
are increasingly hard to come by.
My next recommendation, the barred pencilfish (*Poccilobrycon* expei), is one of my newer acquaintances, but I think it will remain high on my list of personal choices so long as I can obtain specimens. They are rather rare importations and are more expensive than the general run of tropicals, but this is not to suggest that they are in any way difficult or delicate to keep. They are secondary to other species, being too dignified to comprise the dominant element in a mixed collection, yet well able to stand up for themselves if somewhat boisterous companions are chosen to share their tank.

The universally popular angel must rank as one of the main stars under this billing, and few fish deserve this acclaim more than this species. I still think that the natural, wild, variety is infinitely preferable to the oddities which irresponsible breeders have developed, but if you have taste for horrors and the bizarre, there is certainly a wide range to choose from, though I will make no recommendations here other than a qualified nod in the direction of the black variety. The angel is regal, full of character and most striking as an exhibit. The breeding habits are exceptionally interesting, and even if their owner has no wish to raise any fry, the parent fish may be left alone to sort out their own affairs. The result is usually annihilation of the young, but as this happens even when one has breeding very much in mind, very little is actually lost, and much entertainment and education are gained, so it is worth giving any fish their head if they show an inclination to procreate. Angels, like tiger barbs, should have a large tank to themselves because they can become really spiteful when fully adult and ready to breed.

There are three supplementary, largely bottom-dwelling species which are worth considering in combination with the less aggressive of the fishes I have discussed in this article. The clown loach (*Botia macracantha*), with its vivid orange base colouring offset by jet-black bands, is one of the most striking of our freshwater species, and if you can obtain small specimens reasonably cheaply, they are well worth cotsitting to adulthood, as at that stage they are very expensive indeed. You really need several in a tank, whatever the other occupants may be, but the investment is a real one, marred only by their unfortunate trait of dying without apparent sickness at times when all seems to be going well. The humpback (*Brachyplateus* xanthozonus) is a real little oddity, and can be accustomed to either fresh or brackish water. It can nip the fins of the unsuspecting, and can prove a trifle difficult to feed because it really likes its prey to present itself ready for consumption—hardly a fair task for the busy aquarist. However, success may well depend on feeding methods, and this is an attractive enough creature to accommodate if at all possible. The ubiquitous kuhli loach (*Acanthophthalmus semicinctus*) is a fish which can often be obtained for absurdly low prices in the smaller sizes, and as I have found it virtually indestructible and therefore very long lived, it may be added to many tanks without hesitation. You never seem to have any trouble feeding or managing them, and they disappear and reappear more or less as they please. They are distinctly in the back row of the orchestra, but, like the percussion, there is absolutely no mistaking when they are there, even if it isn’t all the time!

So much for the vertical bars. We will consider the horizontals in a future comment.

I outlined recently the merits of planning fishkeeping routines in an ordered and disciplined fashion. Quite apart from the fact that this practice usually results in the actual discharge of the necessary functions, it does spread the load of unwanted chores fairly evenly throughout the year, and to many this will have considerable appeal. Even after many years of highly enjoyable fishkeeping there are some jobs I really hate, and the only way I can get them done is by the exercise of iron which seems to get a little rustier as each year passes.

For example, I find the job of checking electrical wiring and apparatus tedious, and in the extreme, mainly because I don’t always know what I am looking for; perhaps lowest on my list of likes is the wipping away of salt deposits from the top of the marine tanks — the wretched incrustations seem to build up so rapidly, and
as soon as one attacks them they fragment and land all over the place, much to the detriment of anything on which they may be detected.

Here is a list of some of the daily routines which we should carry out. In future articles I will cover weekly, monthly and less frequent tasks which should have our attention. My remarks are not intended to be exhaustive, and readers are invited to write about any significant occasions I shall almost certainly make. These shortcomings are inevitable because in some extent aquarium upkeep is a subjective matter and what I may think is vital may be totally unimportant to other readers.

Dead fish and disease. It is always wise to make a daily check that your fish look well, and that there are no corpses in the tank. This is easier than done, because often disease is invisible in its early stages and corpses can so easily get hidden by the topographical features within the tank. On the whole, if your fish are swimming around as usual and proceeding with their business in a peaceful sort of way you may assume that all is well, but any jerky motions and dropped dorsal fins in the case of freshwater species should be regarded with concern. If numerous fish are all facing into the aerator stream and rolling slightly, you may expect an outbreak of white spot soon. Undetected deaths may be established via the nose, so sniff the odour of the tank before feeding your fish — it should be earthy and sweet, with no suggestions of decaying material whatever. If there is any offensive smell, investigate its source.

Temperature. If the temperature is all right, there should be no worries of the sort listed above, but it should become distinctive to glance at the thermometer first thing in the morning, and this is a must if the owner is away from home all day. If the tropical tank is situated in an unheated room. Many valuable fish have been lost by failure to apply this simple precaution. If it helps, mark your thermometer with a plastic strip to indicate where the temperature level ought to be — this can be quite a help to those with indifferent eyesight, or to those whose thermometers are difficult to read. It goes without saying that the thermometer should be firmly anchored and it should not be necessary to chase it round the tank in order to take a reading. Incidentally, I hope someone will one day invent a thermometer which can be relied upon to stay in one place. I do get tired of buying rubber suckers which rot away and fail to suck, and plastic suckers which curl and do likewise.

Feeding. This is the one routine of the day we all, including the fish, look forward to with particular pleasure. I always make a point of feeding my animals before myself, just to make sure that they get a fair deal. In truth, it probably wouldn't hurt them if I did miss out occasionally, but as missing out can get into a habit, I try to plan my routines in such a way that this will never arise. The main thing about feeding is that it should be adequate but not excessive, and that it should be as varied in content as one can manage. This change of menu is best effected in the case of the lazybones amongst us by inserting a suitable reminder in the weekly column.

Recording. Although the owner of a single tank may not think he has enough information worthy of recording, if he is a keeper of single and perhaps unusual species, this assumption is almost certainly false. A 5 year diary is a wonderful acquisition for the pet keeper, the gardener and almost anyone interested in natural and seasonal things, and the daily short jotting eventually adds up to a unique source of interesting and useful reading.

The Victorians were great recorders of information and I often read through some old notebooks of family matters which make one wonder and which often amuse. I do wish my trait of fishkeeping had gone back further in my ancestry, as I might have benefited from the mistakes of those times. It is quite extraordinary how those chroniclers committed such detail to paper — the art no doubt developed from painstaking observation of what went on around them — and this is a quality which the aquarist would do well to cultivate today. Apart from the usefulness of the information gained from quiet and systematic observation, the therapeutic effect on the individual, who is so often torn by the strains of the times, can be very considerable both in content and impact.
LIKE the tiger barb, the ruby barb is a much-loved species in the aquarium world. The barbs are found in southern Ceylon, from where they were imported into Europe in 1935. The body is deep, laterally compressed and will reach a length of about 2 in. (5 cm.). The head is pointed at the front. Yellowish grey in colour, the fish is marked with three or four dull black wedge-shaped vertical bands. The head of the adult is crimson (which accounts for the name, the purple-headed barb, by which the fish is known in Germany) and the jaws are reddish and without barbels. The rows of silvery scales form long lines of gleaming spots on the body. The male's dorsal and ventral fins are black, the caudal fin is blackish grey. During the spawning period the vertical lines on the male turn deep black and the front of its body becomes a vivid red. The female is the smaller fish; her body cross-banding is slightly less noticeable and her vertical fins are only partly black.

Ideal conditions in which to keep them include a large or medium-large tank, heavily planted and with floating plants added (the fish prefer half-shaded surroundings). Ordinary tap water can be used but the tank water must
Breeding the Ruby Barb

remain clear and clean; a temperature of about 72°F (22°C) is suitable. They are a peaceful fish and like to be with some of their own species, but they can, of course, also be kept with other peaceful community fishes.

Propagating these barbs does not present any particular problems and their breeding procedure resembles that of tiger barbs. I myself prepare a smallish or medium-sized tank with soft or fairly soft water, plenty of fine-leaved plants and a water temperature raised to 79-80°F (26°C). Before the actual spawning the male follows his partner about, constantly butting her in the belly area to bring her to a willingness to spawn. Finally the female starts looking for a spawning place

Spawning of the pair of ruby barbs took place at all levels of the aquarium — in plants close to the water surface and above the bottom gravel
and waits for her partner to come up to her; the fish press together, the male swings his caudal fin over the female's back, the fish part with a jerk and the spawning act is completed. The fish go on spawning like this at fairly short intervals until all the eggs are laid. In fact, this is the typical spawning procedure among barb species.

The fish will actually spawn in hard water, but under these circumstances the eggs will not hatch. From a single spawning some 500 eggs are likely to be ejected. Once the spawning is completed the parent fish must be removed. The brood hatches within 24-36 hours. After they become free swimming, on about the sixth day, they must be given plentiful supplies of the finest live foods. One point to watch — in the first days of their life the fry are highly susceptible to sudden changes in the condition of the water or their surroundings. The fry grow quite quickly and if they are well fed the first striping can be seen after only about 14 days.

Ruby barbs are not only of interest to the experienced aquarist — they can be thoroughly recommended to the beginner, for if you have a good breeding pair you can more or less count on good results.

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**GOLDFISH TYPES**

**The Veiltail and its Relatives**

**By FRANK ORME**

probably the most popular of fancy twintail goldfish, and good specimens are expensive, the veiltail is the variety which almost invariably attracts the 'oohs' and 'aahs' from those seeing them for the first time. Normally it has a slow sedate manner of swimming and is at its best when displayed with its own kind. Because of its overdeveloped finnage it should not spend the whole year in an outdoor pool, for this tends to cause damage to the flowing tail; however, during a warm summer, a spell out-doors should do no harm, although in a pond a lot of the beauty of this variety will not be seen.

Reference to Show Standards will reveal that the ideal fish should have a round, deep body, in which the depth is greater than half the length. The height of the dorsal fin should equal the body depth and commence on the highest point of the back, over the pelvic fins. The tail must be long and broad, falling in graceful folds with a square-cut lower edge. Anal fins must be double and fully divided, as must the tail. The eyes must be of the normal type. If you have a fish that fulfils these requirements then you have a fish to be proud of!

Developed by American breeders many years ago, the veiltail goldfish is found in both nacreous (calico) and metallic scaled forms — although the metallic type is not seen as often as the much more favoured nacreous type, which is a pity because it is an eye-catching fish and harder.

There is a 'telescopic-eyed' variety, in both scale groups of the veiltail; however, the Standards, with the exception of those of the G.S.G.B., do not recognise them. Nevertheless, there is a telescopic-eyed variety that is recognised and that is the moor. Here, the Standards differ, for the Goldfish Society of Great Britain specify that the divided twintail shall have the trailing edge forked to a third of its length. This type of tail has proved unpopular with most exhibitors of the moor, who prefer the body and finnage to be identical with the normal-eyed veiltail.

The two main features of the moor are the eyes, which are larger than normal and protrude from the head (as described for the telescopic-eyed fantail in last month's Pratt), and the colour. The required colour is a deep velvety black, that has no trace of brassiness, and spreads fully into all fins, leaving no clear or white...
areas. This variety is fairly hardy and will do quite well in the open garden pool in the less-exposed regions of Britain.

Another fish, having the same body and finnage requirements as the veiltail, is the unica — the nacreous form of which is known to the Japanese as the Azumumushi. The outstanding feature of this variety is the head growth, otherwise known as the hood. The growth that forms after some time upon the head of this variety also gives rise to small soft protuberances which cover the head and tail plates. When fully formed the head growth appears similar to a large raspberry. A most attractive variety, which is very popular with goldfish enthusiasts. It has the disturbing habit of forming a light whitish mucus covering on the head during cold weather, but this need cause no alarm, for it will usually clear up as the temperature of the water rises.

Although these are varieties that are all descended from the common goldfish, they are not as hardy. This does not, however, mean that they are any more susceptible to disease than their less fancy brethren. Mostly the best specimens are bred, in this country, by amateur breeders and their cost is fairly high for reasonable quality fish. It could be upwards of 20 pounds for a single yearling veiltail. Imported fish are not, as a rule, of the type sought by the enthusiast but, when available, they do cost considerably less than those that are home-bred.

The person who decides to keep these varieties should, in fairness to the fish, be prepared to lavish on them that little extra attention. Preferably keep them in spacious quarters with those of their own, or a similar kind. Keep the tank clean and feed the fish with the best foods available. A starchy diet will tend to give a deeper outline, but it will not add height to the back; therefore, too much of this type of feeding could result in a 'U'-shaped body.

Some strains do have a tendency to suffer from fin congestion in the trailing, long caudal fin. This can, to some extent, be prevented by attention to hygiene, avoidance of rapid temperature changes in the water and a varied diet that does not rely entirely upon dried foods. Give the fish the attention they deserve and they should prove no more difficult to maintain in good health than any other variety of goldfish.

Readers' Queries Answered

Delayed Birth

I have a female red delta guppy in my possession (I have been breeding red deltas for a while now) which, although she has not produced young for nearly 40 days and doesn't seem to be increasing in size at all, has a dark-coloured gravid spot.

I have read in a previous edition of PFM that if a female is isolated for 28-32 days and the breed is forthcoming then she can be pronounced 'clear' and ready for mating to a desired male. Is it likely that my female could be pregnant?

Reply from Mr F. Campbell:

You do not give enough information about the female guppy so a reply can only be given based on assumption. You say she is a red delta and also that you have been breeding red deltas for 'a while'. From this I would assume that her complete history is known. If she has been isolated for 40 days without any young being seen either she is a virgin, or has dropped a brood and eaten them, or is past her best. If she is not a virgin then either she or her mate are sterile. Assuming she has eaten her young, introduce a breeding trap and leave her for another 16 days. Generally speaking, a female guppy in an advanced state of pregnancy will have distended sides and show a marked darkening and enlarging of the gravid spot. It is possible, however, for a brood to appear without the mother showing any of these signs.

Banded Knife Fish

I have recently purchased a very interesting and unusual fish, the Gymnotus carapo. Please could you tell me what conditions it requires and also what feeding? Can you also tell me if I can keep other species of fish in the same tank?

The banded knife fish is certainly interesting but it is not suitable for the type of tank usually referred to as a 'com-
munity' tank. It can, however, be kept with a community of larger fishes such as spiny eels and the more peaceable cichlids. In Nature it is crepuscular, becoming active and eating at night, but in the aquarium, of course, it will become used to feeding at other times. However, because it is nocturnal a bare, brightly lit tank is to be avoided. It should be provided with a large, well-planted tank with rockwork to provide hiding places. It will accept live foods, small garden worms, small pieces of chopped raw meat or ox heart - small fishes provide the bulk of its natural diet. Towards the end of its own species it can become rather snappy.

Aggressive Fish

My local aquarist shop has a supply of small Polycentrus schomburgki. I have a tank of medium-sized community fish (swordtails, mollies) and would like to add these fish to them. Is it possible to breed them?

Do not add P. schomburgki to a tank of the sized fishes that you quote. Although they are not going to grow to an enormous size (3 - 3 1/2 in), they should be kept only with fishes larger than themselves and of a fairly vigorous nature, such as cichlids. They are aggressive and will eat smaller fishes.

Spawning these fishes is interesting and the male's breeding colouration is well worth seeing. His colour changes from the usual brownish grey to a deep black speckled with silver and dotted with blue green. The female's colour at this time merely lightens. Water conditions are not critical but the temperature should be raised to 80-82°F (27°C). Eggs are laid on a firm surface; a broad-leaved plant, inverted flower pot or flat stone will do. The female will lay a large number of eggs over a period of about 3 hours and she must then be removed as the male will tend the eggs. Once the young hatch the male, too, must be removed. The fry should be fed live foods of appropriate size and if you wish to rear them all some care must be given to sorting them out in sizes since the smaller ones may be eaten by the larger.

Tinfoil Tank

I am considering growing tinfoil barbs. Of the following two tank sizes, which would be the better - 6 ft. by 15 in. by 15 in. or 4 ft. by 2 ft. by 2 ft.?

The problem here is whether it is better to utilise the greater amount of water in the 4 ft. tank (100 gallons compared with about 60 gallons in the narrower 6 ft. tank) or whether to have the greater length in the 6 ft. tank. On the whole we would choose the latter tank as giving the extra 2 ft. length 'swim' for these very active fish. The smaller cubic capacity can be compensated for by making certain that you change part of the water at frequent intervals (perhaps a quarter of the water once every 3 or 4 weeks). You will also presumably be giving special thought to filtration for these large-bodied plant eaters.

Plants at Risk

Can you settle an argument - is the clown barb (everetti) a plant-eater or not?

Barbs are omnivorous and enjoy a certain amount of vegetable material in their diet. Some are plant-eaters certainly, and B. everetti is not adverse to nibbling the leaves of the softer-leaved plants so any prize soft-leaved plant could be at risk. However, if you keep your planting to Cryptocoryne, Ludwigia, Acorus and such-like plants with plenty of floating plants available the fish will be happy without ruining your tank.

THE BRITISH AQUARIISTS' STUDY SOCIETY are looking for practising aquarists who can contribute in constructive ways to increasing knowledge of our hobby. The Society is formed of practising aquarists and others interested in the study of more advanced and abstract topics connected with the aquarium hobby. Members are encouraged to carry out controlled experiments likely to benefit all and are expected to take an active part in the work of the Society and to attend lectures and the Annual Conference where possible. A Central Bureau exists to deal with members' queries and requests for assistance, and advice and technical advice on fish house design and construction etc. can be obtained. A 22-page journal is published at intervals. Lectures and meetings are held at the Fellow's Lecture Hall at the offices of the Zoological Society of London, Regent's Park, London, N.W.1 and the annual conference and dinner is held in October of each year. Membership is by invitation and interested individuals are invited to contact Mr John A. Davies, 27 Maze Green Road, Bishop's Stortford, Hertford, CM23 2PG for further details.
What’s New?

Livebearer Fry Food

PHILLIPS (Phillips Yeast Products Ltd, Aquatic Division, P.O. Box Royal Road, London, S.W.3) announce another important addition to their range of fish foods. This is Fry Food for Livebearers, a growth food specifically formulated for the fry of livebearing species. This is a companion product to Phillips’ existing Fry Food for Eggs, so that the two foods together meet the needs of aquarists breeding and rearing both tropical and coldwater fishes. The new food provides all protein from a special formula containing liver and fish meals, skimmed milk powder, yeast, cod-liver oil, insects, meta meal and wheat flour, as well as highly nutritious freeze-dried ingredients such as egg, worm, shrimp, liver and spinach. The manufacturers emphasize that particular care has been given to the selection of the correct particle size for the food to make it suitable and acceptable by all young livebearers.

Flexible Base Heater

HOBBYISTS of longer standing will be glad to learn that the ES-ES Flexible aquarium heater is now in good supply again. This unique heater is made from long-lasting, non-perishable silicone rubber tubing that encloses a heavy duty 100 watt element, and it is designed to rest within the aquarium compost. As a result, of course, it is unobtrusive and, it is claimed, gives greatly improved plant growth since it gently warms the plant roots as well as the water. The manufacturers, Singleton Brothers (Electronics) Limited, Cornwall, are now part of the Armitage Pet Products Group of Companies. The heater is suitable for tanks up to 15 gallons and is retailing at the recommended price of £2.30.

Aquarium Backgrounds

THE new range of Aquarium Backgrounds introduced by Armitage Bros. Ltd. (Armitage House, Colwick, Nottingham NG4 2BA) are high quality re-productions of paintings created specially for aquaria to give the illusion of considerable depth and to add just the right amount of colour and interest to the tank without detracting from its fish and plant life. There are three designs—Sunken Galleon, Atlantis and Natural Bridge and two sizes—for 2ft. and 3ft. tanks; the backgrounds can be trimmed to meet the exact sizes of aquaria within this range. Retail price: 2ft. tanks, £1.00; 3ft. tanks, £1.50.

"Sunken Galleon" background
FOR the benefit of the novice breeder, this is a good time to deal with the final sorting out of this season’s young. By being ruthless and culling hard, only the best will be kept, and these can be given that essential all-important growing space. Far better to finish the season with a few decent well-grown fish than to end up with a large number of mediocre stunted specimens. Such fish will bring you no credit.

 Implements required for this task are a large plastic flour sieve — this is less likely to damage finnage than a net, a small plastic or glass tank and a bowl for selected fish, together with a container for those that are rejected. With this equipment the sorting can begin.

 First place water in the three receptacles, making sure that it is at the same temperature as that in which the youngsters are swimming. With the flour sieve, catch just a few of the fish and gently place them in the small tank. The inspection now depends upon the variety that is being sorted.

 Presumably, with nacreous types all mottled and metallic scaled fish will have previously been removed. In the event that this has not been done — do it now. If you are dealing with metallic fish it would pay to remove any that have not changed from the wild colour to the required gold. By keeping and breeding only from those fish which change colour early it is possible to encourage the strain to make ever earlier changes, whereas, if later changing or wild colour fish are used the tendency will be to retard the colour change.

 To cull singletail varieties, carefully inspect the body shapes, removing any youngsters that are mis-shapen in any way. Similarly, any fish that has bent, folded or twisted fins should be taken away so that you are left with those that will stand closer inspection. The inspection should now be very severe and critical. Is the finnage of the correct shape and in proportion to the age and body length of the fish? — remember that the finnage will continue to grow. Are the dorsal and ventral contours nicely curved without any dips or bumps, or any snouty appearance to the head? Is there any sign of hollowness to the ventral shape, especially in the region of the anal fin? If any fish shows any of these faults — get rid of it. Nacreous fish should also be discarded if they do not have the normal iridescent eye; ‘black button’-eyed fish are not highly regarded!

 The sorting of the twintail varieties follows the same procedure, with special attention being given to the body shape, which should be short and deep with a matching well-rounded back. Closely look at the fins to ensure that all are evenly matched, that the tail is well divided and the anal fins are double, alike and fully divided. With moors care should also be taken to see that the eyes are developing evenly and that the black coloration extends fully into the fins and over the body. Ideally the fish should be a velvety black all over without any trace of brassiness on the body.

 Adopt the same critical culling with those varieties which lack a dorsal fin: scrap any fish that does not have a smooth back, free of bumps, spikes or hollows. The anal fins and tail should also be fully divided. Of course, many of the features — such as the hood of the lionhead — will not have developed, for you are dealing with immature fish, not miniature replicas of the adult. Evidence should nevertheless be there to suggest the future potential development of the particular feature, be it the shape of the tail of the young veiltail or the roughness on the head of the young lionhead.

 Be severe in the culling so that only the very best specimens are kept (it is quality not quantity that counts). Always remem-
ber that it is upon your selection that the quality of the future generations of fish depends. Having made your choice, give them clean quarters with plenty of un-crowded swimming space in which to make the maximum amount of growth before the onset of cold weather.

★ ★ ★

The recently repeated suggestion that a Breeder’s Directory — both coldwater and tropical — would be a worthwhile feature to incorporate in this magazine has met with a limited amount of support. Amongst those who have written in favour of the proposal the following comments are typical: Mr A. J. Manser of Southport, Lancs., writes: “... I think it is a good idea to publish the names of amateur breeders, where it could help the beginner and the furtherance of the hobby in general”. He goes on to say that he is interested in livebearers, which he breeds, and belongs to a number of societies including the British Livebearer Association. Mrs Virginia Lee of Whitchurch, Hampshire, writes: “I should be interested in a Directory of Fish Breeders ...”. Mr R. C. Avery, who writes from Romsey, Hampshire, says “... I wholeheartedly agree that a Directory of this nature would be invaluable.” Mr Avery breeds common goldfish but, when he has a fish house, hopes to keep and breed the fancier types and thinks, that a Breeder’s Directory would be a great help — to help him locate breeders of his chosen varieties.

From these few replies, and I thank all who wrote welcoming the idea, it is obvious that some do believe, as I do, that there is a need for this sort of information. The person seeking fish would be able to locate sources of supply — at the present time this can, on occasion, prove most difficult. The breeder would find a wider circle of distribution for the fish that he produced. Benefit would thus accrue to both sides. The producer would find any extra sales useful in helping to offset his expenses. On the other hand, the purchaser would know that he was buying home-bred stock, which, since it is home-bred, would offer a greater likelihood of surviving and being a success in his tanks than some imported fish.

Come on, all you amateurs who breed fish, let’s have your letters of support. Let us hear from the ‘big names’ in the fish breeding hobby, wherever they live and wherever they breed, tropical or coldwater. You can help with little more effort than it takes to write a letter! This proposal could, I believe, serve a very useful purpose to our hobby but it can only become feasible if it can be shown that the necessary information, and support, would be forthcoming. (Information required is name, address, phone number and the names of species or varieties bred; no charge, of course, will be made for inclusion of amateur breeders in the Directory.—EDITOR.)

★ ★ ★

A show that should not be missed this month is the Second Midland Aquatic Festival (14th, 15th and 16th August at Bingley Hall, Birmingham). Supported by the country’s specialist goldfish organisations, this Show will provide the opportunity to see some of the finest goldfish in the British Isles together with young fish produced by some of the best-known breeders of fancy goldfish. Apart from the interest that the hobbyist will find in viewing high-quality fish, much can be learnt by the newcomer to breeding. A comparison can be made between your own young fish and those on exhibition. Possibly the greatest shock will come when the sizes of young fish are compared. In fact some self-important ‘know-alls’ may well be overheard to challenge the fact that fish can be grown so large in less than 12 months! Given the right conditions of plenty of space and correct feeding, the young goldfish can, and do, make fast sturdy growth. This, in itself, is a lesson that can be learnt by visiting a prestige show, such as this.

Two forthcoming major one-day shows may also be of interest. Bristol Aquarist Society are staging their Open Show on 13th September at Bishopston Parish Hall, Gloucester Road, Bristol and, on 27th September, the Goldfish Society of Great Britain will be holding their Open Show at Sutton Adult School, Benhill Avenue, Sutton, Surrey. Both shows will be devoted to the coldwater side of the hobby. The country’s top exhibitors are also attracted to both specialist shows and you can expect to see some fine examples of really first-class fish. Do not be afraid to
ask questions — most fishkeepers are usually only too willing to talk fish and very often you can pick up some worthwhile information. Equally, if you see in the Breeders’ Classes young fish of a variety that interests you, first see if the exhibitor’s name and address is listed, and if not then ask one of the officials if it is possible to be given the information. It is then a simple matter to approach the breeder to ask whether he has any young fish for sale. Remember, if writing, to include a self-addressed and stamped envelope for the reply. Do not expect the fish to be cheap, for, as with so many things, production costs have risen steeply and this has to be reflected in the selling price.

Anatomy of an American Show

By

WILLIAM

FACKETT III

General view of the display, held in a shopping complex

THIS year the Michiana Aquarium Society presented their fifth annual Show at the Concord Mall, a huge shopping complex in Elkhart, Indiana. It was the most successful show in the history of the club with 306 entries in 30 classes including Species, Aquarium Beautiful, Novelty and Educational. The accompanying auction was also successful and the club grossed $13,000.00 (about £480) for the entire affair.

Setting-up was an all-night affair. Table-tops and treestyles were taken out of storage and placed together in adjoining sections. One change from previous years was that individual treestyles were chained at each side since the legs had shown an alarming tendency to ‘spread’. A large Gast compressor and 180 feet of 3/8in. plastic tubing was set up, along with an immense string of four plug, electrical sockets. Happily, as this was the largest show in the 6-year history of the club, all 16 tables were used and the total length of the display was approximately 150 feet.

The method of judging followed no set rules, as is the case in most U.S. shows with the exception of Betta and Goldfish shows sanctioned by the respective societies. Species, Aquarium Beautiful, Novelty and Educational classes were judged in general by elimination of tanks or fish with obvious imperfections. Aquarium Beautiful were expected to be well-balanced and to be in harmony with a central idea or aesthetic effect: in other words, to express perfection in the best possible manner. The only ‘system’ followed was that with relatively few exceptions, fishes were placed high if they were rare, unusual, in top condition and (most important) of maximum size for the species. The last criterion of judging is under considerable debate by members of the Michiana Aquarium Society: particularly those who entered excellent, albeit juvenile, specimens of electric catfish, bichirs, pacus, etc.

At present, many societies in the United States have attempted to differentiate between what is called ‘sight judging’ and judging by a set of tight rules. Whereas a stringent rule system can be readily employed in the case of fishes bred for
Kirk Walkowtik
with the hand-carved Renton Trophy from England that he was awarded at the Show.

Mrs. Sally Yackart presents best of show award to Mr. Bob Atz of Fort Wayne, Indiana, for his frontosa cichlid exhibit.

Notice should be listed in the Guinness Book of World Records! Participants in our Show were most impressed by the uniqueness of the Renton trophy when comparing it with the standard US trophies, which require only a new screw-on top to relate to any activity whatsoever. We are very grateful to Mr. Renton.

In summary we had a most successful show and we are happy to share the results with our fellow aquarists in Europe.

RESULTS

A full report will appear in parts except where indicated.

Aquariums up to and including 20 gallons were...
THE MIDLAND AQUARIST LEAGUE held their first show of the season on 11th May at Buckingham Parish Hall, Buckingham, nr. Bedworth. As the League were late in getting under way this year it has been decided to stage fewer, but larger, shows which has proved more interesting. 142 entries were submitted in the Inter-Society classes, and although pleased with such numbers this was 26 entries short of what had been expected. Although the open classes attracted entries from as far afield as Lancashire, only 85 were bunched in the six classes. MAAS judges in attendance were Mr. F. Ash and Mr. G. Cox.

Open classes as Character: 26 entries; 1 Mr. W. P. Austin (KIA); 2 Mr. N. H. Smith (BAWS); 3 Mr. E. L. Rankin (BAWS); 4 Mr. T. G. Biggs (RAIW); 5 Mr. E. H. Rankin (BAWS). 2 Mr. N. H. Smith (BAWS); 3 Mr. E. L. Rankin (BAWS); 4 Mr. T. G. Biggs (RAIW); 5 Mr. E. H. Rankin (BAWS).

The Best Fish in Show award at the NORTHWICH & DAS seventh Open Show was won by Mr. & Mrs. G. Bond who received the Thorne trophy and the Russel-Allen trophy for best livebearer. Trophy winners: Benny trophy: best breeding egglayers, Mr. A. P. Vassers, Hyland trophy, best catfish, Joach or botia, Mr. & Mrs. Houghton; Interpect trophy, society gaining most points, Marsyside (51 Southport); King British trophy, Norwegian member gaining most points, M. D. Valentine.

Key to societies: A. Ashton-under-Lyne; B. Blackburn; Bu. Burton-on-Trent; D. Cannock; J. Hyde; L. Leigh; M. Macclesfield; N. Merseyside; N. Otley; O. Plymouth; P. Purley; R. Reading; S. Stockport; T. Bristol; W. Warrington; X. York. 

THE SPALDING & DAC will meet at 7.30 p.m. on Thursday, 4th August at Fulney Church Hall, Spalding, to hear a talk illustrated by slides given by Mr. E. A. Allen of The British Koi-Keeper's Society on keeping koi and methods of pond construction and water filtration. Non-members wishing to attend the meeting should contact Mr. M. Barnes, 32 Windsor Road, Spalding, Lincs.
THE THREE COUNTIES GROUP of aquarists societies (Basingstoke, Bracknell, Didcot, High Wycombe and Reading) hope for a really memorable 21st Open Show on 14th September in the Students Union Hall of Reading University. There are over 50 classes, with a total of eight classes in the killy section and the FBAS Championship trophy going to the best killyfish. There are seven classes for the coldwater enthusiasts, and to encourage an important, but somewhat neglected, part of the hobby, three classes for plants are scheduled. Mr Ron Ford has kindly offered to present the overall winner with a prize of an unusual plant and will also be available at the Show to give advice on plants.

The results are likely to the societies below: Basingstoke, Bracknell, Didcot, Oxford, Reading, Shrewsbury, Swindon, Weymouth, Wiltshire, and Worcestershire. The results will be announced in the next issue of PetFish Monthly.

SOUTHEND, LEIGH & DAS held their Open Show recently.

The results are as follows: 1st, Mrs J. Taylor (SOUTHEND); 2nd, Mr & Mrs G. Bond (68); 3rd, Mr & Mrs A. Davies (72); 4th, Mr P. A. Vassie (76); 5th, Mr G. M. Bennett (70); 6th, Mr F. R. Thomas (76); 7th, Mr E. Jones (70); 8th, Mr L. Thorne (76).

RESULTS OF THE OSMAS SHOW are as follows:

Entries: 50. FIRST PRIZE: Mr & Mrs A. Davies (30); 2nd, Mr & Mrs B. Cooper (30); 3rd, Mr J. R. Thomas (30); 4th, Mr & Mrs A. Davies (72); 5th, Mr P. A. Vassie (76); 6th, Mr F. R. Thomas (76); 7th, Mr E. Jones (70); 8th, Mr L. Thorne (76).

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187 in Show award was won by Mr. K. Greenley (Billingham Half Moon) with a Labeo erythrausa.

(Key to the societies: A, Ashington; B, Billingham; C, Billingham; D, Billingham; E, Billingham; F, Billingham; G, Billingham; H, Hartlepool; I, Killingworth; J, Notts; K, Priory; L, Redcar; M, STAS; N, Scarborough; O, South Shields; P, Stanely; S, Stockton; W, Washington; Z, Zenith.) Results are as follows: 1st, Mr & Mrs Duke (51); 2nd, Mr & Mrs Saunders; 3rd, Mr & Mrs Wood (50); 4th, Mr & Mrs Robinson (51); 5th, Mr & Mrs Surtees (51); 6th, Mr & Mrs Sandford; 7th, Mr & Mrs Surtees (51); 8th, Mr & Mrs Sandford.

Large barbs: 1st, Mr & Mrs Robinson; 2nd, Mr & Mrs Duke; 3rd, Mr & Mrs Duffill; 4th, Mr & Mrs Duke; 5th, Mr & Mrs Robinson; 6th, Mr & Mrs Duke; 7th, Mr & Mrs Sandford; 8th, Mr & Mrs Surtees.

Large coldwater: 1st, Mr & Mrs Duke; 2nd, Mr & Mrs Robinson; 3rd, Mr & Mrs Duke; 4th, Mr & Mrs Robinson; 5th, Mr & Mrs Duke; 6th, Mr & Mrs Robinson; 7th, Mr & Mrs Duke; 8th, Mr & Mrs Robinson.

Large killy: 1st, Mr & Mrs Duke; 2nd, Mr & Mrs Robinson; 3rd, Mr & Mrs Duke; 4th, Mr & Mrs Robinson; 5th, Mr & Mrs Duke; 6th, Mr & Mrs Robinson; 7th, Mr & Mrs Duke; 8th, Mr & Mrs Robinson.

Large coldwater: 1st, Mr & Mrs Duke; 2nd, Mr & Mrs Robinson; 3rd, Mr & Mrs Duke; 4th, Mr & Mrs Robinson; 5th, Mr & Mrs Duke; 6th, Mr & Mrs Robinson; 7th, Mr & Mrs Duke; 8th, Mr & Mrs Robinson.

Large killy: 1st, Mr & Mrs Duke; 2nd, Mr & Mrs Robinson; 3rd, Mr & Mrs Duke; 4th, Mr & Mrs Robinson; 5th, Mr & Mrs Duke; 6th, Mr & Mrs Robinson; 7th, Mr & Mrs Duke; 8th, Mr & Mrs Robinson.

Large coldwater: 1st, Mr & Mrs Duke; 2nd, Mr & Mrs Robinson; 3rd, Mr & Mrs Duke; 4th, Mr & Mrs Robinson; 5th, Mr & Mrs Duke; 6th, Mr & Mrs Robinson; 7th, Mr & Mrs Duke; 8th, Mr & Mrs Robinson.

Large killy: 1st, Mr & Mrs Duke; 2nd, Mr & Mrs Robinson; 3rd, Mr & Mrs Duke; 4th, Mr & Mrs Robinson; 5th, Mr & Mrs Duke; 6th, Mr & Mrs Robinson; 7th, Mr & Mrs Duke; 8th, Mr & Mrs Robinson.

Large coldwater: 1st, Mr & Mrs Duke; 2nd, Mr & Mrs Robinson; 3rd, Mr & Mrs Duke; 4th, Mr & Mrs Robinson; 5th, Mr & Mrs Duke; 6th, Mr & Mrs Robinson; 7th, Mr & Mrs Duke; 8th, Mr & Mrs Robinson.

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Large coldwater: 1st, Mr & Mrs Duke; 2nd, Mr & Mrs Robinson; 3rd, Mr & Mrs Duke; 4th, Mr & Mrs Robinson; 5th, Mr & Mrs Duke; 6th, Mr & Mrs Robinson; 7th, Mr & Mrs Duke; 8th, Mr & Mrs Robinson.

Large killy: 1st, Mr & Mrs Duke; 2nd, Mr & Mrs Robinson; 3rd, Mr & Mrs Duke; 4th, Mr & Mrs Robinson; 5th, Mr & Mrs Duke; 6th, Mr & Mrs Robinson; 7th, Mr & Mrs Duke; 8th, Mr & Mrs Robinson.
THIS year the ASSOCIATION OF MIDLAND GOLDFISH KEEPERS staged the coldwater section of the Coventry P & AS Open Show at Templars School, Coventry. Many fine fish were entered which drew appreciative comment from the very large public attendance and the Show Committee of the Coventry S c i e y have thanked the AMKG for their co-operation in helping to make the show such a success. In appreciation they made a donation to AMKG funds, which was accepted with appreciation and thanks by treasurer, Mr R. Hancox.

The May meeting of the Association gave members the opportunity to hear vice-chairman Mr D. Easingwood describe the construction of his new fish house — together with the costs involved. Each stage was illustrated by projected colour slides and examples of the materials used were displayed. This led to much animated discussion afterwards and the speaker was warmly applauded for a most interesting talk.

Future meetings at the Foleshill Community Centre, Foleshill Road, Coventry, are as follows:
- September 28th: Mr T. L. Dods will talk of the early days and personalities he has known during his many years in the goldfish hobby.
- November 30th: The Annual General Meeting. Visitors are welcome and details of membership can be obtained from the Secretary, Mr F. W. Orme, 94 Newman Way, Rubery, Birmingham, B45 9EZ.

Please close an addressed and stamped envelope with your enquiry.

THERE were 438 entries at the CORBY & DAS Open Show held recently, the results of which are as follows:
- 1, Mr P. Butt (Northampton);
- 2, Mr W. D. N. Shaw (Northampton);
- 3, Mrs S. R. Shaw (Northampton).

Breeder: Mr P. Butt (Northampton).
Coldwater Fishes at Middleton

MY early start to drive along the M.6 from the Midlands to Lancashire proved to be well worth while. At the invitation of Kevin Smith, Publicity Officer of the Middleton and District AS, I was keeping a promise to visit their fourth open show at Middleton. My main interest was, of course, the Coldwater Classes, which occupied a central position in the Hall. Tropical entries were staged on either side of the Coldwater Section and allowed plenty of room for visitors to view the fish in reasonably uncrowded comfort.

The Coldwater Classes were divided into three sections, each again divided into various classes: 'Common Goldfish' had one class for common goldfish and comets, and another for shubunkins; 'Fancy Goldfish' had separate classes for veiltails, orandas, lionheads, moors, fantails and any other variety; the remaining 'A.O.V. Coldwater' was split into two classes, A.O.V. European and A.O.V. Asian and North American. Cards were awarded for class placings and the highest pointed fish in each section received a trophy.

Total entries numbered 573, of which around eighty were coldwater exhibits, not as many as at some shows but nevertheless, I would think, encouraging to the Show Committee — especially as the coldwater fish were of quite a good standard (I must admit to being pleasantly surprised at the quality of some).

Visitors obviously enjoyed the Show, many following the judges from a distance around the Hall. This is a facet of northern shows that I find frustrating, for it is necessary to wait until the end of the show, when judging finishes, before the various placings can be seen. I much prefer the type of show that ensures judging is completed and placings are marked, on the tables, before the public are admitted. This latter method also has the advantage of protecting the judges from arguments with exhibitors — unless complaints are made through the Show Committee, whose decision should be final.

This was a well-organised event with the usual subsidiary attractions and refreshment room. Best coldwater fish in the Show award was gained by a large lionhead (86 points), owned by Mr J. S. Hall of Alfreton, AS. This fish, which I imagine was an unmounted one, well deserved the place it gained.

A possible added attraction would be the inclusion of Breeder Classes for Yearling fish (it would be too early in the year to expect much support for current season's young), and I understand this addition may be considered for next year's Show as the Society hope to encourage the expansion of the coldwater sections. In this objective I wish them every success.

F. W. ORME
Society with the most points. There were entries from 19 visiting societies and from independents, making a total of 411. Mr M. Holman (Priory) won the FBAS Championship class trophy.

In Brief...

... THE BLAENAU GWENT FISH CLUB, formed in March 1974 by eight friends, now has 34 members and is still gaining strength. Meetings are on alternate Tuesdays, 7.30 p.m., the Blaenau Gwent Working Mens Club, Lewis Street, Cwmfyllti, Abertillery, and a varied programme is offered of slide shows, lectures, visits from and to other clubs, etc. It is planned to visit Botlle Vue, Manchester, in October. Anyone interested is asked to come along. August meetings are the 5th and 19th. Secretary is Mr B. Phillips, 28 Woodland Drive, Trinant, nr Cwmhlin, Mon.

NELSON AS are in the pleasant position of having to move to new and larger meeting rooms because of the influx of new members. The Society now meets at The Civic Centre, Stanley Street, Nelson.

PLEASE note that there is a new date for the EALING & BAS Open Show. This is now to be held on 28th September at the Northfields Community Centre, Northcroft Road, London, W.13.

AFTER the SUFFOLK A & PA AGM the victorious mem-

ON 17th August the NEWCASTLE GUPPY & LIVEBEARER SOCIETY are holding their second International Show. The German Guppy Federation will be entering fish and entries are expected from the German Livebearer Association and from the United States. All entries from overseas will be auctioned after the show and this will give livebearer enthusiasts a chance to obtain some of the more unusual varieties of livebearers as well as some good stock for either improving a current strain or to start a new strain. The Show is being held in the British Legion Headquarters, Benswick Road, Newcastle (berching 12.00 to 2.00 p.m.; judging at 2.15 p.m. prompt). Judges will be Mr L. McCourt (FGA), Mr C. Buck (FBAS), Mr K. Greenley (FBAS), Mr W. Cowlin (FBAS) and Mr K. Low (FBAS) and the FBAS Championship trophy for the best single plating will be awarded. The highest point- ed single fish from each class will be entered on the elimination round of the Tyne-Tees Area Association's Three Rivers Championship.
Dates for Your Diary

2nd August. BLACKPOOL & FYDE AS Open Show, Blackpool Boys Club, Leasowes Gate, FYDE, Blackpool. 2:00 p.m. Details: Mrs. O. Barler, 13 St Chad’s Close, Poulton-le-Fylde, Lancs.


15th August. TUNBRIDGE & DAS Open Show, Details: Mr. S. Fea, 19 Earlway Road, Sevenoaks, Kent, TN13 1XX; phone Sevenoaks 54969.

20th August. GRIMBSY & CLEETHORPES AS Open Show, Memorial Hall, Cleethorpes. Details: Mr. T. F. Walker, 51 Cheshire Walk, Grimsby. 5th Northumberlands: phone Hallams 7183.

4th-16th August. MIDLAND AQUATIC FESTIVAL 76. Bingley Hall, Bingley, Shipley, Yorkshire. Details: Mr. J. Stillwell, 24 Salcombe Avenue, Gorum, Pershore, Worcs. Phone: 0532 263.

10th August. BEDWORTH AQUARIUM & POOL SOCIETY Open Show, North Warwickshire, Warwickshire. Details: Mr. T. F. Elder, 123 Station Road, Bedworth, Warwick. Phone: 01-688 5685.

17th August. NEWCASTLE GUPPY & LIVERSEASER SOCIETY Open Show, West End, Newcastle upon Tyne. Details: Mrs. J. Kerton, 12 Church House, 18 Rose Street, North Shields, NE32 2HA.

5th August. OLDHAM & DAS Open Show, Werneth Park, Rochdale, Lancs. Details: Mr. G. A. Chappell, 241 Chadderton Road, Rochdale, Lancs. Phone: 061 863 385.

9th August. GREAT YARMOUTH & DAS Tropical and Coldwater Fish Exhibition, Mill Road, Great Yarmouth. Details: Mrs. J. Shepherd, 9 Moulton Avenue, Lowestoft, Lowestoft. Phone: 01-670 6727.

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