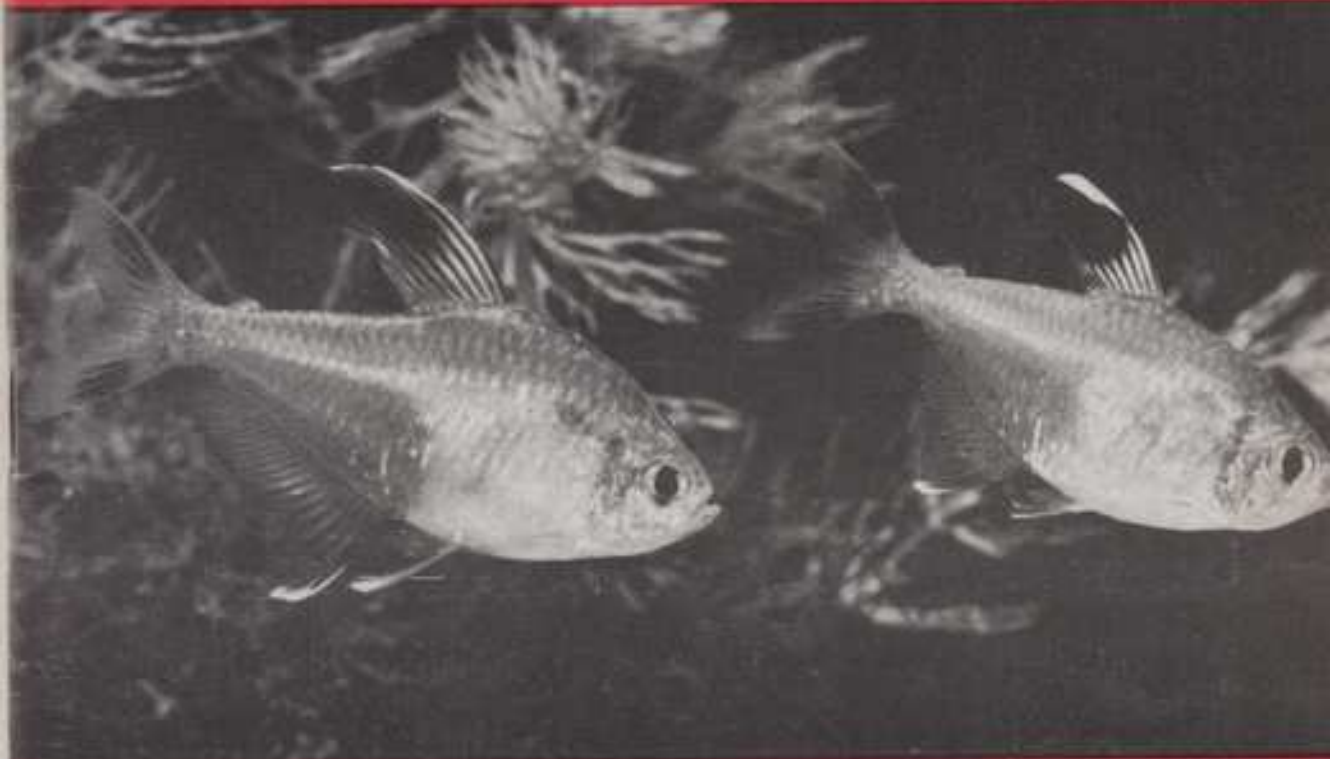


APRIL 1976

25p

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The Limias

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April 1978

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Comments and Quotes

WITH this issue PFM completes the first 10 years of its existence. A great deal has happened in that period in the world at large, events that have had repercussions affecting the aquarium trade and, even closer to our hearth, on periodical publishing. Everyone is aware of, and heartily sick of, the subject of rising costs and prices, and since it is always our hope that the contents of PFM might take our readers' minds off worldly cares for a little while each month we shall not expand on this gloomy topic. Sufficient to say that present-day costs have necessitated us having a new look at production methods. The result is that your May issue of PFM is going to have a new look, too.

As from next month PFM will have a larger page area. We shall be producing the journal in the modern A4 format and by a printing process that will considerably facilitate presentation of articles and pictures. This will be a benefit for both readers and advertisers.

As from next month PFM will have a full colour picture on the front cover. This is a feature that readers have asked for and we think it will increase the attractiveness of the magazine even further. This 'plus' for readers is a direct consequence of the change to fully up-to-date production methods and is given without change in cover price.

So please do not miss your new-look PFM next month. There will be extra demand for this issue and it is advisable to make sure you have a firm order with your supplier for regular purchase.

Since postal costs are something about which we can do nothing, changes in subscription prices have had to be made: in future only subscriptions for a minimum of 12 issues can be accepted, at £4.50 per year.

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LETTERS



Your comments and views on all topics of interest to aquarists are welcomed. Address letters to PFM Letters, 554 Garratt Lane, London SW17 0NY

Contented Marinist

SINCE I wrote in the February, 1975 issue of PFM concerning my 36 in. by 12 in. by 15 in. cabinet-style marine system, I have progressed to a 60 in. by 18 in. by 12 in. all-glass tank. The system is the same (semi-natural) and is set up employing undergravel filtration from three air-lifts, plus a carbon filter as a decolouriser. The filter is run off two Orion Day and Night air pumps, which I have found to be very powerful indeed. There is a 4 in. filter-bed comprising crushed shell, silica gravel and coral sand. The tank is decorated with rocks, corals and 'plants'. Two Mariner 200 heaters at 150 and 100 watts keep the temperature at 74-76°F. To mature the tank I used Sea Mature and this was completed after 7 days.

To help the process of maturation I introduced two electric blue damsels and a very young double-striped fire clown. In October last year I bought a coral beauty angel and he is still going strong.

Every week I use Sea Trace, Sea Buff, Sea Vita and a full course of Sterazin and Cuprazin. The foods I offer are squid and brine flake, Tetramin, Aquarian flake, daphnia and glassworm. Recently I have introduced new specimens, a sunburst butterfly, potterite angel, brown wimple, sebaeclownfish and a yellow-tailed damsel. All the fish are feeding well and in perfect condition without a mark on them.

A. J. MADDOCK

Fullwood, Preston, Lancs.

Scottish Goldfish Society

THROUGH the courtesy of your column I would like to call on all goldfish keepers in Scotland who are interested in meeting other goldfish keepers. All goldfish keepers know the problems of going along to aquarist societies and listening to nothing else but people talking on tropical fish. You begin to wonder if there is anyone else who keeps goldfish. Often people get disillusioned and leave the societies

and perhaps the hobby all because they were not able to talk to others interested in the same fish as themselves.

Myself and several others interested in goldfish keeping would like to overcome this problem by forming a specialist goldfish society in the East of Scotland. The reason for limiting it to the East of Scotland is that otherwise long distances would be involved in travelling to meetings, but anyone is welcome to join us.

We hope to arrange a meeting at the Arbroath Show to form a Society if enough people express an interest. Anyone interested should contact me.

T. W. MCLEAN

92 Warddykes Road,
Arbroath, Angus

Shubunkin Origin

READING about Mr Frank Orme's eager novice (PFM, February 1976) brought to mind *GOLDFISH GUIDE* by Dr Yoshiichi Matsui. This book was first distributed in this country in 1972 by The Pet Library (London) Ltd. In page 57 appears the following: 'The author's experiments have shown that Shubunkins can be obtained by a simple cross of Calico Telescopes with Crucian Carps.'

It is of interest to note that all through *GOLDFISH GUIDE* Dr Matsui refers to the crucian carp and the goldfish as being one and the same fish. Knowledgeable aquarists are aware that the crucian carp is variable in colour and in all probability splendid golden forms of this fish have occurred, and still occur, in the natural state. Be this as it may, I believe it is generally accepted that gold mutants of the wild goldfish of southern China gave rise to the many domesticated races of goldfish known to the fancy today. The formal name of the wild goldfish of southern China is, according to serious (and not so serious) books, *Carassius auratus*.

Continued on page 565

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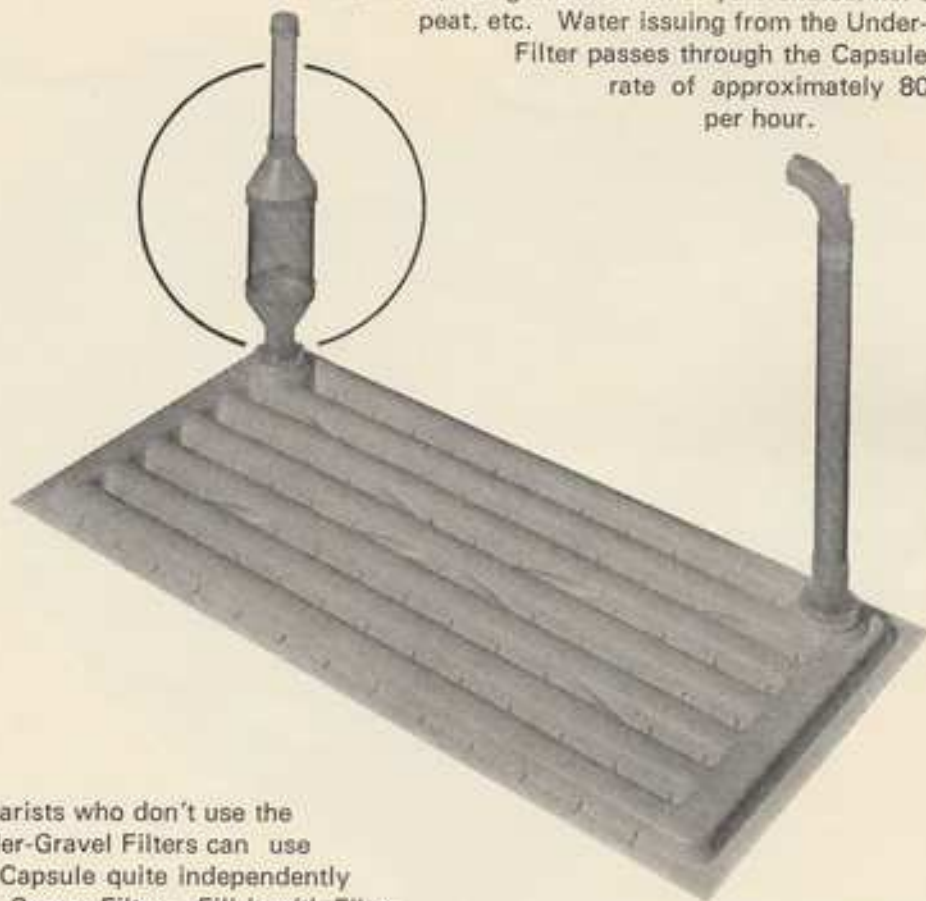
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LETTERS

continued from page 558

The crucian carp, widespread over the major part of Europe and beyond to Russia in Asia, is usually described under the scientific name of *Carassius carassius*. That two distinct representatives of the genus *Carassius* arose, so to speak, in the very remote past has to do, if I remember right, with Alfred Wegener's theory of Continental Drift.

Perhaps some officer of The Goldfish Society of Great Britain would care to enlighten us as to whether calico telescopers crossed with crucian carp do result in shubunkins and whether '*C. carassius*, var. *auratus*', as Dr Matsui puts it, is a valid name.

JACK HEMS

Leicester

Cichlid Naming

AQUARISTS and collectors alike will surely agree with Mr Ian C. Sellick's letter (PFM, February 1976) that the field of fish taxonomy should be left strictly to the experts. The nomenclatural confusion over the identification of the species, the subject of my article (PFM, August 1975), clearly illustrates that the task of the taxonomist is a formidable one.

Exasperated by the utter confusion this fish has created, the experts have appropriately named it *Melanochromis exasperatus*! (Burgess, W. E. (1976). *Studies on the family Cichlidae: 3. A new Melanochromis from Lake Malawi, with comments on the genus*. TFH February 61-65.)

BARBARA P. MAYERS

Walhurst, Sussex

Anti-fluoridation

WE are hearing much at the moment regarding the benefits we may all experience by the inclusion of sodium fluoride in our domestic water supplies. It is claimed that this will prevent our teeth decaying, but this surely could just as easily be achieved by us eating cor-

rectly, or by us being a little more particular regarding our oral hygiene.

I do not wish to discuss the merits or otherwise of this aspect; what concerns me is what the effect will be on our fish, whether they be tropical freshwater, marine or coldwater. Sodium fluoride is a poison and this fact has been quoted by a pro-fluoride biologist, i.e. Dr H. J. Leese, University of York. He does however go on to state that used at the ratio of 1 p.p.m. it is not a poison. What a contradiction! No doubt our Red Indian colleagues were thinking of similar gentlemen when they uttered the now famous phrase, "Him speak with forked tongue". I understand sodium fluoride is a by-product in the manufacture of aluminium; consequently it is produced in huge quantities and must be disposed of to make room for more. As often is the case with all these unwanted wastes, it was presumed that it could be dumped in the sea, but in 1972, an international agreement was signed, with active British support, banning the dumping of toxic chemicals in the sea. This agreement included the highly toxic chemical sodium fluoride. Now, some four years later, we are going to have it dumped in our tanks, with presumably the same fatal results as was feared would occur to our marine life. Once sodium fluoride is in our water, it cannot be removed either by boiling or filtering, neither can it be neutralised, so we shall be stuck with it.

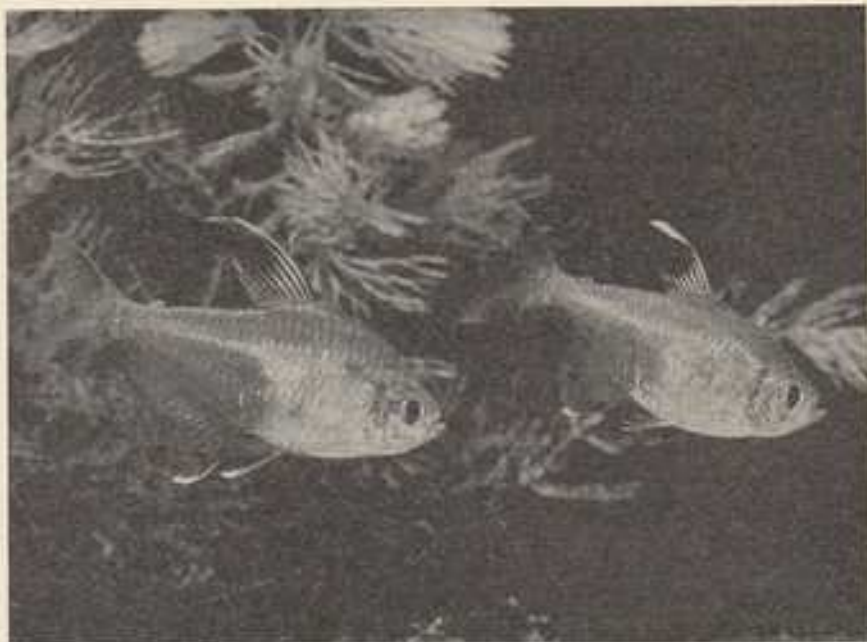
Many thousands of non-aquarists receive untold pleasure from tanks in hospitals, schools, banks, libraries, dentists' waiting rooms and other similar places. Are they, too, to be denied this pleasure? I hope not, and I would ask Societies in every corner of the country to rally to the call and bring their objections to the notice of their local councils. Mass medication is wrong, especially in a democracy, and as far as I am concerned this includes the fish in our tanks.

G. B. HAWKSBY

Secretary, York & District
Aquarists Society

We have been unable to find any reliable evidence that the addition of fluoride to water in the concentration used for the purpose mentioned in Mr Hawksby's letter causes any danger to aquarium life; such additions have been made for quite long periods in parts of the USA without reports of adverse effects.—EDITOR.

Breeding the Ornate Tetra



Hyphessobrycon ornatus

FISHES of the large characin family are amongst those most widely tended and kept. One of them is our fish, which grows only to a modest 2½ in. (4.5 cm.). It was imported from the lower Amazon into Europe in 1933, but although it immediately aroused interest amongst aquarists it was some little time before successful propagation was achieved. More of that later.

The body, a deep oval in shape, is strongly compressed at the sides. The background colouring is olive yellow with a reddish tinge. The reddish tinge is also to be found in the yellowish caudal, where each fin lobe has a definite red patch. The yellowish red anal fin is white-bordered at the tip and the front edge of the yellowish ventral fin is also white. The dorsal carries a large, irregular dark patch and the point and front edge of this fin are white.

So you can see that they are sufficiently attractive in their colouring for almost all fishkeepers to find them very acceptable tank inhabitants, particularly as they are so peaceful. With adult fish there is no problem about recognising the sexes — the male has the typical long drawn-out crescent-shaped dorsal fin, while his part-

By RUDOLPH ZUKAL

Photographs by the author

Translated by F. MARSH

In this picture and the one on the facing page the male is the fish on the left. Here he is enticing the female towards the plants while displaying before her



Below the pair begin their spawning movements side by side, and eggs are shed as the pair turn in a flashing movement

ner is rather smaller and fuller in the body. This can be seen clearly in the pictures. They are happy enough in a medium-sized, thickly planted, tank with some floating plants on the surface but they are at their best in a large tank with a shoal of their own kind. A temperature of 77°F (25°C) suits them and normal tap water can be used provided that it is not hard. Tank companions should be other peace-loving fish of similar size. They take any live food, and all the newest food products are taken willingly.

Breeding

A smallish (10 litres, 2½ gallons) glass tank is required for breeding. The water should be very soft in the breeding tank, slightly acid and crystal clear and should have been in the aquarium for some time. For a long time after the fish were imported no successful breeding was reported, because the conditions in which the fish lived in Nature were not known. Dr W. Ladiges, in his book *DER FISCH IN DER LANDSCHAFT*, gave a lot of clues and now that the fish are so well acclimatised



today, the only problem with regard to breeding is that many of the males are infertile. So a suitable male is a prerequisite for success.

The spawning tank temperature should be 79-82°F (26-28°C). Spawning does not usually take place at once but will happen within a few days. Barometric pressure apparently plays a part. While in the

spawning tank the fish must be fed very carefully so that food remnants do not pollute the water. After the spawning, as with other characins, the parents must be removed from the tank. The same pair can then be put back to spawn again after 3 weeks. The fry require the tiniest of live food on the seventh day, when they are free-swimming.



Tetra Competition Results

Miss Sally Littler draws a winner, watched by Mr Gordon Corrigan (on her right), chairman of Peterama Ltd., and members of Peterama's staff and representatives from the aquatic press

TO commemorate their Silver Jubilee, Tetra Werke of West Germany recently organised a competition for British aquarists and this competition was advertised in PFM. The draw for the prize-winners took place on 25th February at the offices of Tetra's sole U.K. distributors — Peterama Ltd of Chelmsford, Essex. Entries were drawn by Miss Sally Ann Littler, 1975 British Pet Trade Queen, and the correctness of the entries was established by Mr Gordon Corrigan, chairman of Peterama Ltd. Also present were representatives of the British aquatic press.

Winner of the first prize, a 14 days' holiday for two in Europe's most exciting cities — Paris — Rome — Hamburg, plus a visit to Tetra, the world's largest fish food factory, was Mr D. B. Hickman (Tamerisk, 14 Crumstone Court, Gart 21, Killingworth, Newcastle 12).

Second prize, a reflex camera and slide projector, was won by Mrs M. Nelson (St Pauls Rectory, Erskine Road, Blackley Road, Manchester 2).

Third prize, a portable black and white T.V. set, was won by Mr W. Nowak (71 Glenhurst Avenue, Bexley, Kent DA5 3QH).

Fourth to tenth prizes, do-it-yourself kits consisting of an electric drill and numerous accessories, were won by the following: Fraser M. A. Stephens (4 Laird Street, Monifieth, Tayside); Mr J. S. Butler (14 Dinas Road, Penarth, Glamorgan CF 2PL); Mr S. E. Brown (174 Abbey Road, Barking, Essex); address only (89 College Street, St Helens, Merseyside, WA10 1TP); Mrs S. Cameron (52 Hunter Road, Crossdene, Crosshouse, Ayrshire KA2 0LD); Mr R. Iles (3 Rodney House, Woodhouse Road, Timerton, Bath BA2 1SN, Avon); Mr K. Underwood (29 Hare Street, Springs, Harlow, Essex). The eleventh to two-hundredth winners each won a new edition of Beginner's Aquarium Digest.

FILTRATION REVIEW—4

Water 'Purifiers' and 'Conditioners'

By CLIFF HARRISON

In our review of mechanical filters (PFM, February and March) the commentary was restricted to their principal function, i.e. of removing visible particles from the aquarium to prevent loss of water clarity, with its resultant unsightliness, and to prevent further decomposition. However, it is possible to include materials other than nylon/terylene wool in the filter (and many manufacturers actively encourage this), to alter the chemical composition of the water.

Before discussing the function of these 'water-conditioning' materials, let us first say a little more about the changes that the water undergoes in the aquarium.

The water that is first put into the aquarium will contain many substances in addition to pure H₂O: the ones of principal interest, provided the water is obtained through the normal domestic supply, are the 'total dissolved minerals' (the amount and nature of which determines the water's degree of hardness), and the dissolved chlorine. Other constituents are likely to be present in 'trace' amounts only, and are likely to be essential to the long-term well-being of the fish rather than in any way detrimental. The chlorine, which could be harmful to the fish if present in excess, will disappear from the water in a day or two when left in an unsealed container (such as an aquarium), a process that is speeded up by aeration and a slight rise in temperature.

The dissolved minerals in normal tap water are not usually in excessive amounts from the viewpoint of the fish, and there is little point in trying to reduce them unless for a very specific purpose. Further hardness will be added to the water by the inclusion of aquarium gravel, unless a special inert type is used. In practice I have found that gravel, over a period of time, can boost the hardness to three or four times that of the original tapwater—

though again this in itself is not likely to prove dangerous to the fish. Another source of dissolved substances is the fish themselves: their waste products are broken down by bacteria in the tank to produce various chemical salts, a proportion of which are subsequently used by the plants for nourishment. Some authorities even suggest that fish can make subtle changes to the water to suit their own particular family.

All these interacting factors produce very complex changes in the chemical make-up of the aquarium water, yet, except for rare occasions and a few very difficult species, the fish and plants seem to adjust to the conditions and live, at least in reasonably normal health, for years and years. So why should anyone want artificially to change the composition of the water in their aquaria?

Why Bother?

The first reason must be to grow bigger and/or better fish. Whenever hobbyists from different geographical regions of the British Isles get together, there invariably follows a comparison of the quality of the various families of fish between the areas. For example, it is a commonly held belief that barbs do better in the North than the South; with livebearers, the reverse is claimed to be true. So it would seem naturally to follow that if one can duplicate the conditions pertinent to a region where a species is known to do well, then that could give an exhibitor a big advantage at the shows in his own locality.

Another reason is often the desire to breed 'difficult' fish, or to spawn the less-difficult ones with greater regularity and success. This must be a creditable aim, if only to ensure the continuity and quality of stock available in this country. How-

ever, if such experimentation is to be worth while it must be accompanied by accurate records of the various factors involved; the water composition is only one of many criteria likely to affect spawning, temperature and the pattern of lighting perhaps being even more critical.

A third reason for experimenting with water chemistry is the aim of just keeping certain difficult species alive, so that further studies can be made on them; it is very often the case that such detailed studies can only be made when the fish is in captivity, and preserved specimens have very little value in this respect. It is heartbreaking to see, as I have on numerous occasions, whole shipments of fish arrive in this country in apparently healthy condition, only to die over the following few days despite all the efforts of the importer.

However, as I said earlier, the overwhelming majority of aquarium fishes will remain happy and healthy almost indefinitely in ordinary tapwater, given reasonably thoughtful aquarium management by the hobbyist. In fact, the sudden and extreme changes that the inexperienced hobbyist is likely to create will be far more lethal to the fish than the original situation. Having established, I hope, that from a purely personal viewpoint I see few occasions when an experienced aquarist would need to try to change water-conditions and even fewer for the novice to dabble with something he only incompletely understands, a brief summary of the principal products involved might be appropriate.

Water 'Conditioners'

Activated Filter Carbon. The function of this material is to absorb harmful organic waste products dissolved in the aquarium water; this is something it does very effectively (far more so than ordinary charcoal which is sometimes sold for the purpose), and therefore it has the advantage of not being able to do any harm, and provides a degree of reassurance to the nervous hobbyist. However, a well-kept aquarium should not contain a harmful concentration of these substances, and there would be obvious signals from the fish that all was not well. The biggest problem with these carbons is that there is generally no simple way of telling when their absorption capacity is exhausted

(this being dependent on many factors), and so regular replacement is the only answer. However, I would accept that it is worthwhile to keep a box handy for use in the filter in case of the sudden emergency that can affect any of us.

Peat Fibre. This product gradually acidifies and, some claim, softens the water, creating the conditions that certain rasboras, characins and (especially) egg-laying toothcarps like. Its effect will tend to be neutralised by the presence of ordinary aquarium gravel, and many plants will not thrive with the change, so it is strictly out for normal furnished community aquaria. Use only the special aquarium grade (available in small packs from your dealer), and, as it tends to disintegrate and float in water, you should make up small 'packages' of it in old, clean nylon stocking material. Before experimentation is undertaken with peat, a test-kit to measure water pH should be purchased to determine the water reaction.

Filter Resins. First let us completely exclude the common sort of resin that is used in domestic water softeners; this merely replaces the calcium salts with those having sodium as the base, making soap lather more easily, but not affecting the total amount of dissolved minerals at all. In recent years much effort has been devoted to producing resins that are selective: that is, ones that will remove those elements we do not desire in the water, yet leave those vital trace elements that are essential to the well-being of the fish. In addition to the disadvantage of lack of selectivity, it has been suggested that on occasions the changes in the chemical composition of the water have been made too suddenly for the fish to tolerate; only people who have kept marines can appreciate how important a factor this is, for the popular freshwater fishes are exceedingly tolerant in this respect.

Personally, I would not normally recommend a novice to get involved with resins; there are a thousand other ways he can develop and prove his competence as an aquarist without deliberately venturing into this little-known area. For the more experienced hobbyist, aware of the risks involved and perhaps having acquired greater patience, it could prove to be an interesting (though rather expensive) diversion if he wishes to experiment with the more difficult species.

MARINIST'S Notebook

By ROY PINKS

I MENTIONED recently how even the most careful and painstaking of aquarists can go badly wrong in their early days of tropical marine fishkeeping. These notes detail such a case, and I am indebted to Tom Jones of Wirral for the basic information.

He first read and re-read one of the standard books on the subject and then proceeded to set up a 39 in. by 15 in. by 12 in. Jewel nylon-framed tank. He covered this with two close-fitting glass sheets which supported a wooden cover containing two 3 ft. fluorescent fittings. The heating and control system avoided any accidental contact of metal with the water. Furnishing comprised coral pieces, some shells and some Yorkshire rock. Coral and shells were bleached in an enamel bucket, one cup of bleach to a gallon of water, where they remained for 4 days. They were then rinsed and boiled, with the rock, for 2 hours. They were then rinsed and soaked in fresh water in plastic containers for a week. Crushed cockle shell was used to cover the Algarde undergravel filters, the depth varying between 2 in. in the front to 3 in. at the back. He used Synthetica sea salt, which stood for 24 hours before addition. A Rena 301 pump drove four air-lifts; temperature was raised to 75°F, specific gravity adjusted to 1.022, and pH stood at 8.1.

A *Dascyllus melanurus*, an *Abudefduf vaigiensis* and a *Monodactylus argus* were used as starter fishes. The tank took 34 days to render nil nitrate readings. The fishes were fed on a very varied diet of frozen sea foods, live brine shrimp and conventional marine flake foods. In parallel with all this Mr Jones set up a quarantine tank and was holding in it a small *Pomacentrus volitans*, an electric blue damsel, a sulfur blue damsel and a small cleaner wrasse, diet and conditions much the same as above.

At this point things began to go wrong, as the major and the sergeant major in the

main tank suddenly died. The surviving humbug damsel was transferred to the quarantine tank, with the other fishes, which were quite fit. The main tank was then drained down and its contents were subjected to a further rigorous cleansing process, on the lines of the initial setting up procedure. The tank was then set up again, and as the original crushed cockle shell had only been rinsed, it was assumed, when it was replaced, that the nitrifying bacteria still remained to continue their good work. The tank was then allowed to stand for a fortnight and, as there were then no nitrite readings, it seemed safe to introduce some fish.

In the event, Mr Jones chose to transfer all five fishes from the quarantine tank, as they were looking fine and eating satisfactorily. Within two days they were all dead, with the exception of the humbug, which continued to run in top gear. It may be noted at this point that the quarantine tank was only 18 in. by 10 in. by 8 in., and it may be wondered how its inmates had managed to survive, let alone do as well as they actually did.

This short story goes a long way to illustrate the apparent contradictions which face the marinist. In this case the aquarist was both an experienced fishkeeper and a model of the sort of reader we always hope to have as an audience. He went into the matter conscientiously from the very beginning and he took none of the procedural short cuts, yet his disappointment was understandable — indeed he had every right to be roundly indignant in the light of the often-repeated assertions of some writers that marine fishkeeping only consists of adhering to a few basic rules.

I gave Mr Jones some comments on this cycle of events, and I wonder how readers would react to it? I will reserve my own comments until a later article. It is admittedly as difficult to diagnose problems like these at a distance, as it is for a doctor to prescribe treatment for head pains via a correspondence course, but this situation was quite a teaser because there were, apparently, two systems running in parallel, one of which was successful, and the other of which was not. Come on, you marine experts, and sort this one out!

Three Aquarium Catfishes



By
DEREK
LAMBOURNE

Photographs
by B. KAHL

***Corydoras
aeneus***

Corydoras aeneus was first described by Gill in 1858. It comes from Trinidad and Guyana and grows to about 2½ inches in the aquarium. The ground colour is yellowish brown, with a rather more grey head, and the upper half of the body carries this dark blue/grey colour from the head to the base of the caudal fin. The dorsal, adipose and caudal fins are reddish brown, and the remaining fins are tan. The dorsal, maxillary barbels and pectoral spines have greyish pigment. There is also an albino variety of this fish, both types having been bred in this country. (*C. aeneus* is often confused with *C. eques* Steindachner 1877 — but in *C. eques* the blue/grey coloration forms more of a line and the eye has a blue arc.) These fish will eat during the day — they are not crepuscular — and most foods are acceptable, such as dried flake, daphnia, tubifex etc., but to make certain that they are getting sufficient food, especially if they are kept in a community tank, they should always be fed last thing at night when other fish are not likely to be eating.

Corydoras hastatus was first described by Eigenmann & Eigenmann in 1888, and comes from the Amazon basin and Paraguay. The male grows to about 1 inch and the female to 1½ inch. The upper half of the body is a grey-green colour, with a paler underside. A black line runs through the centre of the body and ends in a large diamond shape, ringed with white, in the caudal peduncle. Another black line runs along the underside of the fish from the ventral to the anal fins. *C. hastatus*, unlike most *Corydoras*, usually swim in midwater and they are much happier when kept in a shoal. They are bred quite often in captivity. Food requirements are similar to those of *C. aeneus* but they will also graze on the algae on plants.

Corydoras schwartzi surinamensis. The Coppename river in Surinam is the natural habitat of *Corydoras schwartzi surinamensis*, first described by Nijssen in 1970. In the aquarium the fish grows to about 2½ inches. The ground colour is tan, with black pigment on the head and across the eyes forming a mask. The snout has small black spots (though these are not always present). The large black blotch below the dorsal also



***Corydoras
hastatus***

covers the dorsal spine and 4/5 rays of dorsal fin. The colour pattern on the body scales is variable, mostly consisting of two horizontal rows of small dots, forming more or less regular lines, though in extreme cases four or even five lines may occur. There are four to five vertical black bars across the caudal fin, the first across the base of the fin and the last across the lobes. Small dots appear on the anal fin. Pectoral and ventral fins are whitish, except for the pectoral spines, which have scattered grey pigment. *C. schwartzi surinamensis* is a sub-species of *C. schwartzi* Rossel 1963, but differs in that its body is less deep, it has shorter dorsal and pectoral spines and a smaller eye. To the best of our knowledge it has not been bred in captivity.



***Corydoras
schwartzi
surinamensis***



by
ARPEE

Personal COMMENT

CONTINUING the examination of suitable selections of 'foil fish' we have been making, I think that the universal favourite must be X-ray fish (*Pristella riddlei*). This is a long-established favourite in the community tank, and is one of the foil fish which one can safely recommend in shoal proportions if this is what you are looking for. It has a black and white dorsal, somewhat resembling the green-eyed rasbora, and similar markings on the anal fin. The body is very transparent. It tends to flick its dorsal and anal as it turns and cavorts in the water, and the appearance and disappearance of the black and white features add much interest to the passing scene. This is a species which tends to get a little chubbier as it grows, and the glass-like contours of its body then radiate like real gemstones. Under certain water conditions the colouring of the fins tends to vary, from colourless to pink.

This is not an obtrusive fish, but it is hardy enough and will hold its own in competition with larger species. It certainly looks that much better as it grows, and even though it only reaches about 2 inches it is really much more than just a silvery fish. In the larger sizes they are prominent enough to be kept just in pairs, and you will find that even then they will tend to stay around for quite a while, as they number amongst the longer-lived fishes which are commonly available to us.

Rasbora trilineata, or the scissortail, is a species which seems rather to have grown on us, as it is much more popular nowadays than it was when it first hit the market. It is a very glassy, shiny, elongated fish with a yellowish tail distinctively barred with black. The two lobes draw together and then away from one another as the fish swims, and the opening and closing action, suggesting scissors in

action, accounts for the popular name. These fish are commonly offered for sale at about the 1½ inch mark, and at this size are almost irresistible, but they can grow much larger, and then become somewhat more than the secondary character which this article makes them out to be in their junior stages. They are charming enough even then, and you may find it possible to associate them with your smaller species at first and then transfer them to collections of more substantial species when they have achieved adulthood. They are not fussy in any way, and as they are vivacious by nature, they give a sense of movement to the tank, and may well be just what you are looking for to enliven that collection of staid and possibly overfed specimens whose charms are beginning to wane.



Hatchet fish have always been favourites of mine, and it will be found that the silver hatchet (*Gasteropelecus levis*) provides a pleasing background to surface fish. For some odd reason there seldom seem to be young hatchets available, and we are usually confronted with sizable specimens at about the 2 inch mark. In the collection of small tetras hatchet fish of this size may outweigh their decorative value, but are excellent with fishes which normally grow to 3 or 4 inches. They have no bad habits and are not demanding in themselves, though some aquarists complain that they are short-lived. I hardly agree with this latter opinion, as I have had some specimens for appreciable spans, but I think that what often happens is that their owners forget that they are surface feeders and expect them to get their fair share of food by normal processes. This is fair enough in the case of floating dried food, but when live food is being offered it sinks rapidly and the poor wretched hatchets don't really stand much of a chance. It is therefore wise to feed live food specially to the hatchets, and I have found that a medicine dropper is ideal for

the purpose. One big squeeze at one end of the tank will entice the main shoal of fish to feed there, and whilst they are in the process of accepting the invitation, you can dole out small helpings to the surface feeders elsewhere by means of a succession of tiny ejections. In season, greenfly are a useful variation in diet, and at all times an effort should be made to feed with as much insect food as possible, because in natural conditions their diet would consist almost solely of this.

The silver-tipped tetra (*Hasemanina aeneus*) is one of the smaller recommendations one can always make: it grows to a little over an inch. It is a rounded rather than pointed little fish, with olive overtones on a basic silver. The dorsal, ventral and tail fins are heavily tipped with white, and there is a horizontal black bar pre-

ceding the latter. Obviously, these are quite lost in pairs and you certainly need a half-dozen or more to make any sort of a success of them. In quantity they make a lively moving shoal, but tend to slacken off if retained as singles or pairs. The colouring seems to vary somewhat, and some seem much more olive than others. It may be that they darken with age. I must admit that I have not found them to be very long-lived, but this may have been because I do take chances in associating small fish with large ones, and they may have fallen foul of some predator which I have never actually caught in the act! Other aquarists seem to have a very high opinion of these tiny creatures, and I hope that my slight personal reservations will not put anyone off, as they are really an acquisition.

Mr 'Les' Jordan

It is with a feeling of deep personal regret that I have to announce the death of Mr L. Jordan, on 20th February, after a long illness.

'Les' gave many years of service to the affairs of the Three Counties Group before being elected to the Council of the FBAS in 1971. In 1973, he became vice-chairman of the Federation, but because of his illness, did not stand for re-election in 1975. During his term of office, he undertook an extensive research project, which resulted in his compilation of the list of 'Programme Aids to Societies'. He became known on the Council as a sincere man of high integrity, and was greatly respected by all.

I am sure that all members of the FBAS will join me in extending to his wife Natalie, and his family circle, our deep condolences in their sad loss.

F. C. TOMKINS,
Chairman, Federation
of British Aquatic
Societies

I FIRST met Les Jordan at a fish show in 1967, where he had just won Best Fish in Show with a blue acara. With him were some of his family, who he had gained awards; so began

Mr L. Jordan



an association which would bring us into contact more and more frequently. Les was always a leading light in the Three Counties group, being chairman, and Natalie his wife being secretary. They always provided a calming and moderating influence on the more radical minded members. Always at all the functions in his area, representing his club, Bracknell, of which he was a founder member, he was always

pleasant and happy.

He was instrumental in Maurice Carter and myself becoming Federation judges. Always looking forward, Les himself was elected to the FBAS Council in 1969 and put in useful work for 6 years until retiring last year as vice-chairman. He produced, after many hours of painstaking work, the Federation's Programme Aids information sheets, which have proved invaluable to many societies.

Les was a great supporter of The Aquarium Show at the Royal Horticultural Society's Hall, and his Society twice won first place in the Tableaux Competition, due in no small way to the effort he put into it. In 1971 he started, with the help of his family, to produce the 'Harlequin', a magazine for his Society with news concerning all the Three Counties clubs, a task he carried on with until recently when poor health forced him to delegate the responsibility to others.

My wife was a great fan of Les: she thought he was such a gentleman, a type all too rare these days. He was always available with a kind word or suggestion and he welcomed magazine exchanges and helped many new editors of other club magazines with good advice, and usually an article as well.

I know my own club regrets his passing; always a long-time friend of ours, and many happy hours have been spent together. I regret the loss of Les, who was not old by today's standards. He will certainly be missed by his club, Three Counties Group, the FBAS and by all who had contact with him.

ADRIAN BLAKE,
Basingstoke AS

HIS many friends will be sad to learn of the death of Les Jordan, Council member and former vice-chairman of the FBAS. Les' activities in the fishkeeping world were long and varied. A founder member of the Bracknell AS in the early 'sixties, he instilled a pioneering spirit into the members, mostly novices like himself. His enthusiasm was such that not only was he successful in the open show world, but had his wife Natalie, his children and their spouses following in his footsteps.

Les conceived the Bracknell 'Harlequin' newsletter, produced it, printed it and as editor distributed it far and wide. This was his brainchild and he was greatly distressed by his inability to continue publication at the latter end of last year.

A quiet unassuming man he was quick in learning from his own experiences as well as from the 'experts', and always came to sensibly balanced conclusions. He was well respected by societies in the Berks/Oxford/Hants area, to whom he would travel on the foulest winter evenings, health permitting. He was a great supporter of Tableaux at The Aquarium Show and his efforts were instrumental in the production of several successful entries notably Dougal and the Magic

Roundabout — complete with original soundtrack.

Les was a FBAS council member for many years and undertook the daunting task of producing the schedule of programme aids distributed to our affiliated societies. This entailed a vast amount of research and, as he put it, it was like painting the Forth Bridge.

Much more could be written, but by his deeds let us remember him.

R. A. DOVE,
Treasurer, FBAS

AquaGLOSSARY

A PFM guide to the meanings and accepted pronunciation of the scientific names of aquarium subjects, arranged by word-roots in alphabetical order

- Aequi** (Latin): equal, even. Pronounced 'ek-wee'. The cichlid genus *Aequidens* ('ek-wee-denz') has a name denoting 'even teeth' (*dens*, Latin: tooth).
- Aplo** (from haplo, Greek): single. Pronounced 'ap-low'. For example, the killifish genus *Aplocheilichthys* ('ap-low-ky-luss'); the closed mouth appears to have a single lip (*chilo*, Greek: lip). See also **Haplo**.
- Buno** (Greek): mound. Pronounced 'bew-no'. In the genus name *Bunocephalus* ('bew-no-keff-al-uss') of the banjo catfish the prominence of the head is indicated (*cephalo*, Greek: head).
- Gramm** (Greek): line. Pronounced 'gram'. In reference to body markings or the lateral line in fishes the root occurs, for example, in the genera *Apistogramma* ('a-pis-toh-gram-mah') and *Hemigrammus* ('hemmy-gram-uss') with the literal meanings 'inconstant line' and 'half-line' (*hemi*-Greek: half) respectively; also the marine *Grammistes* ('gram-miss-tees').
- Haplo** (Greek): single. Pronounced 'hap-low'. For example, the cichlid genus *Haplochromis* ('hap-low-krow-miss'), meaning single coloured (*chroma*, Greek: colour). See also **Aplo**.
- Rostris** (Latin): beak. Pronounced 'rost-ree'. Used when the snout or 'nose' of a fish is described. For example, the trivial name of *Ctenopoma acutirostre* ('ten-oh-poh-mah ac-kew-tee-rost-rer') means 'pointed snout' (*acuti*, Latin: pointed). The seahorse *Hippocampus brevisrostris* ('hip-poh-camp-uss brevvy-rost-riss') has a short snout (*brevis*, Latin: short), the long-nosed butterfly fish (*Forcipiger longirostris*: 'for-kee-pee-gur long-e-rost-riss') has a long snout, as does *Oxymonacanthus longirostris*: ('ox-e-mon-ah-kan-thuss long-e-rost-riss') longi, Latin: long).

Forming an Aquatic Society

By FRANK W. ORME

FOLLOWING the announcement in the January issue of *PFM* of the formation of Associated Goldfish Societies two types of enquiry have been received by the secretary of this national organisation. The first is from readers who wish to join as individual members. As was stated in the original article—this organisation is for goldfish societies only, irrespective of size, and does not, therefore, cater for the individual goldfish keeper. It was suggested that individual goldfish keepers should form themselves into groups and then apply for membership of the A.G.S. to the secretary, Mr F. R. Close, 154 South Road, Handsworth, Birmingham.

This latter suggestion has resulted in the second type of enquiry, namely—how does one set about forming a specialist goldfish society? The following is offered, as guidelines, to readers who may be contemplating the possibility of forming a society.

Obviously the first essential is to make contact with fishkeepers who share your interests and would be willing to join the proposed society. In order to make contact place advertisements in the local pet shops asking interested people to get in touch with you. These advertisements can be extended to the local press and aquatic magazines. If you know any fellow hobbyists be sure to approach them. The next step is to arrange a suitable time and meeting place with those who have replied; initially, if the numbers are small, this could be at one of the homes.

Draw up a rough agenda for the meeting, keeping it as simple as possible. This need be nothing more than rough headings of those points which you think should be discussed, such as: how often should meetings be held, also where and when; how much should the membership subscription be (this will probably need to be at least £1.50 per annum), will juniors be admitted and, if so, how much would their subscription be; is the number of members to be restricted, or is it to be unlimited?;

what society officers should there be—a full committee comprising a chairman, secretary, treasurer and committeemen or merely a secretary/treasurer who might also act as chairman? (it could be that something between the two would suffice).

It will also be necessary to draw up a 'constitution' setting out the 'aims and principles' of the society. Finally, a title for the proposed society is required (keep this simple but descriptive of the society's interests).

Having gathered the interested parties together, and made them feel welcome, put your proposals before them and invite discussion of each. Be prepared to listen and amend your suggestions according to the majority opinion. Take careful note of these alterations and at the end of the meeting read them back, to make sure that the visitors agree with your notes. Before the meeting breaks up arrange the next; this will be the Inaugural Meeting, when the proposals will be finalised and the committee elected. Also make a point of asking your visitors to inform their aquarist friends of the proposed new society and invite them to attend the inaugural meeting. Remember that the decisions taken at this next meeting will be binding unless varied at the Annual General Meeting (or possibly a specially convened Extra-Ordinary Meeting).

The Annual General Meeting is, usually, the last meeting of the season. At this time the chairman will address a few remarks to the members, the secretary will give a report upon the progress of the society and he/she will be followed by the treasurer, who will give a statement of the financial position—giving a summary of income and expenditure. Each of these reports should be open to questions from the members. This is also the time when subscriptions can be revised and a new committee elected.

The ordinary meetings should, of course, be devoted to subjects that are of interest to the members and can be in the form

of talks, discussions, slide shows, quiz session and table shows of the members' fish. In addition social outings can be arranged to places of interest to fishkeepers; this allows each member's family to share in the society's interests, even though they may not be interested to the same degree. I would strongly suggest that meetings should be as informal as possible and the business of the meeting kept to a minimum—a friendly atmosphere should be encouraged at all times.

A very brief outline of the 'constitution' of the Society to which I belong will illustrate the above:

'The committee shall consist of chairman, secretary, treasurer and two other committee members.

'Meetings shall be bi-monthly, on a Sunday afternoon, at a venue accessible to the members. The A.G.M. to be held during November.

'Members shall not be discouraged from belonging to any other society.

'All members, irrespective of experience, shall be treated equally. Information and assistance will be made freely available to all members.

'All major decisions shall be decided by the members; to this end committee meetings will be convened only as necessary.

'The society will work to promote friendship and understanding between all goldfish enthusiasts and will encourage the popularity of the goldfish in all varieties.'

As can be seen, the 'charter' has been kept simple yet explicit. The subscription for an individual adult is £1.50, for husband

and wife it is £1.75 and for juniors, up to the age of 16 years, 25p. In addition each member pays 25p each time a meeting is attended. A notice of the next meeting, together with a duplicated 'News Bulletin', is sent out six times a year. Members supply stamped and addressed envelopes, which helps to conserve the society's funds. The application forms for membership of the society ask for the name and address of the applicant, also what varieties of goldfish are kept and whether they are bred. From this information details are extracted and included in the list of members, which is sent out during March. Members seeking a particular variety of goldfish are thus able to learn which member to approach for young stock.

I do not suggest that this is the only way to go about forming a new society. The method adopted is of little consequence if a firmly based society results. The added interest and friendship that results from belonging to a group, in which the members share a common enthusiasm, adds greatly to the pleasure of the hobby.

Is it too much to hope that, after readers realise how simple it is to create a society—if they are prepared to make the initial effort, we shall see many more fishkeepers forming themselves into groups? New goldfish societies can apply for membership of the Associated Goldfish Societies to the secretary, and be able to contribute towards the aims of this national body. Perhaps, in the future, we may see a specialist goldfish group thriving in most areas of the U.K.?

Growth Rates and Capture Rates

A SHORT time ago a headline in The Sunday Observer read "Now it's the Bass War". This news item stated that a new fishing war was in the offing, between angling conservationists and trawlermen in the West Country, where fishing methods are threatening to wipe out stocks of the bass. For years anglers have waged war on their own kind for the unnecessary slaughter of 'school' bass, immature fish that spend the first few years of their lives in the relative safety of Britain's estuaries and creeks. Now that the angling fraternity have been educated into returning all

but the best of their catches to the water, disaster has struck on a far greater scale.

Early in the year, three trawlers fishing for mackerel in Mounts Bay, Cornwall, returned to Newlyn with holds full of bass. They had taken the shoals by mistake, using mid-water trawls and sophisticated detection equipment developed purely for mackerel fishing. The catch of 1,880 stone realised the incredible price of £15,461 on the market. In France the bass

Continued on page 580

COLDWATER SCENE



By **FRANK W. ORME**

● ***If only goldfish reproduced like 'peas in a pod'!*** ● ***Coldwater groups***

LAST September in PFM this column gave brief mention to an article by Mr L. F. Clements in 'Fancy Talk', a bulletin produced by the Association of Goldfish Breeders. I summarised the article as follows: 'Mr L. F. Clements puts forward his view that if water can be maintained in a healthy condition for an indefinite time in marine tanks, then the same principles can be applied with equal success in the coldwater set-up. If applied correctly, he reasons, it becomes virtually unnecessary to change the water — a task that can become quite burdensome and is, he thinks, the reason why many give up the hobby when they reach an age that should allow more time for the pleasure of goldfish breeding. Mr Clements explains his methods, and provides working drawings of such items as a biological filter and an ultraviolet bactericidal unit'.

This was later referred to by Arpee in 'Personal Comment' (PFM, January), in what I thought was an unnecessary counter-argument against someone who was trying to make fishkeeping easier — irrespective of whether his approach was right or not. Would anyone dispute that it is owing to people who are prepared to experiment — often in the face of critics — that fishkeeping has become more pleasurable over the years, especially in the tropical fish world? Would they do away with the various filters that are available in favour of more water changes?

On the subject of goldfish Arpee was very wide of the mark! Imported goldfish, I agree most emphatically, are usually of inferior quality and often diseased. However, home-produced fancy goldfish are far from being 'rubbishy'. The number of establishments that are capable of breeding goldfish in commercial quantities are few; most fancy goldfish are bred by amateurs who just do not have the facilities for large-scale breeding. Owing to the strict culling that must be practised only

the best are retained for growing on — there is just no point in wasting food and space on inferior fish. A visit to one of the larger open shows that cater for fancy goldfish would reveal the number, quality and fitness of the specimens being bred.

To adopt rule-of-thumb techniques would not be the way to improve the quality of stock. Some form of line-breeding must be practised together with strict culling and selection of the young. To infer that the quality of goldfish, in general, is so utterly poor does the goldfish hobby a grave dis-service.

How I wish that the goldfish produced 'peas in a pod' like so many of the tropical fish do — how much easier would the task of producing goldfish be, even with the regular changes of water that most goldfish keepers practice, and at far more frequent intervals than the average keeper of tropicals! Regular readers will recall my oft-repeated phrases: 'Cleanliness is next to godliness in keeping fish' and 'far better to produce a few fish of decent quality, of which you can be proud, rather than many inferior specimens that do you no credit'.



At the time of writing, I understand that the British Koi-keepers Society are giving serious consideration to staging a National Koi Open Show in the Midlands. When I have further information, and if the B.K.K.S. decide to go ahead with the proposal, I will give fuller details of the venture. A specialist show, such as this, is to be encouraged and supported; it would be of great interest and would without doubt draw many more koi enthusiasts into the ranks of the Society. There must be at least as many enthusiasts of the coldwater fish — in its differing forms, who are not attached to any organised group as there are members of the various



These koi (each about 10 inches long) are British-bred specimens from Cornwall's Geen Mill Fish Farm, exhibited at last year's National Koi Show: left, Hikari mono (2 years old) from a male platinum Kohaku X female Doitsu; Shiro Bekko; centre, pink Sanke (3 years old); right, blue Sanke (3 years old)

societies. With adequate publicity in the right places this type of exhibition, open to the general public, will attract many who are not even aware that our specialist groups exist!



In a later issue of PFM I hope to give a list of the various coldwater societies throughout the U.K. This will assist those readers who would like to join a group in their area. I think I know most of the societies, but, just in case there are some that I am not aware of, it would help if details of the name and address of the secretaries of these groups could be sent to me. Without this information it may be that some could be left out and, pos-

sibly, this could deprive potential members of the knowledge that there is a coldwater society in their area. It is up to readers to draw the attention of their society secretary to this request — if they would like the publicity.

On the subject of letting me have information, I do receive the occasional news letter from some societies. However, the Public Relations of the B.K.K.S. is without equal. Without fail, a copy of their bulletin is sent to me, each time it is issued. This contains most interesting reading matter, and I have seen it develop from a duplicated publication into a most professional printed booklet. If the Society members enjoy reading it as much as I do, then the effort put into this production is amply repaid!

Growth Rates and Capture Rates

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is regarded as a delicacy and the entire haul was in Paris the following day.

Now the boats, it seems, find it easier to ignore the less profitable mackerel in the hunt for fortunes while the bass stocks last. What has particularly alarmed anglers is that the Mounts Bay bass averaged 12 lb. each, and it takes at least 15 years for bass to attain that weight. When

thousands of bass of these proportions are taken from the sea in one swoop, it takes a further 15 years to replace them. Members of the Bass Anglers Sportfishing Society are demanding more control over commercial catches, but the Ministry of Agriculture and Fisheries size limit of 10 inches leaves them with very little hope.

Mid-water trawling eliminated the vast shoals of herring from the West Coast of Scotland in just 2 years, and the bass could suffer a similar fate, unless steps are taken to protect them.

F. W. Orme

Less-Common Livebearers—the Limias



Poecilia (Limia) melanogaster

By J. ELIAS

Photographs by the author

ALMOST every aquarist starts off by keeping the livebearing toothcarps. They are easy fish to keep and breeding usually presents no particular problems. Nowadays there is a whole range of popular species and a great number of varieties bred from them. The word 'livebearer' immediately brings to mind a few well-known species such as the swordtail (*Xiphophorus helleri*), the platy (*Xiphophorus maculatus*) or the guppy (*Poecilia reticulata*). But outside the usual limits of the very popular species there are a whole lot of fishes usually kept by only a few enthusiasts that merit attention. Two of these fishes are the blue and the hump-backed limia (*Limia melanogaster* and *Limia nigrofasciata*).

I have kept these species for years and do not, to be frank, remember where I got them from. My interest was aroused by the fact that I had not seen them around. I particularly wanted to know why there

were so few of them to be found for sale — whether it was because of limited demand or because they were difficult to propagate.

Limia melanogaster is a lively little fish — I'd really not seen so much movement in a livebearer before. The colouring cannot really be described clearly — the fish lacks all trace of red but is far from colourless. The ground colour is olive brown and there a velvety black fleck at the root of the tail. The female carries a blue gravid spot which remains even after the young have been expelled. Gleaming green-blue scales are scattered along the sides of the fish. The root of the caudal is bright yellow, its end bordered with black; the dorsal is laced with black.

We see from the literature that *L. melanogaster* comes from Jamaica and certain limited areas in Haiti. Statements about the size of the fish vary slightly. Mr K. Jacobs quotes 1½ in. (4 cm.) for the male and approximately 2½ in. (6.5 cm.)

for the female; Professor Sterba gives 1½ in. (3 cm.) for the male and nearly 2½ in. (6 cm.) for the female. With my own fish, which I keep in a fairly large tank, both sexes grew to around 2-2½ in. (5.0-5.5 cm.) and even after experience with several generations I couldn't say that this or that sex was the larger.

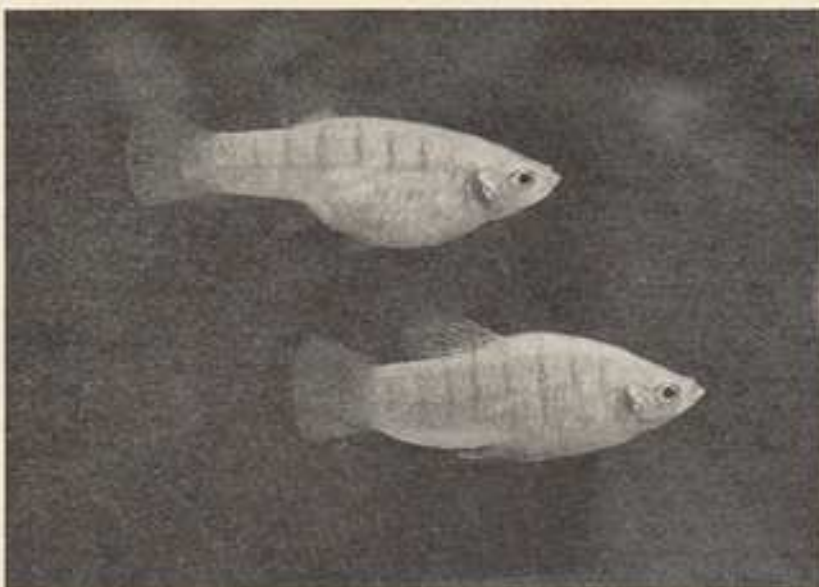
The blue limia is relatively easy to keep but it does require a varied diet and frequent changes of food. Live food is particularly welcome, but dried food is acceptable over a long period. I would recommend keeping them in a large aquarium, with normal tap water (not acid) at a temperature between 70° and 77°F (21-25°C). To look after them successfully though, special precautions must be taken against the devastating effects of the males' high spirits. One partner will hunt his companion with such eagerness or liveliness that the latter continually jumps out of the tank. Unless the tank is covered completely, with a piece of glass cut to frame size or with a really close-fitting lid, we soon have all the males together in the tank and all the females on the floor!

For breeding, a small spawning tank is sufficient, into which the female should be placed before she is quite ready to spawn. It is necessary to isolate her at this time so that she is not constantly hunted by the males. If this is not done, the young

are born prematurely and the numbers are well down. The fry are quite big and active and by the second day they can take chopped up tubifex or crushed dried food. A brood might consist of from 10 to 40 young but one can't be dogmatic about this.

When in good condition and well cared for the blue limia is a delightful fish. *Limia nigrofasciata* (Regan, 1913), also from Haiti, is a somewhat more modest fish. In the aquarium, the female usually grows to 2-2½ in. (5.0-5.5 cm.) in length, the male being somewhat smaller, about 1½-1¾ in. (4.0-4.5 cm.) long. An adult male has a 'hump' to his back and is rounded in front of the caudal root. The black fleck on his dorsal is also interesting. The background colour is light brown to dark yellow, and there are eight or nine dark thin bands along the sides.

The requirements for looking after these fish in the aquarium are basically the same as with *L. melanogaster*. When frightened, or when danger threatens, they are very nimble — at other times one would describe them as almost static. The males, too, are quieter in their courtship and give the impression that they really pay court to their partners. And they exhibit what might almost be called jealousy in the real sense of the word, with the strongest male quite drastically chasing off any rival from his territory.



Poecilia (Limia)
nigrofasciata:
male below

Two of fish resulting from a cross between *Poecilia nigrofasciata* and *Poecilia reticulata*. The male is the lower fish. (Photographed by Dr. H. J. Franke)



According to some sources, this species is not sensitive to water changes but whenever this takes place I would recommend a gradual acclimatisation. Then, with a considerate approach to the fish, there need be no problem as to their fate. The details of water conditions in my aquaria are as follows: S° DH; pH 6.8-7.2; tem-

perature 72-79°F (22-26°C). In the spawning tanks the temperature is raised to about 77-81°F (25-27°C).

Crosses between these two species are possible and the illustrations include one showing the result of just such a cross, in a photograph taken by Dr H-J. Franke from Gera.

Meetings and Changes of Officers

ASSOCIATION OF GOLDFISH BREEDERS. Secretary, Mr L. F. Clavens, 22 Leigh Avenue, Redbridge, Midd. T54 5PH, Essex; 01-551-3029. Meetings: third Monday in month, 8.00 p.m., 23 Leigh Avenue, Redbridge, Midd. Essex.

CONVENTRY POOL & AQUARIUM SOCIETY. Chairman, Mr D. Hancock; secretary, Mr R. Cocker (59 Kensington Road, Levens, Coventry); phone 0273; show secretary, Mr T. Emms; treasurer, Mr C. Hinde; vice-chairman, Mr F. Wood. Meetings: second Tuesday of month, 7.45 p.m. Change of name to The Heath Hotel, Colehill Road, Coventry.

WIDENFELD TFS. Chairman, Mr J. Durrant; secretary, Mr D. Brook, 3 Widenfeld Park Avenue, Taylor Hill, Widenfeld; treasurer, Mr D. L. Harris; P.R.O./editor, Mr I. J. Bangham; show secretary, Mr M. Wood, 17 James Grove, Bracknell, Huddersfield; catering officers, Mrs T. C. Sargent and Mrs S. Huntington; treasurer, Mr F. Huntington; vice-chairman, Mr C. Smallwood; assistant show secretary, Mr C. Wood; junior member, Mr. Walter C. Hamp.

ICHIBAN RANCHU SOCIETY, New Society. Secretary, Mrs E. Davidson (14 Garnetts, Takeley, nr. Bishops Stortford, Herts, CM22 6RJ; phone Bishops Stortford 870305).

IRISH TROPICAL FISH SOCIETY. President, Professor J. N. R. Grainger, B.A., M.Sc., Ph.D.; vice-presidents, Mr Hedley Wright and Mr J. Tyrrell; chairman, Mrs A. Keenan; secretary, Mr N. T. Bannister (13 Maryfield Crescent, Artane, Dublin 5); treasurer, Mr S. Mooney.

LEWISHAM AS. Change of name. See under SOUTH EAST LONDON AS.

MIDLAND AQUARIST LEAGUE. Officers: Mr T. Parry (Loughborough), Mr R. Tedds (Bedworth). Secretary, Mrs E. Underwood (Unit 59) (59 Warwick Road, Kenilworth, CV8 1HN; phone 59280).

NEWBURY & DAS. Change of Secretary, Mr R. Townsend (18 Barfield Road, Thatcham).

PETERSFIELD & DAS. Chairman, Mr L. Yates; secretary, Mr W. F. J. Crookford (29 Durlford Road, Petersfield, Hampshire); treasurer, Mr W.

Upton; show secretary, Mr G. Barkham.

PORTSMOUTH AS. Chairman, Mr R. Smith; secretary, Mr P. Braley; treasurer, Miss W. Ryder; show manager, Mr J. Howard; social secretary, Mr E. Salt; table show secretary, Mr W. Ryder; social secretary, Mrs J. Stillwell; vice-chairman, Mr J. Stillwell; assistant secretary & P.R.O., Mr V. Hunt (Caeglas, 120 London Road, Widley, nr. Portsmouth, Hants, PO7 5EW); librarian, Mr I. Young; host, Mr A. Atkinson.

SHEFFIELD & DAS. Secretary, Mrs J. Sanderson (12 Graystones Rise, Ecclesall, Sheffield 11 7JP). Meetings: fortnightly, Mall Coach Inn, West Street, Sheffield 1. New members and visitors welcome.

SOUTH EAST LONDON AS, (previously Lewisham AS); Chairman, Mr J. Walker; secretary, Mr A. Higgins (01-857 0430); P.R.O., Mr C. T. O'Halloran (56 Elford Close, Ferrier Estate, Kidbrooke, London, SE3). Meetings: fortnightly Friday, 7.30 p.m., Community Centre, 141 West Greenwich House.

WHITBY AS. New Society. Secretary, Mrs E. Lofthouse (141 Derwent Road, Whitby, Yorks). Meetings: alternate Tuesdays, 8.00 p.m., Plough Hotel, Baxtergate, Whitby.

Floating Plants in Pictures

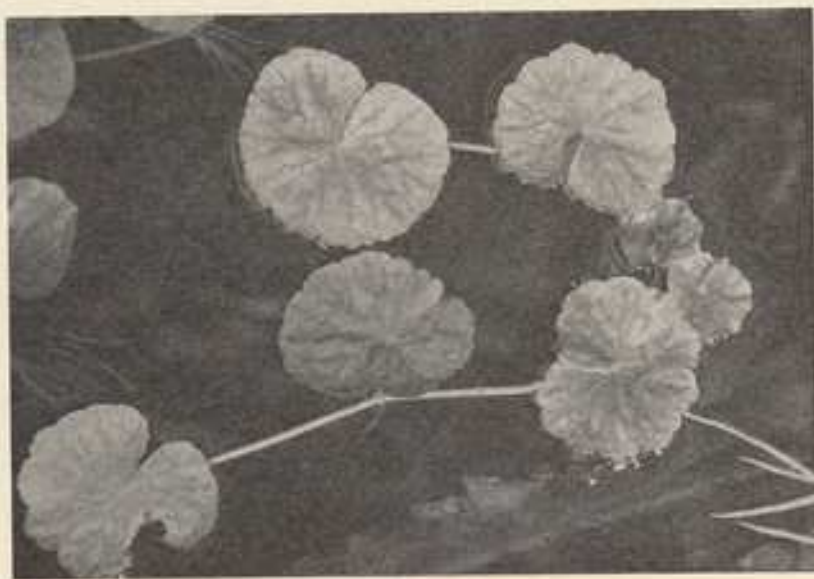


Photographs

by W. TOMEY

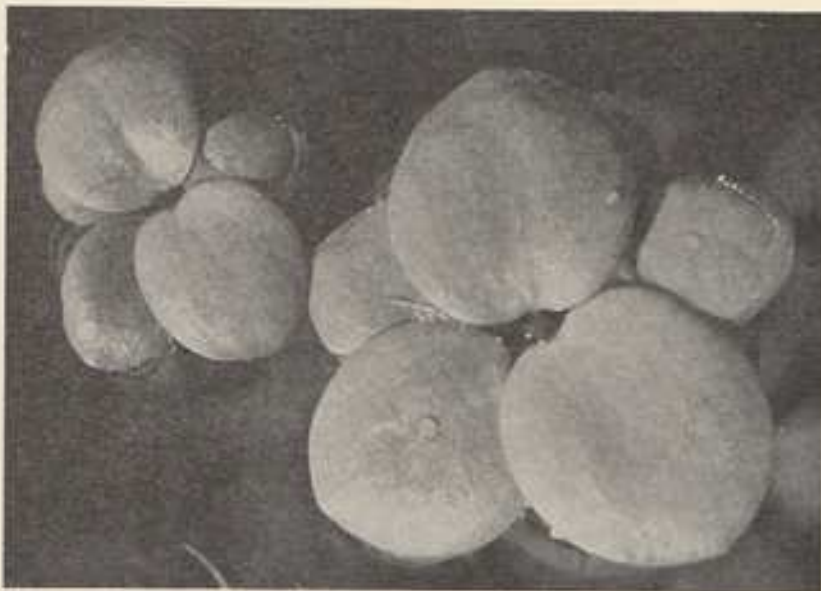
Perhaps the commonest floating plant of all, *Lemna gibba* or duckweed (surface view, enlarged). A very acceptable part of the diet of both tropical fish and goldfish, although it spreads very rapidly if cultivated in ponds or aquaria and should be 'culled' at frequent intervals.

Hydrocotyle leucocephala (below) is a very beautiful aquarium plant with near-circular leaves that grows under water as well as on the surface. Pictured is the floating leaf form (viewed from above). A native of central Brazil, the plant, with its bright green leaves, grows rapidly under strong lighting at a temperature of 75°F (24°C).

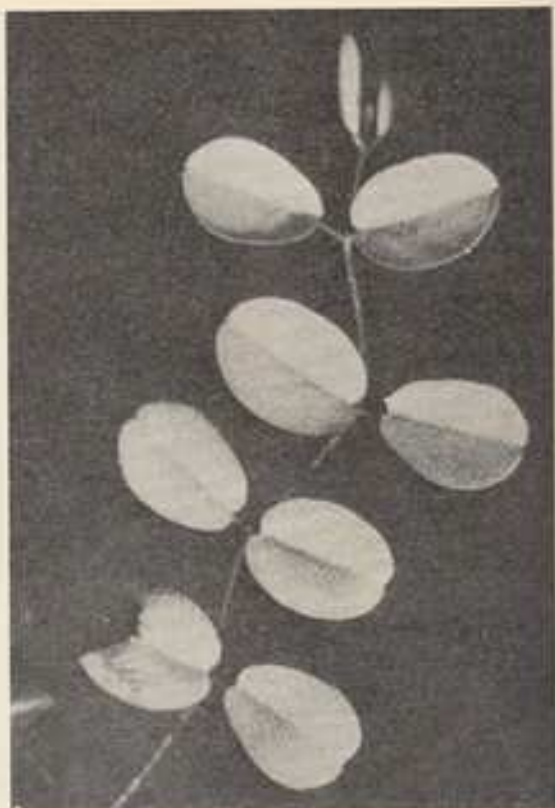
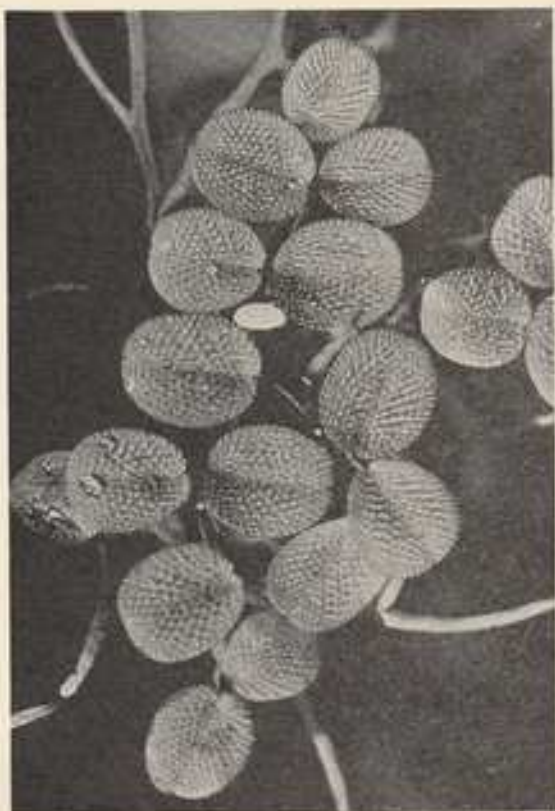


*Hydrocotyle
leucocephala*

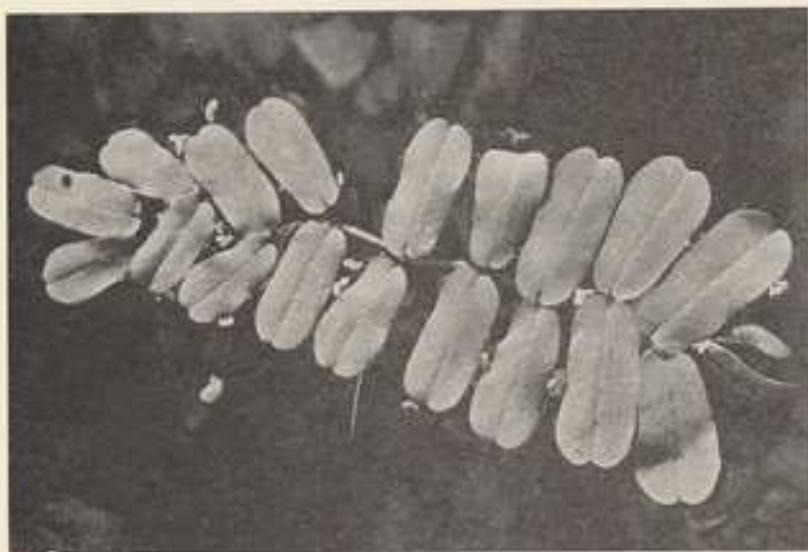
Limnium stoloniferum, South American frogbit, from Mexico, the West Indies and the northern coast of South America, is a plant for the tropical aquarium. Its leaves, on very short stems, form rosettes and its long white roots hang down in clusters in the water. The leaves are rather glossy and drops of water roll easily off them. Propagation is by runners. Pictured from above.



The velvety pale-green, broad-topped leaves of the water lettuce, *Pistia stratiotes*, are seen here on the water surface. The plants are an attractive adornment to the aquarium, but in addition the thick roots that hang down to a length of almost one foot are an invaluable aid in spawning or fry protection. The smaller form (left) is the one most likely to be found in the aquarium. Originally from South America, the plant is now distributed world wide.



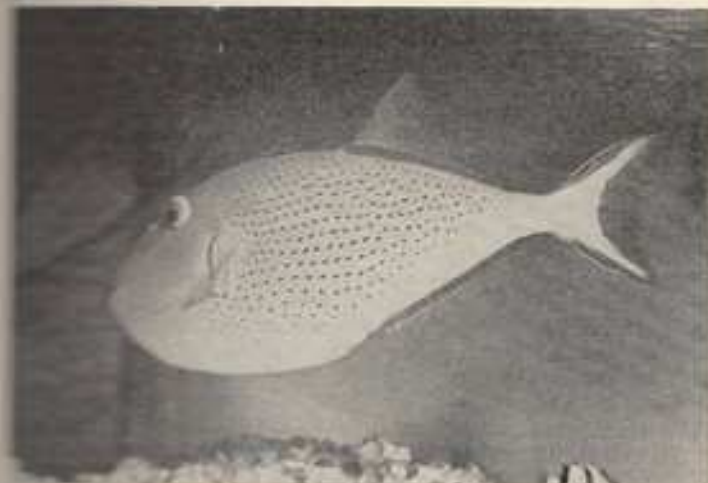
Very rapidly growing surface plants, and for this reason amongst the most popular, are the salvinias: left (above), *Salvinia auriculata* from Cuba and South America has oval to heart-shaped leaves, growing in opposing pairs along branching stems. Right (above), *Salvinia natans* is only sub-tropical and should be reserved for the coldwater tank. Below, *Salvinia oblongifolia* gets its name from its oblong leaves: a native of central Brazil, it adapts easily to aquarium culture though it is less often seen than the other two species. All the plants are photographed from above.



*Salvinia
oblongifolia*

Is it New to You?

Photograph
by CLIFF HARRISON



Sergasso trigger (*Xanichthys ringens* Linnaeus). Differing from the normal trigger temperament, as personified by *Odonus niger*, this fish is a peaceful trigger that does best in a peaceful community tank with such companions as butterflies and the more gentle wrasse. Although not particularly colourful, usually greyish cream overlaid with a brownish patterning, it is nevertheless a nice 'contrast' fish, deserving of more popularity. Photographed in the aquarium at Kingfisheries Ltd, 308 Croydon Road, Beckenham, Kent, who also supplied the details.



At the last meeting of **HOUNSLOW & BAS** members spent an enjoyable and instructive evening listening to a talk given by fellow member Mr T. Bollinbrook. His subject was the East African mouthbrooding cichlids of Lake Malawi. Three particular species were discussed and their tank requirements and feeding habits enumerated. The need for clean conditions and large aquaria for the fishes was stressed since, although not very demanding, they are aggressive and territorial in their habits. Some very good pictures were shown of the fish in all their colours with underwater scenes of their natural habitat in Lake Malawi. One very interesting view showed the fry, miniature replicas of the female parent, emerging from her mouth. The lecture

was followed by an auction of fish and plants. Visitors are always welcome at meetings at St. Stephens Church Hall, Whiton Road, Hounslow, on alternate Wednesdays at 8.00 p.m.

EXHIBITOR of the Year (1975) among **MID-SUSSEX AS** members is Mr A. Holmes (2, Mr D. Soper; 3, E. & T. Tester). Novice of the year was B. Burtles. A membership list of the Society is to be compiled giving the fish kept by each member so that members interested in the same species can get together to talk over problems. At the February meeting a lecture on showing fish was given by Mr C. West. Mr D.

BRIGHTON & SOUTHERN AS have tape and slide shows for hire. Please apply (sae) for details to the vice-chairman, Mr J. A. G. Smith, 51 Eastbourne Road, Brighton, BN2 4DL; phone: Brighton 62407.

Soper judged the table show and made the following awards: Guppies, male; 1, Mr P. Berry. Guppies, female; 1 & 2, E. & T. Tester; 3, Mr P. Berry. Guppies, pairs, 1 & 2, Mr P. Berry.

MEMBERS came from all over the south east of England to attend the S.E. AREA CICHLID GROUP meeting of the **BRITISH CICHLID ASSOCIATION**. An interesting talk on cichlids (with slides) was given by Mr Ian Sellick, showing fish that members might not be lucky enough to see on general sale. Mr M. Strange of Basingstoke AS informed the meeting of the proposed Basingstoke AS Cichlid Open Show and asked for any ideas that could be incorporated into the Show and also for persons willing to participate. The next meeting is to be held on Sunday, 25th April at the Arundel Cricket Club (on the A27) at 3.00 p.m. Non-members are very welcome and secretary Mr C. Thorpe (c/o 50 Denham Road, Burgess Hill, Sussex) will be pleased to

give any further details required.

FOLLOWING the success of their last year's Open Show, the **CATFISH ASSOCIATION OF GREAT BRITAIN** will be having another display of unusual catfish at this year's Show on 10th April, at St Saviours Church Hall, Cobbold Road, London, W.12. The theme for this year's Exhibition will be based on some of the larger members of the South American catfishes. The Exhibition will be open from 12 o'clock and all visitors will be welcome to go along.

At a recent meeting members participated in a quiz organised by Mr D. Lambourne of Riverside and Mr D. Allison of Hendon. It was a very interesting and entertaining evening as members watched 150 colour slides and answered 102 questions. Details of membership and meetings can be obtained from the secretary, Mr Alan Haley, 255 Lewisham Way, London, SE4: phone 01-692 8296.

AT the February meeting of the **GLOUCESTER AS** held at the Chequers Bridge Leisure Centre, a highly entertaining and interesting talk was given by Mr M. Strange of Basingstoke AS on his own experiences and methods of keeping fish and his attempts to get them up to show standards. There were 18 livebearers benched at the well-supported table show, which once again was won by Mr Timmins, who is reported to be making something of a habit of doing well at both table and Open Shows. At the Society's Open Show on 16th May there will be stainless steel tankards for first places, trophies for seconds and cash prizes for first and second in all classes. Schedules: Mr K. Taylor, 69 St. Johns Avenue, Churchdown, Gloucester (sae please).

NINE FNAS judges will officiate at the **HYDE AS** Open Show that is being held on Easter Sunday, 18th April at the Hattersley Community

Centre, Hattersley Road East, Hattersley, Hyde (near Manchester). The Society is proceeding with the excellent idea of having a talented lecturer (Mr Gregory Sibson Senior Class A judge) to hold a 'Forum' during the Show to lecture and give advice and help to newcomers and hobbyists alike. The coldwater sections and classes have been greatly increased and will be situated in the cooler part of the 'Centre'. £33 in cash prizes is to be awarded plus annual trophies, permanent plaques, commemorative medallions and other prizes. There will also be refreshments and stalls, etc. An 8-page schedule is now available (large sae please) from the secretary, Mr G. L. Danby, 1 Deniston Road, Heaton Moor, Stockport, Cheshire, SK4 4RF (061-432 8817).

WHEN members of the **ASSOCIATION OF MIDLAND GOLDFISH KEEPERS** met at the Foleshill Community Centre, Coventry, the new committee quickly disposed of any business and within a short time members were listening to their vice-president, Mr Tony Roberts, as he explained his views about fancy goldfish. Briefly he believes that the Chinese created the various forms intentionally as works of 'moving art', in the same way that great painters created 'static art' in their pictures, each being a concept in the artist's mind. The end product was a deliberate creation. He does not believe that the various varieties are the result of mutations—maintaining that mutations do not arise so frequently to allow the numerous varieties to have been produced, but are due to man's manipulation. Being man-made, the goldfish is continually trying to revert to the original wild carp form; the goldfish breeder must prevent this tendency by rejecting any fish that exhibits any signs of reversion. He was emphatic that it does not take years to produce good fish; if judicious breeding and selection is practised it is possible to get results in 2—3 years. This latter

point was illustrated by the exhibition of a number of last season's young veiltails and Bristol shubunkins of very good quality. It was stressed that the quality of the adult was very dependent upon how it was treated during its early life; for this reason he could not understand why people who bought young fish, grew them to adults and then showed them successfully, insisted upon telling the breeder that he had won with his fish—it was not the breeder's fish unless the breeder had grown it to show size—and the breeder deserved no credit for what the exhibitor had produced, by good management, from the young fish.

Details of membership and meetings can be obtained from the secretary Mr D. G. Denny, 71 The Moorfield, Stoke Alderman, Coventry. The venue is very easily reached from the motorway and attracts members from a wide area of the Midlands.

MR I. J. Bangham, P.R.O. of **HUDDERSFIELD TFS** writes "The first three meetings of the year have all been attended by well over 50 members and guests. There was the 'Junior' evening, organised by Masters C. Harrop, D. Brook and H. Brook, the evening on which Mr I. J. Bangham, Mr D. Brook and Mr D. L. Harrop spoke on live foods and their culture, and a 'standing-room only' evening for a slide show and talk given by Mr J. Harper of York, entitled 'Amazon Adventure'. Around 150 people attended our first auction of the year, when we sold almost £200 worth of goods. Our new auctioneer gave an excellent performance and Mr D. L. Harrop has already been booked to swing the hammer at our next one. The future holds many more interesting evenings, including this year for the first time a photographic competition. Anyone wishing to enjoy these events will be made very welcome on alternate Tuesdays, 8.00 p.m., at The Invalid Car Club, Mill Street, Crosland Moor, Huddersfield".



FEDERATION NEWS

Mr. Dick Mills writes: "Would supporters and customers of the FBAS AquaTalk Service please note that the officer responsible for bookings and distribution is now Mr Ken Saxby, 5 Rowan Close, Meopham, nr. Gravesend, Kent. To get him off to a flying start, three new titles are announced:

- No. 16 Colouration & Communication by I Sellick, BCA
- No. 17 Keeping Koi by M. Waumsley, BKKS
- No. 18 Anabantids by F. Tomkins

These will be available May/June of this year.

I would like to take this opportunity to thank all contributors and customers of the AquaTalk Service for their support since the introduction of these popular programmes, and sincerely hope that Societies will continue to support and co-operate with the new officer as they have done with me."

September Convention in London

On 11th September the FBAS Convention is to be held in the Lecture Hall, Zoological Gardens, Regent's Park, London, and will be a full-day event with lunch and tea intervals. The main lectures will commence at 2.30 p.m. but films will be provided from before lunch for those who have far to travel and want to make a day of it. Dr Ethelwynne Trewavas of the British Museum (Natural History) is to deliver one of the lectures and confirmation is awaited from the other speakers invited. Application forms and tickets will be available at the FBAS June Assembly—£1.50 for films and lectures—lunch and tea tickets will be extra and must be applied for in advance.

FBAS Open Show Brooch Scheme

As explanation and reminder of the Federation's Open Show Brooch Scheme for the benefit of those aquarists who show at federated societies' open shows but who are not members of an affiliated society will not come under at this time.

First, let me make it clear that the Federation Brooch Award Scheme is open to all aquarists; as with all Federation open show awards one does not have to be a member of a federated society, or even a society, come to that, to win a Federation Open Show Award.

The scheme works in this

fashion: all first-place award cards won at Federation sponsored open shows count as one point towards the brooch scheme. Cards for Breeders, Furnished and Aquascape classes count as 2 points, owing to their special nature. A bronze brooch is won with 20 points, i.e. 20 first-place award cards won at sponsored open shows. A silver brooch is won with a further 25 points plus a bronze brooch; a silver brooch is therefore worth 45 first-place award cards won at sponsored open shows. The gold brooch is won with 30 points and a silver

brooch; the Gold Brooch becomes your property and although it has intrinsic value as gold its true value is the 75 first-place cards it takes to win one. A Gold Brooch will not be easy to win—what of value is? But by introducing the bronze and silver stages into the scheme, fishkeepers will be able to demonstrate their success along the road to the gold.

So you show men and women, set aside those cards that are eligible and add to them this and future years' winnings. When you feel that you have sufficient to win a brooch send them together with a large s.a.e. (to enable them to be returned to you) to the FBAS Brooch Secretary, 22 Flamsted Avenue, Wembley, Middlesex HA9 6DL.

R. Esson

The final list of Open Shows whose award cards will count towards the Federation's Brooch Scheme for 1975 are as follows:

Southampton	31.3.75
Riverside	5.4.75
Medway	6.4.75
Reigate & Redhill	19.4.75
Corringham	19.4.75
Catfish Association	26.4.75
North Kent	27.4.75
Yeovil	27.4.75
Southend & Leigh	10.5.75
Bournemouth	11.5.75
Corby	25.5.75
Havant	1.6.75
Sudbury	8.6.75
Kingston	14.6.75
Dunmow	14.6.75
Llantwit	14.6.75
Gosport	15.6.75
Salisbury	15.6.75
South Shields	22.6.75
Runnymede	28.6.75
Romford	12.7.75
Brighton	20.7.75
Tonbridge	3.8.75
Portsmouth	4.8.75
Newcastle Livebearer	17.8.75
Hounslow	30.8.75
Bethnal Green	7.9.75
Harlow	14.9.75
3 Counties	14.9.75
Hastings	21.9.75
Vauxhall	12.10.75
Walthamstow	16.10.75
Fur, Feather & Aquaria	22.10.75

In Brief...

... **THE MIDLAND AQUARIST LEAGUE**, now composed of eight societies (Bedworth, Coventry, Goodyers End, Hinckley, Rugby Fishkeepers, Loughborough, Leamington and Tamworth K.A.G.), has elected a show committee for the first time with Mr C. Chamberlain of Leamington as show secretary. It is hoped that as many societies as possible will give their support to the four shows this season (each show has six open classes).

... **NEW FOREST AS** have taken the important decision to re-join the Association of Southern Aquarist Societies, which they feel will be of great advantage to them. At the February meeting Mr M. Aust won both the table show classes: for aqs tropical and danios and minnows. Visitors are always welcome at club meetings every third Monday, 7.45 p.m., Community Centre, Lymington.

... THE second meeting in February of **PORTSMOUTH AS** was well suited to the Society's 25th year of existence. Slides were shown of particular interest to the club's history and Mr Howard and Mr Ryder gave members a most interesting illustrated talk on social events throughout the club's existence.

... **MEMBERS** of the **NORTH WEST LANCS/MANCHESTER SECTION** of the **FANCY GUPPY ASSOCIATION** were entertained by a fascinating talk on the preparation and experimentation and hard work that goes into the production of a food for tropical and marine fishes. Dr David M. Ford showed many slides of the colourful fishes that were used in producing Aquarian food.

... A **LARGE** audience of **BRIGHTON & SOUTHERN AS** members enjoyed an interesting lecture from Mr J. Burtles of Mid-Sussex AS on loaches. The first table show of the year attracted a good attendance and winners were: **H:** Mr & Mrs Rooney (81 points); **K:** 1, 2 & 3 Mr & Mrs Rice (75, 72, 69). **J:** 1 & 2, Mr & Mrs Ramshaw (78, 77). Judge was Mr C. West.

... A **VARIETY** of fluorescent tubes was used by Mr S. Lloyd to illuminate his talk on lighting to **BRISTOL AS**, and he demonstrated that the variation in colour of the same fish under differing lights made the choice between truth and novelty, a difficult one. A fish auction completed the meeting.

... A **BKA** slide/tape lecture on killies, with a member of the BKA answering questions afterwards, was judged both informative and enjoyable by **BOURNEMOUTH AS**. The wide range of colours and the variations in this beautiful species were shown clearly on many of the slides.

... **AN** inscribed tankard was presented as a farewell gift to Mr Chris Breittkreutz by members of **GREAT YARMOUTH & DAS** on his return to the USA with their good wishes for his future happiness and good fortune. A large auction of fish and equipment also took place and a discussion held on the problems of fishkeeping.

... **PORTSMOUTH AS** will notify southern clubs by post of details of their inter-club show scheduled for 30th May, Portsmouth Community Centre, Malins Road. FBAS judges will officiate. Last year the shield was won by Gosport AS from 12 rivals and it is very much hoped that last year's contestants will be joined by the eight clubs who were then unable to attend. There will be films for those who do not wish to spend a few hours on South-

sea beach or touring Portsmouth, and of course there will be refreshments.

... A **NEW** society is announced, the **ICHIBAN RANCHO SOCIETY**, and prospective members are asked to contact the secretary, Mrs E. Davidson, 14 Garnetts, Takeley, nr. Bishops Stortford, Herts CM22 6RJ (phone Bishops Stortford 870395).

... **CHANGE** of name is announced for the former **LEWISHAM AS**. The Society is now to be known as the **SOUTH EAST LONDON AS** and there is a change of meeting place to the Community Centre, 141 West Greenwich House, on fortnightly Fridays 7.30—10.00 p.m.

... THE newly named **CHELTENHAM TROPICAL FISH CLUB** had a very successful first meeting at St. Marks Community Centre, Cheltenham (second Friday of month, L Room, 8.00 p.m.). Chairman Mr M. Bishop welcomed new members to the slide show of fish and plants.

... **MR K. A. Sey**, retiring secretary of **DUNLOP AKS**, was presented with a tankard with the sincere thanks of the membership for his services to the Society. There were 107 entries for the table show judged by Mr T. Horrocks (Oldham) and Mr R. Johnson (Hyde) both FBAS 'B' class judges. Awards (plaques) went to: Best in Show, Master I. Hopkins; best junior, livebearer, Master D. Edwards; best junior, egglayer, Master I. Hopkins; best pair, Master I. Hopkins.

... A **BRING-and-Buy Sale** is being held by **LINCOLN & DAS** on 26th April at the Liberal Club, St. Swithins Square, Lincoln (15% to Society).

... **ABOUT 78** members and friends of **STROUD & DAS** attended the February meeting to hear guest speaker Fl/Lt Bob Eccles, a pilot in the Red Arrows aerobatic team, talk on

the history of this famous group and show three films about their activities. Younger members in particular had many questions for him to answer at the end.

FELLOW - members of **BASTINGS & ST. LEONARDS AS** judged the talk by Mr Graham Pryke on fish houses both highly amusing and extremely informative. The lecturer particularly stressed the importance of good insulation. At the second February meeting the **FBAS** slide/tape show 'The verdict is Yours' by Mr C. Brown gave an idea of what judges like to see on the Show bench. Table show winners were: Y and Ag: 1, 2 & 3, Mrs A. Adams M: Mr C. Pannell, H: Mr C. Pannell.

THE TYNE-TEES AREA ASSOCIATION (FBAS) reports that it is hoping to stage a festival in the Lamton Lion Park during the August Bank Holiday weekend. Further details of this event will be supplied later.

THE acting secretary of **THURAY AS** has asked for our help in tracing their Class E Trophy. This was won on 22nd September 1974 by Mr T. Cripps, then a member of Basingstoke & DAS and residing at 38 Waterlidge, East Oakley, Basingstoke. Mr Cripps' whereabouts are now unknown, but if he should read this, it would be much appreciated if he would contact Mr F. J. Denning, Thuray AS, 297 Teignmouth Road, St. Marychurch, Torquay, Devon, TQ1 4RT.

A PLEA from the newly formed **WHITBY AS**. Meetings are held on alternate Tuesdays at the Plough Hotel, Baxtergate, Whitby at 8.00 p.m., but the Society has found it very difficult to obtain speakers. Help or advice would be much appreciated and secretary Mrs E. Lofthouse would be glad to hear from anyone by phone or letter: 41 Derwent Road, Whitby, Yorks (Whitby 4299).

Dates for Your Diary

10th April. **YATE & DAS** 10th Open Show. King Edmunds School, Stanshawes, Yate, nr. Bristol. Schedules (1st March): Mr C. Stickland, 20 Budge Close, Chipping Sodbury, nr. Bristol.

10th April. **CATFISH ASSOCIATION OF G.B.** Open Show. St. Saviours Church Hall, Cobbold Road, London, W.12. Schedules: Mr D. Lambourne, 7 Wheeler Court Plough Road, London, SW11: 01-223 2630.

11th April. **COVENTRY P & AS** Open Show. Templars Junior School, Tile Hill Lane, Coventry. Schedules (large see please): Mr T. Emms, 79 Edward Road, Coventry CV6 2QS.

11th April. **BRITISH KOI-KEEPERS SOCIETY, LONDON SECTION**. First main meeting. Conway Hall, Red Lion Square, Holborn, London, WC1. 2.00 p.m. Details: Mr T. Bullock, 150 Ashburn Avenue, Seven Kings, Ilford, Essex.

11th April. **SHEFFIELD & DAS** Open Show. Granville College, Granville Road, Sheffield T. Benching 12-2 p.m. Details: Mr & Mrs E. Stanton, 57 Medlock Crescent, Sheffield 13.

15th April. **HYDE AS** Open Show. (Easter Sunday). Hattersley Community Centre, Hattersley Road East, Hattersley, Hyde, Cheshire. Schedules (FNAS Rules): Mr G. L. Denby, 1 Deniston Road, Heaton Moor, Stockport, Cheshire: 061-432 8817.

19th April. **SOUTHAMPTON AS** Open Show. Avenue Hall, Southampton. Schedules: Mr P. Brown, 215 Spring Road, Sholing, Southampton, Hants.

24th April. **CHINGFORD & DAS** Open Show. Schedules: Mrs S. Harvey, 54 Kenilworth Avenue, Walthamstow, London, E17 4PE.

24th April. **BRISTOL TFC** Open Show. Congregational Church Hall, Newton Street, Stapleton Road, Bristol. Tropical and coldwater classes. Schedules: Mrs M. C. Graham, 24 Romney Avenue, Lockleaze, Bristol BS7 9TW (Bristol 695898).

25th April. **REIGATE & REDHILL AS** Open Show. Blotchingley Village Hall. Schedules: Mr M. Sandford, 5 Victoria Road, Earlswood, Redhill, Surrey: phone Redhill 69339.

25th April. **MIDLAND AQUARIST LEAGUE** Six-Class Open Show. Bulkington Parish Hall, Bulkington, nr. Nuneaton. Details: Mr C. Chamberlain, 2 Stanley Court, Sydenham Drive, Leamington Spa (phone 28957).

25th April. **YEovil & DAS** Open Show. School Hall, Martock, nr Yeovil, Somerset. Details: Mr P. C. New, 73 Lyde Road, Yeovil, Somerset: Yeovil 24225.

25th April. **WARRINGTON AS** Open Show. Parr Hall, Palmvra Square, Warrington. Schedules (FNAS Rules): Mr J. Higham, 42 Hood Lane, Sankey, Warrington, WA5 1EJ: phone 36839.

25th April. **YORK & DAS** Open Show. Melbourne Youth Club, Fishergate, York. Schedules: Mr A. Sykes, 69 London Street, Pocklington, York, YO4 2JW.

2nd May. **BRISTOL AS** Tropical Open Show. Bishopston Parish Hall.
2nd May. **HULL AS** Open Show.

The Blind Institute, Beverley Road, Hull. Schedules: Mr G. Andrews, 4 Church Mount, Sproatley, nr. Hull, N. Humberside (phone D482 811334).

2nd May. **MEDWAY AS** Open Show. Medway and Maidstone College of Technology, Oakwood Park, Tonbridge Road, Maidstone, Kent. Details: Mr C. A. Elliott, Beechwood, 72 Dargots Road, Walderstade, Chatham, Kent.

2nd May. **OSRAM AS** Open Show. Osram Social Club, Refuge Street, Shaw. Details: Mr H. Penhall, 39 Grains Road, Shaw OL2 8HZ (phone Shaw 45418).

8th May. **PORT TALBOT AS** Open Show. Talbach County Youth Centre, Margam Road, Port Talbot. Schedules: Mr A. E. B. Fouracre, 3 Cross Street, Velindre, Port Talbot, West Glamorgan, SA12 1AZ.

8th May. **SOUTHEND, LEIGH & DAS** Open Show. St. Clements Hall, Leigh-on-Sea Essex. Club & individual furnished, aquascopes, marinas, tropical, coldwater and junior classes. Details: Mr D. C. M. Durrant, 172 Trinity Road, Southend-on-Sea, Essex: 0702 810576.

9th May. **THORNE AS** Open Show. Grammar School, St. Nicholas Road, Thorne. Schedules: Mr E. Breakwell, 12 Churchill Avenue, Cemetery Road, Hatfield, nr. Doncaster: phone Doncaster 840546.

9th May. **BOURNEMOUTH AS** Open Show. Kinson Community Centre. Schedules: Mr J. V. Jeffery, 30 Braemar Avenue, Southbourne, Bournemouth, BH9 4JF.

16th May. **GOSPORT & DAS** Open Show. Crofton Community Centre, Stubbington, Hampshire. Schedules: Mrs K. Clarke, 36 Cambridge Road, Lee-on-Solent, Hampshire.

16th May. **MERSEYSIDE AS** Open Table Show. Rainhill Village Hall, Rainhill, Lancashire. Details: Mr J. Bailey, 11 Auburn Road, Liverpool, L1V3 8BJ: phone 051-228 8199.

16th May. **GLOUCESTER AS** Open Show. Details: Mr C. Freshney, 51 Perry Orchard, Upton St. Leonards, Gloucester.

22nd May. **MERTHYR AS** Open Show (CNA/A/FBAS). St. David's Hall, Church Street, Merthyr Tydfil, Glam., S. Wales. Schedules: Mr P. R. Stonehewer, 22 Vernon Close, Penyard, Merthyr Tydfil, Glam., S. Wales.

23rd May. **LINCOLN & DAS** Open Show. Drill Hall, Broadgate, Lincoln. Schedules: Mr D. Driver, 6 Hawthorn Chase, Bunkers Hill, Lincoln.

23rd May. **HAVANT & DAS** Open Show. The Merchiston Hall, Horn-dean, Hants. Schedules: Mr H. Armistage, 74 Park House Farm Way, Leigh Park, Havant, Hants: phone Havant 73192.

30th May. **CHELTHENHAM TFC** (formerly Bishops Cleeve) Open Show. St. Marks Community Centre, Brooklyn Road, Cheltenham. Schedules: Mrs J. Hawkins, 44 Burton Street, Cheltenham.

30th May. **BRIDLINGTON & DAS** Open Show. Hilderthorpe Junior School, Shaftesbury Road, Bridlington, N. Humberside. Schedules (March): Mr P. Robson, 47 Mabson Road, West Hill Estate, Bridlington, N. Humberside, YO16 4SZ.

30th May. **CORBY & DAS** Open Show (FBAS Rules). Corby Civic Centre. Schedules: Mr C. McInnes, 18 Westminster Walk, Corby, Northants, NN18 9JA.

30th May. **PORTSMOUTH AS** Inter-Club Show. Portsmouth Community Centre, Mallins Road, Portsmouth. Details: Mr W. T. Ryder, 202 Kirby Road, Portsmouth, PO2 0QB.

5th June. **WESTON-SUPER-MARE TFC** Open Show. St John's House,

Oxford Street, Weston-super-Mare. Schedules: Mr M. E. Tanner, 8 Byron Road, Locking, nr. Weston-super-Mare.

5th June. **FBAS** General Assembly, 2.00 p.m., Conway Hall, Red Lion Square, Holborn, London, WC1.

6th June. **ACCRINGTON & DAS** Open Show, Antley Methodist Church Hall, Blackburn Road, Accrington. Schedules: Mr S. Walsh, 133 Lam-mack Road, Blackburn, Lancs., BB1 8LA.

6th June. **LOUGHBOROUGH & DAS** Open Show, Bursleigh Community Centre, Thorpe Hill, Loughborough. Schedules: Mr J. S. Purdy, 10 Cleveland Road, Loughborough, Leics.

6th June. **SUDBURY AS** Open Show, Wasps Rugby Club (new venue), Repton Avenue, Sudbury. Schedules: Mr L. J. Brazier, 66 Ormsby Way, Kanton, Middlesex: 01-204 5374.

12th June. **LLANTWIT MAJOR AS** Open Show, Town Hall, Llantwit Major (FBAS Rules). Superior plaques to every class winner, medallions to runners up. Schedules (April): Mr J. J. Edwards, Glenatton, Mill Park, Llanblethian, Cowbridge, Glam. CF7 7BG.

13th June. **HINCKLEY & DAS** Open Show, Westfield Community Centre, Rosemary Way (off Coventry Road A47), Hinckley, Benching 11.30 a.m. - 2.00 p.m. Schedules: Mr E. Baxter, 29 Northfield Road, Hinckley, Leics.

13th June. **NORTHWICH & DAS** Open Show, Hartford Secondary Boys School, Chester Road, Hartford, Northwich. Details (FNAS Rules): Mr N. R. Thompson, 54 Graemere Road, Frodsham via Warrington, Lancs WA6 7LQ (phone Frodsham 327451).

13th June. **SALISBURY & DAS** Open Show, Activity Centre, Wilton Road, Salisbury. Schedules (FBAS Rules): Mr R. F. Adams, 28 Empire Road, Salisbury, Wilts, SP2 9DF.

20th June. **FIRST REDDITCH OPEN AQUATIC SHOW** organised by Delson AS, Abbey Sports Stadium, Birmingham Road, Redditch, Worcs. Details: Mr P. J. Binsley, 25 Plyford Close, Lodge Park, Redditch, Worcs: phone Redditch 67342 evenings.

29 Northfield Road, Hinckley, Leics.

20th June. **ALFRETON & DAS** Open Show, Adult Education Centre, Alfreton Hall, Alfreton. Schedules: Mr K. Dean, 22 Fletchers Row, Nottingham Road, Ripley, Derby, NE3 3BA (phone: Ripley 38021).

20th June. **SWILLINGTON AS** Open Show, John Swanton School, Barwick Road (off York Road), Leeds 15. Benching 12.30 - 2.15 p.m. Details: Mr T. Seaman, 24 Raincliffe Road, Leeds 8, S1B 5LR.

20th June. **SOUTH SHIELDS AS** Open Show, Bellingbroke Hall, Bellingbroke Street, South Shields. Schedules (April): Mr B. Risbridger, 13 Chesteron Road, Biddick Hall Estate, South Shields, Tyne & Wear, NE34 9TW.

27th June 1976. **BOSTON AS** Open Show. Details later.

27th June. **DUNLOP AKS** Open Show, Dunlop Factory, Speke, Liverpool. Benching noon - 2.0 p.m. Schedules: Mr T. Hampton, 3 Madelaine

Street, Liverpool 8 (phone: 051 709 5509).

3rd July. **CARDIFF AS** Open Show, St Margaret's Church Hall, Roath, Cardiff. Details to follow.

4th July. **LYTHAM AS** Open Show, Lytham Baths, Disconson Terrace, Lytham, Lancs. Schedules: Mr P. Ham, 1 Wyndana Grove, Freckleton, Preston, Lancs.: phone Freckleton 632182.

4th July. **SOUTH EAST LONDON AS** Open Show, The Community Centre, 141 West Greenwich House, London, SE. Details: Mr T. Asquith, 49 Central Avenue, Welling, Kent (phone 01-854 0262).

10th July. **BASINGSTOKE AS** Open Show for Cichlids, The Carnival Hall, Basingstoke. Schedules: Mr C. Wells, 271 Overdown Road, Titchhurst, Reading, Berks., phone Mr M. Strange, Basingstoke 67039.

10th-11th July. **ROMFORD & BEACONTRIE AS** Open Show (Dagenham Town Show), Central Park, Dagenham. Schedules (April): Mr R. Jones, 27 Thomas England House, Waterloo Gardens, Romford, Essex.

18th July. **SANDGROUNDERS' AS** Open Show (FNAS Show League), Meads Cop Secondary School, Meads Cop Road, Southport, Merseyside. Details: Mr G. A. Waterhouse, 23 Moss Lane, Southport, Merseyside, PR8 7QR (phone Southport 24743; Mr S. Hooton).

25th July. **BRIGHTON & SOUTH-EAST AS** Open Show and Exhibition, St Barnabas Hall, Sackville Road, Hove, Sussex. Schedules: Mr B. Sayers, 11 Seaview Estate, Southwick, BN4 4AS (phone: Brighton 593851).

25th July. **AIREBOROUGH & DAS** Open Show, Menston Civic Centre, Main Street, Menston, nr. Leeds, West Yorks. Details: Mr S. Hall, 34 Salisbury Street, Calverley, Pudsey (phone Pudsey 74609).

1st August. **TONBRIDGE & DAS** Open Show. Schedules: Mrs. J. Feast, 19 Yardley Road, Sevenoaks, Kent, TN13 1XX.

15th August. **OLDHAM & DAS** Open Show, Werneth Park, Oldham. Schedules: Mr A. E. Chadwick, 341 Broadway, Chadderton, Oldham: phone 061-652 0609.

15th August. **STROUD AS** Open Show, Subscription Rooms, Stroud. Schedules: Mr J. Cole, 13 The Hill, Randwick, Stroud, Glos. (Stroud 4804).

15th August. **BKA SEVERNSIDE** Killifish Show (incorporated into Stroud Open Show), Subscription Rooms, Stroud. Schedules: Mr J. Cole, 13 The Hill, Randwick, Stroud, Glos. (phone Stroud 4804). Open to all.

22nd August. **LONG EATON AS** first Open Show. Details to follow.

25th August. **BRIGHTON & SOUTHERN AS** Open Show and Exhibition, St. Barnabas Hall, Sackville Road, Hove, Sussex. Enquiries: Mr B. Sayers, 11 Seaview Estate, Southwick (phone Brighton 593851).

28th August. **THIRD WELSH NATIONAL OPEN SHOW** and Exhibition of Tropical, Marine and Coldwater fish.

Sophia Garden's Pavilion, Cardiff. Details: Mr C. Turner, 146 Arran Street, Roath, Cardiff. Cardiff 438982.

29th-30th August. **GT YARMOUTH & DAS** Exhibition '76', Tropical and Coldwater Fish, The Hopton Village Hall (on A12 between Gt Yarmouth and Lowestoft).

4th September. **FBAS** General Assembly, 2.00 p.m., Conway Hall, Red Lion Square, Holborn, London, WC1.

5th September. **BETHNAL GREEN AS** Open Show, Bethnal Green Institute, 229 Bethnal Green Road, London, E.2. Schedules: Mr R. Dale, 14 Rutland Road, Wanstead, London, E11 2DY (phone: 01-989 9015).

5th September. **KILLINGWORTH AA** Open Show, Communicare, Killingworth. Schedules: Mr W. Kidd, 75 Hartlands, Bedlington, Northumberland.

11th September. **FBAS CONVENTION**, Meeting Room, Zoological Society, Regents Park, London, N.W.1.

11th September. **KINGSTON & DAS** Open Show. Details later.

12th September. **HARLOW AS** Open Show.

12th September. **MIDLANDS AQUARIST LEAGUE** Six-Class Open Show, Bulkington Parish Hall, Bulkington, nr. Nuneaton. Details: Mr C. Chamberlain, 2 Stanley Court, Sydenham Drive, Leamington Spa (phone 269571).

18th September. **BRISTOL AS** Coldwater Open Show, Bishopston Parish Hall. Schedules: Mr E. N. Bowden, 12 Stoneleigh Walk, Bristol, 4: phone 775355. Postal entries close 31st August.

25th September. **HASLEMERE & DAS** Open Show, Show secretary, Mr L. Wooller, 5 Park Rise, Petworth, West Sussex. Details later.

2nd October. **EAST LONDON A & PA** annual Breeders Show, Apple Road School, Barking, Essex. Schedules: Mr J. London, 41 Maybank Avenue, Hornchurch, Essex.

3rd October. **EALING & DAS** Open Show. Details to follow.

3rd October. **NEWBURY & DAS** Open Show, The Plaza, Market Place, Newbury. Schedules: Mrs S. Cannings, 6 South End, Thatcham (phone Thatcham 64254).

17th October. **MIDLANDS AQUARIST LEAGUE** Six-Class Open Show, Bulkington Parish Hall, Bulkington, nr. Nuneaton. Schedules: Mr C. Chamberlain, 2 Stanley Court, Sydenham Drive, Leamington Spa (phone 269571).

23rd-24th October. **BRITISH AQUARISTS' FESTIVAL (FNAS)**, Belle Vue Zoological Gardens, Manchester.

29th-31st October. **THE AQUARIUM SHOW '76** at the Royal Horticultural Society's Old Hall, Vincent Square, London, S.W.1. Sponsored by PFM. Presented by the Federation of British Aquatic Societies. Aquarium society fishkeeping exhibits invited. Details from the organiser, PFM, 554 Garratt Lane, London SW17 0NY: phone 01-947 2805.

4th December. **FBAS** General Assembly, 2.00 p.m., Conway Hall, Red Lion Square, Holborn, London, WC1.

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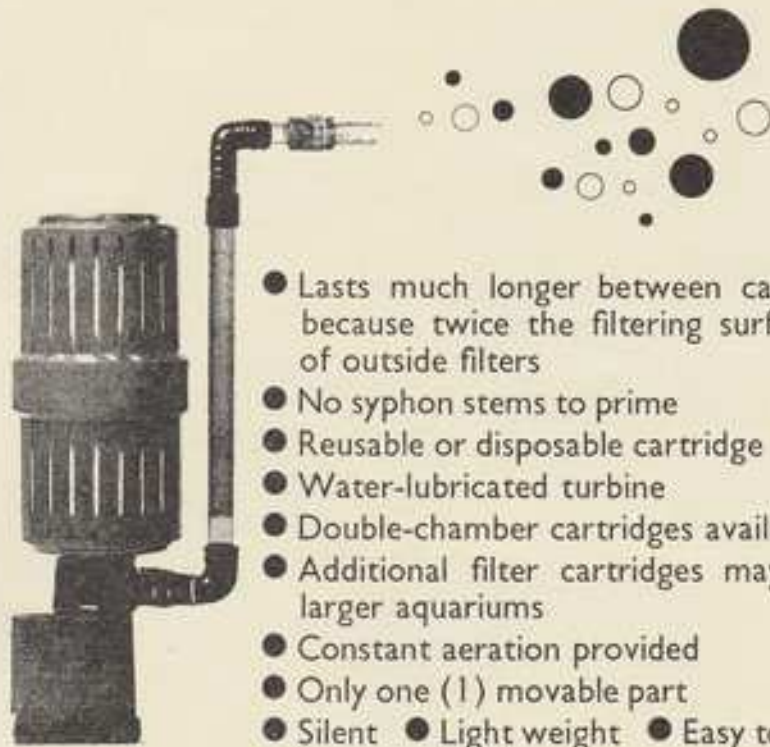
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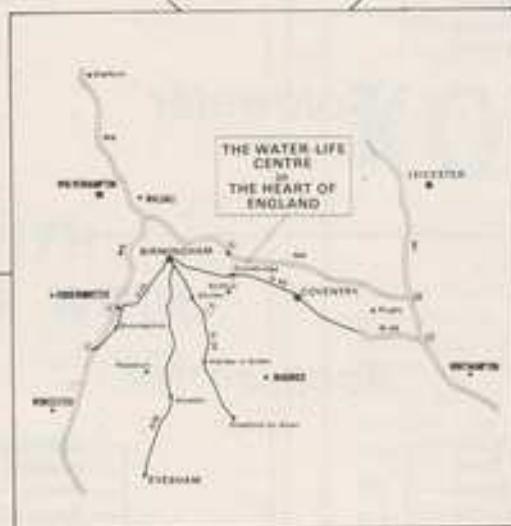
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