

SEPTEMBER 1980 50p

# AQUARIST

AND PONDKEEPER

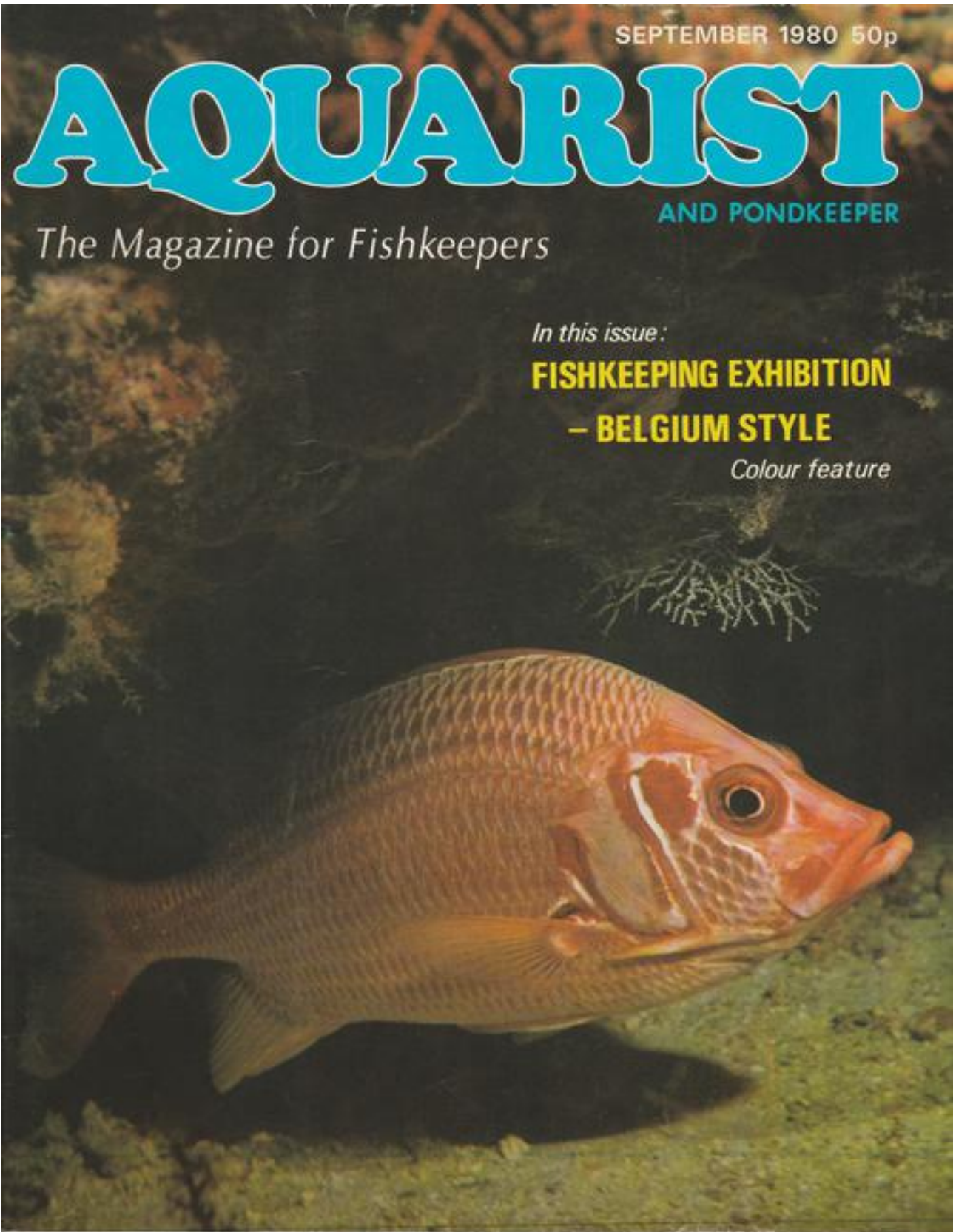
*The Magazine for Fishkeepers*

*In this issue:*

**FISHKEEPING EXHIBITION**

**– BELGIUM STYLE**

*Colour feature*





# THE AQUARIST

AND PONDKEEPER

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The Editor accepts no responsibility for views expressed  
by contributors.



# What is Your Opinion?

by B. Whiteside, B.A., A.C.P.



EXACTLY ONE WEEK has passed since I planted one Cape Fear spatterdock and an *Aponogon nitens* in one of my small tanks. The former has lost almost all the parts of its former leaves but a new, young leaf is growing from the top of the rhizome. The *A. nitens* tuber, which was leafless when planted, has sprouted two narrow, young leaves that have already reached a length of about 2½ in.—including the petiole. (For those who may not know, the stem of a leaf is correctly called the petiole and the leaf blade is known as the lamina—plural laminae). I hope to keep a photographic record of the progress of my plants—if they progress—for publication at a later date. Drop me a line if you have attempted to grow either of these very attractive aquarium plants. I'll move on now to the first of this month's letters.

Mr. Howard N. Atkin lives at 63 Lee Moor Lane, Lee Moor, Stanley WF3 4ES. He writes: "I have often been tempted to write in to your column on my own behalf, having been a regular reader of yours for many years; however I am ashamed to admit that I have been prompted to write to you on this occasion as a member of Rothwell Aquarist Society, rather than purely on my own behalf."

## Newsletters

"In your column you have often expressed an interest in "amateur" publications—such as newsletters—within the hobby. I am responsible for producing our own Society Newsletter, and having just completed the first issue would be very interested to receive your comments regarding it—as one of the "professionals". The reason

why I believe the Newsletter may be of particular interest to you is that it contains an article, written by me, on culturing fruit flies as fish food, a topic you invited comment upon in your May column. I apologise for not writing to you sooner: I have been waiting for the Newsletter to return from the printer. I realise that by now your next column will probably be complete, but I hope nevertheless that the article is of some use to you.

"For the future, I promise to write sooner; and keep up the good work. Your column is a ray of sunshine peeking through a forest of decidedly pretentious waffle!"

I'm neither a "professional" nor a professional aquarist, Mr. Atkin; I'm merely a schoolmaster whose interests include keeping aquarium fishes and plants, and writing about and photographing them. Readers should always bear in mind that my own opinions are merely those of an amateur—with quite a number of years' experience.

I found issue number one of the Rothwell Aquarist Society Newsletter to be an interesting little publication stretching to 30 pages. The contents range from a joke about an Irish crossword clue: "Large fish" (7); answer . . . "Special," which I'm still trying to work out, probably because I am an Irishman, to articles entitled "Meet the Members" (a useful idea) and Mr. Atkin's article called "Fruit Fly Culture". (I did manage to work out the following joke in the Newsletter: "What do Gourami's like best to drink? Answer . . . Croaker Cola"; but I'm not too sure why it's a single gourami with an apostrophe s and not the plural word gouramies—with no apostrophe. I suppose that's the price of my being an Irishman!) I'll cut the pretentious waffle and let you read what Mr. Atkin had to say about the culture of fruit flies. Unfortunately I do not have space to print his useful diagrams; but I appreciate Mr. Atkin's giving permission for me to reproduce his interesting article.

## Wingless fruit flies

He wrote: "Wingless fruit flies of the genus *Drosophila* are small, clean, easy to keep and easy to breed. The staple diet of many aquarium fish in the wild consists of insects which fall onto the surface of the water, thus fruit flies are an ideal substitute live food for these fish in captivity.

"Fruit fly cultures are best housed in small screw-topped jars; these are easy to use and to clean whilst at the same time being secure. The tops should have a hole cut in them leaving a small margin, then the hole should be sealed with a layer of fine gauze (cheesecloth or butter muslin is ideal) stuck round the margin to allow ventilation of the jar whilst preventing the flies from escaping. The culture medium is prepared by mashing fresh banana to a pulp and mixing with this enough rolled-oatmeal breakfast flakes (such as Ready-Brek) to form a thick paste. The mixture should be spread to a depth of about 1 in. in the bottom of the jar, and a piece of corrugated card pushed into the centre. This provides a foothold for the flies and also a place for them to lay their eggs close to the food.



Cardinal tetra

"A few freshly-hatched flies should be sprinkled into the jar to start the culture. Over a period the flies will lay their eggs, and the larvae will feed and grow in the medium until they reach full size and pupate (form chrysalises); in about eight days the new flies will hatch. Transferring the first flies to hatch to a fresh jar will ensure that a new culture will be ready by the time the old one dies out.

"Wingless fruit flies cannot fly; however they can run and jump surprisingly well, so careful handling is necessary to avoid their escaping. The flies can be knocked to the bottom of the jar or into the tank by sharply tapping the jar with one hand. Never release too many flies into the tank at once, and beware of floating plants which provide refuges for the flies; those flies not eaten immediately will escape. Finally, to guard still further against escape, tip the flies first into a shallow tub and then upturn this on the surface of the water; in this way the flies only escape when taken by the fish."

A good many years have passed since I saw wingless fruit flies advertised for sale in *Aquarist & Pondkeeper*. It's interesting to know that wingless fruit flies are still being cultivated by at least one aquarist as a form of fish food; and Mr. Atkin's useful article, from his impressive Newsletter, should encourage more aquarists to try this type of live food as an addition to the diet of their fishes. I note, from the Newsletter, that Mr. Atkin has cultures of wingless fruit flies for sale/swop. I suggest that those who wish to contact him, at his home address, should enclose a s.a.c.

#### Water changes

"I would like to take up one or two points raised in the May 1980 *W.Y.O.* feature of the *Aquarist & Pondkeeper*," writes Dr. Christopher Andrews, of the Tetra Information Centre, 15 Newlay Lane Place, Leeds, Yorkshire LS13 2BB. Dr. Andrews continues: "To begin with, water changes. I am sure that many readers of your excellent magazine will already be aware of the importance of regular, small-scale water changes in freshwater or marine, coldwater or tropical aquaria. Every two weeks or so

about 25-30% of the water should be siphoned out, and replaced with clean, at the correct temperature. Specific gravity and pH are important factors when refilling a marine aquarium, although the relatively high cost of marine salt mixes somewhat inhibits partial water changes in marine systems. Whatever type of aquarium you keep will, however, undoubtedly benefit from this piece of fundamental tank maintenance. The fish will appear more healthy, eager to feed and less prone to diseases; even the plants will appreciate your efforts! Of course, tap water should be conditioned with a reliable conditioner before it is used in an aquarium; a combination of Aquasafe and Blackwater Extract is particularly useful for preparing the water for certain tetras, barbs, killifish, etc. Regular, partial water changes are so much better than monthly—or similarly timed—total water changes.

"Moving on now to dried foods. Tetra are, of course, a major manufacturer of high quality flaked diets for pond and aquarium fish, a business which we have been involved in for nearly 30 years. Each food within our range—which, in addition to flaked foods, also includes tablet foods, freeze-dried bloodworms and fry foods—is the result of much painstaking research and testing, both at the Tetra laboratories in West Germany, and also at West Aquarium—Europe's largest breeder of aquarium fish.

"In general terms, dried foods offer many advantages over fresh or live equivalents. To begin with, you as an aquarist are assured of their high quality, reliability and convenience. Some flaked foods are a complete, easily digested and balanced diet, although within most ranges there are also colour enhancers, a vegetable diet, growth foods, etc. Whilst some dried foods are based upon foods not normally associated with fish—e.g. offal and garden vegetables—the Tetra range is based upon a variety of completely natural foods many of which fish actually feed upon in the wild—such as water fleas, shrimps, algae etc. When such naturally occurring food items are used in the preparation of foods for aquarium and pond fish, special care has to be taken to exclude any disease organisms and dangerous substances.

"An important point to stress concerning dried foods is the fact that they contain very little water! Whereas in the wild, fish feeding on live foods are consuming organisms that are about 70% water, prepared foods are more concentrated than this and hence only need to be offered sparingly. The oft quoted "little and often" rule is of paramount importance: aquarium and pond fish should be fed about two to four times per day, with only as much food as is consumed in a few minutes. If the fish do not rise eagerly at each feed they are probably being over fed—so watch out! For those interested a full colour booklet on fish nutrition is available free from the Tetra Information Centre, 15 Newlay Lane Place, Leeds LS13 2BB.

"My compliments on the reorganisation of the *Aquarist & Pondkeeper* and best wishes for the future."

Readers are reminded that I just don't have time to write replies to individual queries. Such questions and problems should be sent to one of our experts. The





Female red wagtail lyretail swordtail

name of each expert appears at the top of his or her column. Don't forget to enclose a s.a.e. if you require a personal reply sent to you. By the way, recently our Brentford offices have been receiving numbers of readers' letters and queries that give no indication of the senders' names or addresses. It is normal to begin a letter with one's address in the top right-hand corner; and to end it with one's signature—preferably with one's name printed beneath it for clarity. Those who forget to include names and addresses certainly won't receive any reply. The Post Office also likes its customers to write their own names and addresses on the back of envelopes so that any that can't be delivered can be returned easily to the senders.

#### Turkish Aquarists

It pleases me to know that this feature is equally popular at home and abroad—and confirmation occasionally comes from readers in different countries. The following letter was written by Mr. Osman T. Tumay, Hacıminefendi sok, 43/3, Nisantasi, Istanbul, Turkey. "I am an enthusiastic reader of your articles since last September—when my subscription started—and must congratulate you for your choice of topics and the way you 'deal' with them. Perhaps that is why reading *W.Y.O.* is much easier and (more) informative than wrestling with academic literature.

"I live in Istanbul, Turkey, and (have been keeping) tropical fish for nearly two years. At home I have four tanks stocked with angels, pearl gouramies, neons, lemon tetras, *Labeo bicolor*, ramirezi cichlids—both regular and albino forms, platies, coolies, one albino *Labeo frenatus*, argus (*rubifrons*), Oscars—marbled and red types, and a *Tropheus duboisi*—alone, of course. The death rate among my fishes was considerable during my first year, mostly due to aggressive behaviour among the fish that should not be kept together. But mankind has the ability to learn and those poor creatures have taught me a lot more than some books.

"I believe you may be interested to know about us Turkish aquarists. The hobby is quite widespread and

at least 300,000 hobbyists live in Istanbul. We are faced with two major difficulties, though: lack of high-quality equipment and fishes for the specialized aquarist. There are no marine aquaria on the market yet, so we are limited to koi and freshwater tropicals. Prices of locally-bred fish are not high, the most expensive being *Rasbora heteromorpha* at £1.00 each. Neon tetras bring about 80p and the rest can be bought at 30-35p. Imported fish prices range from £2.00 for *Labeo bicolor* to £100.00 for 25cm. Oscars. Plants are relatively cheap but, again, there is only a limited number of species.

"Coming to the topics you have listed in the March issue, I feel that I can at last declare myself a successful cultivator of *Cryptocoryne* species after months of failure. Here's my story. Turkey has suffered from a very long and cold winter—due to shortage of fuel oil and unusual cold—and as a result the temperature in one of my tanks has dropped to 22-23°C in spite of two 100 watt heaters directly connected to the mains. With the aid of an effective water softener I was also able to decrease water hardness to about 8°DH. In addition I used an unknown brand of liquid fertilizer once a week, one drop per three litres, and have removed all of the floating plants that obstructed penetration of light. Now every root establishes a runner at the rate of 3 or 4 per month, and the young plants are ready to reproduce as soon as their runners are severed. In my opinion, *Cryptocoryne* species are very hardy plants, both for their aesthetic qualities and for providing (cover) for smaller fish at the bottom. I share Dr. Brunns' view (March issue) that (sand) snails help a lot in plant cultivation by decomposing detritus and by eating algae and decaying leaves. I hope I have not been a complete bore and wish to express my best regards to you and your magazine and to the hobbyists in your country. P.S. I would very much like to correspond with aquarists in Britain." (No doubt some readers will be happy to drop a few lines to Mr. Tumay at his home address.)

Photograph 1 is of a cardinal tetra. If you have spawned this beautiful species, please send me details—even if you didn't manage to raise any of the fry. Photograph 2 shows a female red wagtail lyretail swordtail. It's a good many years since I kept this very ornate variety of swordtail. Does anyone still breed them?

#### Water Sprite

Recently I borrowed, from the library in the school in which I teach, a copy of a highly interesting and informative book entitled: *Aquarium Plants—their identification, cultivation and ecology*, by Dr. Karel Rataj and Thomas J. Horeman. The book, published in 1977 by T.F.H. Publications, Inc. Ltd., costs £12.95, and is beautifully illustrated with large numbers of coloured and monochrome photographs. I hope to make more observations about the book in a future issue; but one plant name in the book has left me somewhat confused. The proper name of water sprite—which I usually refer to as Indian fern—is given as *Ceratopteris thalictroides* throughout the



book. In all other aquarium literature that I have read—including all my reference books, which, I must admit, were published prior to 1977—water sprite is called *Ceratopteris thalictroides*, i.e. there is a letter 't' in the second or species' name. I assume that *C. thalictroides* must now be the correct spelling. Would anyone care to confirm this for me, please?

Photograph 3 displays a selection of coldwater fishes. Have your coldwater fish spawned this season? If so, please send me details.

No. 19 Queen Street, Newmarket, Suffolk, is the address that heads the following letter written by Mr. Brian Curtis. "While I certainly think that the new-look *Aquarist & Pondkeeper* is a great improvement, especially the greater number of photographs, was it necessary to change the size? I keep all my past editions in the official binders—one year's editions in each binder. This year's, except for January, February and March, will no longer fit into a binder. No doubt you will be producing a new-sized binder and, hopefully, the first three editions of this year will fit also. I realise that *Aquarist & Pondkeeper* is published in volumes that run from April to April but it is more convenient to keep one year's edition together in one binder." (I am pleased that you like the new-look magazine. I assume that the larger format was necessary to permit the inclusion of more photographs in each issue. New-look binders are now available for the larger format; they cost £3.75, including VAT, postage and packing, and may be obtained from *Aquarist & Pondkeeper*, The Butts, Half Acre, Brentford, Middlesex TW8 8BN. B.W.)

Mr. Curtis continues: "Now that I've had my little moan I will reply to some of your topics set in a recent issue. I find that my plants do not grow any better in the summer than in the winter. They seem reluctant to grow at any time. I often think that this is due to too little light; so I increase the wattage of lighting and get overrun with algae. The only dwarf cichlids I have attempted to keep are those lovely fish, rams. However, my attempt was rather unsuccessful: after two weeks they died. The problem may have been that the water was slightly hard. I will have to try again using some peat in the box filter to soften the water.

"The background I use for my aquaria is painted polystyrene tiles. Using these helps to insulate the tanks; in fact I use them on the sides and bottom as well. When painting them I use grey paint diluted with turps. If the paint is not diluted it tends to dissolve the tiles." (Rainwater, filtered and free from soluble impurities, can be used to soften hard water. Clean water collected when one's fridge is defrosted should also be suitable for softening harder water. Peat will tend to render the water acidic—and *Apistogramma ramirezi*, the ram, tends to favour fairly soft, peaty, slightly-acidic water. These fish also like a variety of places into which they can retreat, e.g. thickets of plants, or rocky caves. Rams are very beautiful fish that merit a little extra attention and care. B.W.)

"I thought I would jot down a few lines about the breeding of *Pseudotropheus livingstonii*. I have a breeding trio. The first female is about 2 in. in size; the second female a shade smaller. When the female's mouth is full I remove her in the following way. First I remove all the rocks then fill a plastic bag with water from the tank. Next I fill a spare 18 in. x 10 in. x 10 in. tank and set the temperature at the same as the community tank. In the brooding (sic) tank and the community tank the temperature should be around 78-80°F and the water should be hard. When the brooding tank is ready, catch the female and place her in the plastic bag; then take her to the brooding tank. Do not just catch and place her in the brooding tank: the water and temperature may be just the same but the move from one to the other might trigger the female to spit out the eggs and that would be that; so you see the reason for the plastic bag.

"Female *Pseudotropheus livingstonii* are very good mothers: they will spend three weeks just chewing and rolling the eggs and young fish round in their mouths. At three weeks the young are released and will need food. The best is livebearers' Liquifyr, and Biol. At two weeks they are on Biol and dry, powdered food. Growth is quite rapid because they eat a lot; and by the time the female releases the young they are as big as new-born guppies. The female should be removed from the brooding tank and put into a recuperating tank because she will have had no food for three weeks. Feed her fresh greens, meat (beef heart), flake and freeze-dried *Tubifex*. She should put on weight very quickly and should be ready to be returned to the community tank in two weeks. Put her back at night after the lights have been put out.

"In four months the young will be ready for sale. Move them to larger tanks as necessary. Box filter and air stone are necessary in the brooding tank. Use the same water as in the community tank for water changes for about three or four weeks." This information was provided by Mr. R. J. Weaver of 122 Chester Avenue, Luton, Beds.

#### Amazon Swords

Master Antony Jude's home is at 7 Grove Place, Boston Spa, Wetherby, W. Yorks, and he says: "In answer to your query about plants in the April issue, I find that Amazon swords grow better than any other plants. The large, parent plant is situated in the corner of my 36 in. community tank. It gets around four to five hours of artificial light daily and the water (pH around 7 to 8) is kept at 80°F. The parent plant has already produced one runner this year and at the moment two more runners are forming healthy, young plants. Although I have had a great deal of success with Amazon swords, I have had no luck in keeping *Cubomba* alive. This may be because of the water conditions; therefore I should be grateful for any information which would help me grow this very decorative plant.





A selection of  
Coldwater Fish

"In answer to another question, I don't change the temperature of my tanks during either summer or winter; but most of my success with the growth of plants has been during the middle of spring—halfway between the two.

"Although my Indian fern seems to thrive in the warm summer months, my *Vallisneria* produces its runners in late November. Also, I should like to comment on the theory that decaying leaves can cause other plants to decay. Personally I agree that there must be some sort of chemical reaction that causes this. This happened to my plants only a fortnight ago when I purchased a couple of lizard's tail plants. Within a week one of the two started to rot; and after a couple of days both plants had rotted away without trace." (Lizard's tail is *Saururus cernuus*. B.W.)

No. 95 Long Lane, Chadderton, Manchester, is the address that heads the following letter written by Mr. Frank Garside. "With the escalating price of electricity it is incumbent upon us to take whatever practical steps we can to minimise heat loss from our aquaria. I have two 36 in. aquaria on a single stand built into an alcove of my home. The space between the tanks and the wall is filled with sheets of expanded polystyrene which are about 4 in. thick.

"When the room temperature is not allowed to fall below 55°F I find that the water temperature of the tanks never falls low enough, i.e. below 70°F, for the thermostat to switch on. The lower tank has a single 60 watt. bulb; and the upper, deeper tank has two 40 watt. bulbs plus a 20 watt. Gro-Lux tube. During the lighted period—7.00 a.m. until 10.00 p.m.—the temperature, even in winter, rises to about 80°F. and falls overnight to 70-75°F.

"I firmly believe that the daily variation of about 10°F approximates to natural conditions and can only be beneficial. This may be exemplified by the fact that I can take out of the tank pairs of fish which cannot be said to be easily bred—such as the neon and glowlight tetras—and have them spawn within 24 hours of placing them in a prepared, spawning tank. If fish have to be specially or separately conditioned to bring them into breeding condition it is surely a tacit admission of failure.

"Incidentally, most of my fish—which don't appear to read the right advertisements—refuse to eat a certain

brand of flake food which purports to contain just about every nutrient in existence. Their favourite diet is cooked chicken, raw meat and pieces of fried fish—minus batter—from the local chippie. The *Tilapia*, which are piscine dustbins, eat peas, plants—in fact, just about everything!"

#### Kribensis

Mr. and Mrs. G. R. Goodfield live at 26 Kimberley Close, Downend, Bristol, Avon, and their letter is about their first experience with dwarf cichlids—in this case, the kribensis, *Pelvicachromis pulcher*. "We have six kribensis, paired off in three separate 'rooms' using two tanks. All quiet, we thought: no breeding yet; but the original reason for parting them was that one of the brilliantly-hued females was chasing away the other females and pretty obviously staking a claim to one of the males. In the three sets of living quarters we placed slate 'houses' and open-ended earthenware pots which we had bought, in one of the aquarists' shops, mainly for their shape and decorativeness.

"Having done this, and let them be, we had plenty of other fish-watching to do—two fully-stocked community tanks and some beautiful, two-month-old, golden sailfin mollies, some young guppies and some platies—all our first live-bearers, which indeed we found very exciting as compared to egg-layers. We almost forgot the gentle kribensis, which had settled down so quietly, because there was so much activity to observe.

"Last Sunday afternoon—a shout: 'There're young ones in here!' No! Incredible! We had seen no activity—none of the violent chasing to which we had been accustomed. We had seen no eggs. True enough: there were young! Impossible to count; just free-swimming in a group, just above the gravel, with both parents in attendance, near a stone, in between the shielding plants.

"As the afternoon passed, the little family group moved around the tank and the parents guarded them in alternate shifts. During one of the mother's shifts we saw the father doing some antics at the end of the tank that faced the other tank containing another pair of kribensis. I could interpret these animations in two ways: either he was attempting to defend his young, or he was showing off. We saw the mother picking up one of the babies in her

mouth. On no! It was going to eat it! Then out she blew it, replacing it within the group. They rounded up these youngsters like sheepdogs. But we could not be sure they would not turn nasty and devour them. As usual I turned to our variety of books and looked up breeding habits. Also, as usual, the books seemed to contradict each other. One said: "Remove the adults once the young are free-swimming as they will devour them." Another book said: "The parents guard their young." We did not know what would happen. All was well at that moment. We had to eat, ourselves; we took our eyes off them. It was 10.00 p.m. After supper we looked again. The mother was in the little earthenware pot looking out. She scooped a little one into her mouth; we could see no others. She'd eaten them! We were stunned. Then there were the two adults swimming slowly around as usual, and from then until bed-time there were no little ones following their parents and swarming all around and over their backs. No delightful family group. We thought: "Back to square one! No young; all gone!" I said: "Well, if she has eaten all those she must appear bloated." Previously we had managed to count fifty. Dejectedly we went to bed, utterly deflated. I said, rather spitefully: 'I hope they get belly-ache,' for the tank was pitifully empty compared to how it had been.

"Next morning, at 6.00 a.m., a loud whisper: 'They're all there!' Of course; why didn't we think of it; they had all been put to bed in the pot! The odd one she had popped into her mouth had been the last stray one which didn't want to go to bed. Glory be! Wonderful! They had not been eaten. Again, mother was surrounded by her babies; father was at his gesticulations to the neighbours. We have since covered the end of the tank so that they get more peace.

"10.00 p.m. the next night: put to bed again. We gave the parents liberal supplies of live food just at this time so that they didn't get too hungry. We still didn't trust them. The babies got Liquifry.

"The young are now 10 days old and on solids. The parents are still very watchful—and they are all very much a family, proceeding round the tank together. When the little ones swim far up the side, a strict eye is kept on them. What intrigues me is the communication between the parents and the young whereby the fry stayed in the pot at that time whilst the parents came out to swim around the outside, and at all other times they stayed close to the adults. This pair are particularly beautiful in colouring and markings, and, apparently, character. How different from coldwater fish which seem so vastly indifferent to their young—the eggs spawned, fertilized and forgotten. We are watching our other pairs now and hope they may prove to be such good parents.

"P.S. Referring to the February *W.Y.O.*, re. the colouring of our *kribensis*: the male has four-and-a-half spots in his tail; the yellow is brilliant, and pink blush in his middle. The female's colouring is also brilliant, mainly yellow, with clear, deep black, horizontal stripes, and a deeper pink middle blush. Incidentally, I have always

referred to the fish, formally, as *Pelmatochromis*, but I see you say they are now *pulcher*. Books vary on this. It seems it is best to rely on *Aquarist and Pondkeeper* being up-to-date because one can spend pounds on huge, glossy, hard-cover books which become out-dated in parts as new fish experience is recorded." (*Kribensis* were formerly known as *Pelmatochromis kribensis*—hence the common name; more recently their name was changed to *Pelvicachromis pulcher*. No doubt most of us will retain the common name *kribensis* because of its long association with the fish. B.W.)

#### GSGB booklet

Mr. John Parker resides at 61 Burses Way, Hutton, Brentwood, Essex, and he is treasurer of the Goldfish Society of Great Britain. He writes: "The Society is in the process of publishing a number of booklets covering various aspects of goldfish keeping, including: Varieties of Fancy Goldfish; Colour and Scale Groups; Food and Feeding; Disease and Cures; Breeding and Rearing; and Aids to Fishkeeping (Filtration etc.). The first booklet, 'Varieties of Fancy Goldfish', has been published and I enclose a copy which I hope will be of interest to you. The booklet is on sale for 85p, including postage. . . ."

"Varieties of Fancy Goldfish" is the first of a series of booklets to be published by the Society as a lasting memorial to Captain Len C. Betts, M.B.E., who founded the Society in 1948 and guided it through the years until his death in 1975. This interesting, little booklet runs to 32 pages and covers the following topics: history and objects of the Society; the goldfish and its varieties; the fantail; the comet; varieties with telescopic eyes; orandas and brambleheads; pearlscales and bubble-eyes; pom-poms and celestials; modern Chinese goldfish; a spawning of twin-tails; the ranchu—a king among fish; hammer-scales and pearlscales; in praise of the London (*shubunkin*); the cult of the veiltail; and in praise of the *azumina-shiki*. All the articles in this booklet have appeared in print before; but if you are interested in goldfish I can recommend this little booklet. My only reservation is that it does not contain any photographs or drawings of the fish that are discussed. I feel that a simple drawing of each would have greatly enhanced the publication for those of us who are not specialists in goldfish.

For a future feature, please send me your opinion on any of the topics mentioned above or below—and please don't forget to include your name and address on all letters. (a) Breeding uncommon livebearers; (b) breeding good-quality guppies—and sources of same; (c) cultivating *Cryptocoryne* species; (d) reliability of aquarium equipment; (e) earthworms as food for aquarium fishes; (f) cultivating *Ludwigia* and/or *Hygrophila* species; (g) clearing tanks of unwanted snails; (h) cultivating *Bacopa* species; (i) propagation of named species of aquarium plants, i.e. increasing one's stocks; (j) breeding any species of catfish; and (k) how useful are substances for treating tap water prior to its use in an aquarium? I look forward to receiving a good selection of replies for your autumn entertainment and enlightenment.





*Hyphessobrycon herbertaxelrodi*

# Setting up a Community Tank

by Jack Hems

MUCH THOUGHT should be expended upon the setting up of a freshwater tropical aquarium (a decorative community aquarium); for the great aim should be to create in the limited space available the right sort of conditions for the fishes and plants therein contained.

Chief among the things the beginner should know is that ample swimming space, with plenty of surface area exposed to the contacting air, and no overcrowding, are among the basic requirements of fishes in captivity. Hence it follows that the most satisfactory tank to buy is the largest one can afford and, of course, accommodate in a sitting room.

It is not difficult to create an attractive underwater scene in a regular 15 gallons tank (24 in. x 15 in. x 12 in.). A tank of these measurements will support about 17 small fishes (1½ to 2 in. or thereabouts) in comfort. Some thirty fishes of similar size can be accommodated in a 36 in. x 15 in. x 15 in. tank; and I hasten to say that the price of such a tank is not prohibitive.

## All-glass tank

Although the metal framed tank still retains a certain degree of popularity, the all-glass tank is in ever-increasing demand. Why? Because of its advantages. These are by no means exaggerated. Firstly, the absence of metal in its construction rules out the corrosive action of rust and the risk—remote though it usually is—of metallic salts killing the fish. Another advantage of the all-glass tank is that, if the five pieces of glass have been joined together properly, that is to say glued and sealed with a non-toxic silicone rubber sealant (specially manufactured for aquarium use), there is no fear of water escaping along any part of the structure. At this point, however, there is need to note that high density foam or expanded poly-

styrene (at least ¼ in. thick) must be interposed between the glass floor of the tank and the supporting table or metal stand; for any irregularity in the base of the stand or an unnoticed fragment of grit adhering to the underside of the glass can result in breakage. In short, the cushioning effect of a layer of resilient foam or expanded polystyrene eliminates the risk of cracking. And now another piece of advice. The stand on which the aquarium is placed—wood or metal or whatever—must rest level on the floor and, most importantly, near or over the joists. This will preclude rocking, or the floorboards giving way under the weight of the furnishings and water.

## Cleanliness

Neither an air pump nor filter are necessary in order to keep a freshwater aquarium in spick and span condition. It is indeed all so easy if a little care and judgment, a little thought and attention, are exercised from the beginning. Unfortunately some novice aquarium keepers do not remember or will not spare the time to give a tank the necessary tidying-up when it is most urgently needed. Consider, for example, sediment or silt. An excess of this in the aquarium clogs the pores of plants and leads to their rapid deterioration and early demise. And this is not all—not nearly all. Too thick a layer of silt on the bottom can lead to general pollution and speedy depletion of oxygen in the water. Yet cleanliness, the very essence of successful aquarium keeping, may be maintained quite easily by regular servicing. This means dip-tubing or siphoning the bottom (a job taking no more than about ten minutes' of one's time) and removing dead and dying vegetation with the least possible delay. In this matter of dead things, dead fish or dead snails (snails make more trouble than they do good) must be removed before their dissolution leads to trouble spelt large.



Schubert's barb

Ordinarily, dip-tubing or siphoning should be carried out about once a fortnight. It is a good plan to do this every time the mossy green growth called algae is scraped from the glass. An algae-remover (a metal rod with an attachment at one end to take a razor blade) can be obtained, with the rest of your essential requirements, from your local dealer. It is not really necessary to remove algae from all four sides of the aquarium. Provided the front glass is kept clear, the other three sides can be left to serve as browsing grounds for algae-picking fishes. There are many types of algae. Thread—or cotton-wool—type algae can be wound round a notched cane and pulled out of the aquarium. One type of algae—a free-floating algae—turns water green. This discoloration is best remedied by increasing the number of higher plants in the aquarium.

#### Higher plants

To grow higher plants satisfactorily, the aquarist needs a suitable growing medium. Do not be tempted to use sugar-fine silver sand or reddish brown builders' sand (pointing-up sand). The first packs tight and prevents oxygen circulating around the roots of the plants; the second never washes clean. What is required is a non-alkaline grit. The particles should be about the size of uncooked rice or pearl barley. A rounded grit is advised. Almost always bottom-haunting fishes damage themselves on sharp edged or point-studded grit. Reputable dealers in aquarists' requirements keep the right sort of rounded grit in stock. A 2 ft. tank requires about 28 lb. of grit to carpet the bottom to a recommended depth of about 2 to 3 in. But before laying this gritty carpet over the floor of the tank, the grit, two or three cupfuls at a time, should be poured into a plastic bucket placed under the mains tap. Stir the grit round as the water runs freely

and carries all dust and other undesirable matter over the sides. The grit prepared, spread it over the floor of the tank so that it slopes very gradually from the rear to the front. And bear in mind, also, to choose non-calcareous stones (rocks) if they are needed as extra decoration. Calcium-free granite and lumps of slate are quite safe. Castles made of coloured plaster, miniature groynes made of a mixture of cement and sand (unless properly treated to render them innocuous), sea shells, pieces of coral, lumps of alabaster, marble, and the like, should be avoided like the plague; such things make the water too hard and alkaline for most of the regular community fish.

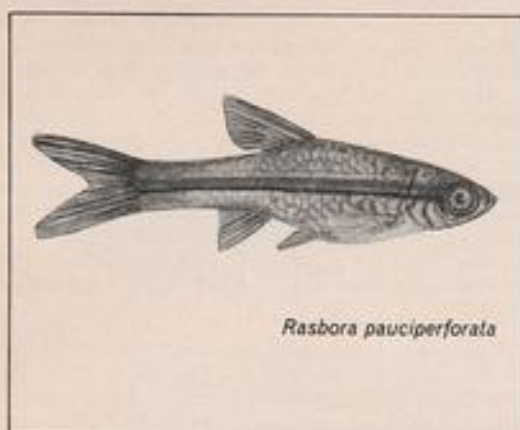
Water poured straight onto the grit will churn it up and distribute it all over the bottom. The way to this is to cover a portion of the prepared planting bed with a stout sheet of white paper, or a plate, or a piece of polythene and pour the water onto it until it reaches some several inches up the sides. Naturally the heating apparatus should be fitted up and switched on. A 100-watt heater controlled by a thermostat is all that is needed for a 2 or 3 ft. tank. The heater should be placed in a horizontal or slanting position at the back of the tank close to, or just touching, the grit. Within a few hours' of 'switching on,' the water should reach a temperature of about 75°F (24°C). This is warm enough for most freshwater tropical fishes, and a rise and fall of a few degrees (°F) in every 24 hours will do no harm. Consumption of electricity is not high in a comfortably warm room or during the summer; for the thermostat will switch the current on and off every now and again. The warmer the day, or the room, the longer the thermostat switch will remain in the 'off' position. A first class aquarium thermometer is needed to keep an eye on the temperature of the water.

In truth there are very few water plants (out of the hundreds listed by some dealers) suited to spending their lives below the surface. Amongst the species most likely to prosper—that is if the light is right, of which more later—are *Vallisneria spiralis* (the ordinary form and the giant type), *Ceratopteris thalictroides*, *Limnophila* spp. (most generally available species of the genus *Cryptocoryne*, *Hygrophila polysperma*, *Sagittaria subulata* (and there are a few others of this scattered tribe that do well completely submerged), the so-called Amazon sword plants (*Echinodorus*), the warmwater species of *Myriophyllum*, *Eleocharis acicularis*, *Vericularia dubyana*—an interesting aquatic moss from south-east Asia—and *Cabomba* (if the nature of the water is to its liking; for its chief requirements, apart from a bright light, are a soft and acid water).

#### Rooted plants

Plants with roots should have them buried in the grit, that is to where they strike out from the base of the leaves or stem. Plants which put out roots but are commonly sold as cut (naked) stems should be pushed some inch or two into the grit to hold them in position until their





*Rasbora pauciperforata*

burgeoning root-systems anchor them to the growing medium. Most of the bottom area of the aquarium should be given over to plants, but keep a clear swimming lane (a few inches' wide) along the front glass. The fishes enjoy, and need, this unrestricted area for sudden dashes or leisurely swimming.

Given a good light for about 12 hours a day, the plants mentioned above should do well. Fluorescent lighting is recommended. It is far cheaper to run than ordinary tungsten lighting (once the initial cost of the necessary choke etc. has been met) and fluorescent lamps do not overheat the surface nor crack the glass cover, and a glass cover or non-toxic hood is absolutely necessary to keep the fish in (lots of fishes jump), and the cold out. A 20-watt warm white fluorescent lamp is just right for a 2 ft. tank. A 30-watt lamp is usually bright enough for a 3 ft. tank but two 20-watt lamps in a twin-fitting holder will result in a better effect all round. After the plants have been put in place, the tank can be filled to just below the rim.

#### Fish

It is supreme importance to stock a decorative aquarium with fishes that will not bite pieces out of one another or bully one another away from food. Included amongst the most desirable of the smaller and peaceable species are the interestingly patterned or brilliantly coloured tetras, eye-catching cyprinids, fascinating catfish and a few of the very few really sociable cichlids.

The cardinal tetra is, perhaps, the most spectacular of the tetras. It displays vivid bands of metallic greenish blue and glowing red. The neon tetra has similar coloration but not ladled on in such generous patches as those which adorn the cardinal tetra. Of other tetras worth seeking out are the lemon tetra (*Hyphessobrycon pulchripinnis*), almost the colour of the fruit itself (in the upper parts) giving way to white below; the rummy nose (*Hemigrammus*

*rhodostomus*) and the blood-fin. The first is characterised by a fiery snout and forehead, which serve to accentuate the cooler tones of olive-green, silver and yellow displayed elsewhere on the body; the second, or *Aphyocharax rubripinnis*, is markedly leaden silver to steely blue, with fins the colour of blood, except the pectorals. These are colourless. The black neon tetra is horizontally striped with black and green delicately overlaid or intermingled with a dusting of gold. It goes by the scientific name of *Hyphessobrycon herbertaxelrodi*. The platinum tetra (*Gephyrocharax atracaudatus*) is a very beautifully coloured fish burnished silver on the sides and reflecting, as it moves about under shafts of strong light, metallic tones of gold, green and lemon yellow interspersed with fleeting glimpses of white and shades of grey. The flame fish, known to science as *Hyphessobrycon flammeus*, is olive-brown to green on the back and glowing red over the major part of the body. There are two dark vertical markings on the shoulder. The pelvic fins are red to reddish orange, the unpaired fins are as fiery looking as the intense red body. *H. heterorhabdus* is glassy green overcast with a silvery sheen. The sides are adorned with a tri-coloured stripe, the upper part red underlined with yellow, or yellow white, the lower part dark blue to black. This species is commonly called the flag or striped tetra.

Particularly colourful are some of the more diminutive barbs. The island barb, which also goes under some alternative popular names such as checker barb or beautiful barb, bears the technical name of *Barbus oligolepis*. The male, the better coloured of the two, is a light red brown or subdued orange-gold marked with a blue-black dot in almost every scale. When in breeding condition, the male displays extra colours—metallic colours—that flash on and off like Christmas tree lights as he dances before the female or pursues her about the tank. Schubert's barb is golden orange adorned with some irregular dark markings and reddish fins.

#### Other cyprinids

Among other cyprinids (barbs belong to the huge family *Cyprinidae*), the harlequin fish (*Rasbora heteromorpha*) is of immense decorative value. In general it is coppery pink, with an overlying flush of shining gold and a wedge-shaped marking coloured blue-black. The widest part of this distinctive marking is near the head; the narrow part or apex terminates on the tail. The dorsal and anal fins are salmon-pink to red, the other fins are tinged with pink. Other small rasboras ideally suited to a community tank are *R. pauciperforata* coloured silvery green, with a narrow metallic copper to red stripe on the sides, and Jacobson's rasbora (*R. jacobsoni*), which is chocolate on the back and yellowish on the underparts. A black stripe extends from the snout to the root of the caudal fin. Above it, beginning at the eye, there is a narrow band of yellow that deepens to gold near the tail. The fins are suffused with brown to cinnamon, giving way to silver round the margins. Of the same family (*Cyprinidae*) we have the lively *Brachydanios*. *B. rerio*, the best known

*Continued on page 46*



*Ptychozoon kuhli* a few days old

## Notes on breeding Fringed Geckos

by A. J. Mabbs

We apologise that the following section of this article failed to appear in our last issue. This continues from page 28 of the August edition.

### Hatching

At a temperature of 21°C *Ptychozoon* eggs take approximately 100 days to hatch. Newly hatched young are approximately 34mm from nose to vent, with an overall length of 61mm. Young geckos (of all species) should be housed in fairly small containers—one 6 ins. by 6 ins. by 6 ins. being ideal for *Ptychozoon*—otherwise they may find difficulty capturing live food.

Second or third instar house crickets and/or small flies are ideal food for the first month or so after which the size of the live food offered should be slowly increased.

*Ptychozoon* are somewhat slow in developing and it takes well over a year for them to attain adult size. However, it is possible to sex youngsters at about 8 months of age and although not fully grown, they will begin to breed at about 12 months of age.

### Calcium

Females require large amounts of calcium if their eggs are not to be poorly shelled, and severe calcium deficiency can cause death. I have in the past attempted to supply geckos with calcium by offering live food which has first been dusted with calcium powder. This did not prove satisfactory however, as none would take such fare unless extremely hungry and then only after first attempting to rid the live food of the powder. Nowadays I supply cuttlefish bone (as given to cage birds) *ad lib* and have found this to be ideal. For *Ptychozoon* the cuttlefish bone should be cut into small pieces (approximately 3mm cubes being ideal) and placed in a shallow dish on the floor of the vivarium. A dish containing some fifty pieces will most probably require replenishing every month or so.

As with all captive creatures, *Ptychozoon* benefit from a well balanced diet. Mine are supplied with captive bred bluebottles, house crickets and locusts and any wild insects which are in season; large moths being a particular

## Book Review

**South African Frogs.** By N. I. Passmore, Ph.D. and V. C. Carruthers. Witwaterstrand University Press. Johannesburg, R20.00.

Copies are obtainable in this Country from Wheldon & Wesley, Codicote, Hitchin, Herts SG4 8TE @ £16.50 post paid.

This unique reference work offers the herpetologist the richest trove of information about every species and subspecies of South African frog and toad described for science to date. It is hardly necessary to say that, descriptions of the several species and subspecies which have eluded capture and examination by professional biologists in the field will be received in the foreseeable future with high satisfaction.

The illustrations—reproductions of first class photographs in colour and black and white—are a joy to the eye and, in addition to the firsthand accounts of the life-style and general behaviour of South Africa's frogs and toads, there is an invaluable Field Key of the Genera, a full page map of the localities cited in the admirably printed text, a glossary, a 5-page appendix, a carefully selected bibliography, and a well-compiled index.

Printed below each colour plate is a minuscule section of the full page map pin-pointing the breeding area of the amphibian under review. In the same page, a few words are appended on Voice or Call. For all recorded calls, a wide band (300 HZ) sonagram of one and occasionally two calls supplement the few words of relevant text. To help still further in the identification of a species by its call, a double-sided extended-play record of 75 species is included with the book. The importance of this perfectly produced extended-play record can scarcely be over-estimated; for as the authors remind us 'frogs (toads) are more often seen than heard.'

This reviewer was happy to find the colour plates of every species backed up with a life-size illustration of the same species in black and white together with excellent shots of certain distinguishing features such as skin texture, absence or presence of coloration on limbs and distinctive colour patterns, if any, on dorsal surface, shape and size of parotid glands, length and amount of webbing to toes and so on. There is so much in this book to look at, read, listen to, and enjoy that the keen herpetologist will want to come back to it time and time again. In any case, it will prove of inestimable value on his shelves.

JACK HEMS

favourite. Newly sloughed 'white' mealworms are given occasionally but 'brown' mealworms if offered, may be regurgitated due no doubt to the hard nature of the skin. Water for drinking must be available at all times; a vitamin supplement can be added if one so wishes.





Photograph 1

Written & Illustrated by  
A. van den Nieuwenhuizen

THE MALE OF *Pyrrhulina laeta*, like other species in the genus whose breeding behaviour we are able to observe, establishes a territory around the spawning site to be used. For the latter a firm plant leaf is preferred. As soon as this stage of the mating process is reached, the male's coloration changes. From the tip of his mouth to the root of the tail a broad, dark, lateral band appears, in which two rows of orange-red spots are clearly visible. As this band follows exactly the edges of his scales, it has a zig-zag pattern along its lower and upper edges. The fins, also, become more vivid in colour, with the anal fin especially becoming orange-red. The blue edges of the caudal fin show up more brightly. Photograph 1 shows the male on guard above the chosen leaf. The leaf is 'cleaned' by the male. For this his ventral fins are pressed close to his body while, with the latter trembling, he swims against and over the surface of the leaf. This series of breeding photographs involves a male which was first kept alone for three days in the breeding tank, and which from the second day guarded the leaf while showing his normal coloration. On the evening of the third day the female was introduced and on the following morning he displayed his darker coloration. In the course of the morning the female tried to approach the leaf, but the male put on a more aggressive posture (2) and drove her away. This pattern of behaviour altered after about three hours. The male now responded to the female's approach, a position above the leaf with a trembling body being adopted. A little later, when the female was in close proximity, he pressed against the leaf with flattened ventral fin and swam across it with a sweep of his tail (3). At first, the female would always disappear and then return and now it is difficult to describe everything that occurred in precisely the correct sequence. The behaviour of the female, however, became more and more violent and she returned to the spawning site more and more hastily. The female also swam around the male, approaching him from all directions, sometimes quickly from the rear and quickly past him, at other times passing above him and also below him, whereby the female would

# *Pyrrhulina* *Laeta*

Photograph 2



Photograph 3



Photograph 4





Photograph 5



Photograph 6

then rise high in the water. Occasionally she positioned herself quite peacefully a little below the leaf and then the male came up to her and nudged gently against her with his mouth. A much more violent form of this behaviour can be observed later when he drives the female away after the breeding action is over.

At first all this is carried out without one egg being deposited. In this case there were only mock pairings during the first hour, in other cases often hardly half an hour was taken up for the breeding action and, on one occasion, more than an hour. To some extent it depends upon the degree of peace and quiet surrounding the tank. For the fish are rather sensitive to any disturbance and it can happen that they simply suspend the breeding action, whereby the breeding suit of the male disappears completely and his normal coloration returns. Up to an hour can then pass before the fish continue. Picture (4) shows the first serious approach, which was preceded by some turbulent circling of each other. The female remains almost motionless, the male gets into position (5) and a little later spawning takes place. The next photograph was taken about three quarters of an hour later after eggs had been deposited several times. Photograph (8) shows the precise moment when the male pushes his anal fin under the female. The fin has now an easily visible, shiny blue border. Then the male moves a little further forward and the fin-shielded vent comes below the opening to the oviduct and is immediately pressed against her body by the male so that a small sac

appears. This is also just visible on the next photograph, as is the consummation of the spawning action whereby the female lies against the male in an S-curve and the tail roots of the two fish are placed close together (6). The spawning act itself passes very quickly. The fish touch each other relatively briefly and then part with a sudden movement, as the male departs from the female, as it were. The anal fin 'opens' and the small, crystal-clear eggs fall from the fish and adhere to the leaf. They are much smaller than one would expect and are almost exactly the same size as the eggs of *Pyrrhulina vittata*, a much smaller species. I have no precise idea how many eggs are produced at each pairing because it is impossible to count. During spawning the male (in this case 9 cm) lies almost on his side (11) and as the spawning act proceeds the behaviour of the female becomes more violent. Finally, she repeatedly turns right round the male, whereby the latter 'accompanies' her and immediately afterwards spawning is completed. The last shot of the spawning action (7) shows very clearly the position of the anal fin of the male. Approximately 500 eggs were produced, of which about 10% were covered with fungus. After the spawning act the female is driven away and the male guards the eggs, fanning the leaf. At intervals he inspects the eggs and it appears that he removes eggs, too (8), but I was unable to establish whether he in fact does so.

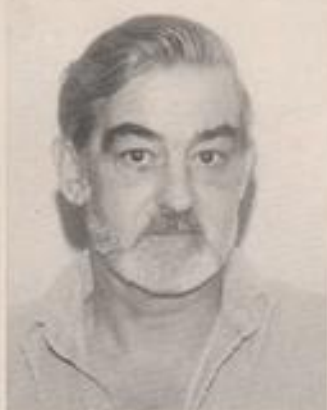
Photograph 7



Photograph 8







# Coldwater Jottings

*by Frank W. Orme*

SEPTEMBER signals that the year is entering its final months. Those who have raised young coldwater fishes under warm conditions should now dispense with all artificial heat, allowing the young stock to become accustomed to cooler, fluctuating natural temperatures. In this way the fishes will have sufficient time allowed to enable them to become sufficiently hardened before the onset of the cold winter period.

Although some fishkeepers make a practice of overwintering their fishes in warm water—arguing that in Japan, or wherever, the water is not as cold as ours nor does the cold last as long—I feel that goldfish and koi should be bred to withstand our prevailing temperatures. Whilst it may prove difficult, or even unwise, to try to harden imported adult fishes within a space of months, it should be possible to do it over a more prolonged period of time—by providing less warmth gradually. Young, home-bred, stock can, however, be accustomed to our “harsher” climate. There will be those which will not tolerate the low temperatures, but many will and these will provide the stock that can produce the start of a strain of true “coldwater fish” which require no artificial warmth during the winter. Of course, such fishes will not grow as fast as those kept permanently in warm water, but they are likely to live longer and cause their owner fewer worries than their more “tender” brethren.

Of course, some discretion must be exercised. The more exotic, fancy varieties of goldfish, for instance, can be given a small amount of protection by housing them in either a fish-house or a cold room within the house.

However, the water temperature should be low enough to allow the fishes to become inactive, and stop feeding, during the colder periods of winter. During really cold times the tanks in my own fish-house may have up to a quarter-of-an-inch of ice on the water surface, yet my lionheads and nacreous veiltails seldom come to any harm under such conditions. In the event that a fish develops swim-bladder trouble, which does sometimes happen, I dispose of it so that the weakness cannot be bred into the strain.

It is essential that, if the fishes are to be subjected to these cold conditions, they are prepared for their winter fast by building up the reserves of body fat. It is often noticeable at this time of the year that the appetite of the fishes will increase, this is their instinctive reaction to the shorter hours of daylight and falling temperature. This increased appetite must be satisfied by offering good quality nourishing food as often as it will be eaten; however, do not be tempted to give more food than the fishes can consume within a short space of time—excess, uneaten food can cause water pollution problems unless it is removed.

With time, as the temperature of the water falls, their appetite will diminish and, eventually, they will lose their interest in food. Be guided by the fishes and gradually reduce the amount of food until it reaches a stage where feeding ceases completely. If they are healthy, and their quarters clean, they should then be able to safely pass through the winter with little, if any, attention.

### Pond Cleaning

For those fishkeepers who have a normal, average size, garden pond, this month, or next, provide weather conditions that will allow the pond to be given a pre-winter clean. Owners of larger areas of water may not have to be so particular about this chore—especially if, like many koi-ponds, they are efficiently filtered; however, those of more modest proportions will certainly benefit. My own pond is cleaned out before the onset of winter and again in the spring, and I am always surprised at the amount of silt which has to be removed.

Cleaning the pond may not be the most enjoyable of tasks, but it does provide an opportunity to inspect the fish to ensure that they are in good health; any undesirable creatures can be got rid of; dying vegetation can be removed; the thick bottom sludge can be cleaned out, and the pond bosed down. Finally, when the pond has been refilled with clean water, the fishes can be returned in the knowledge that you have provided clean conditions in which they can spend the winter, and lessened the risk of pollution. When returning the fishes make sure that their water is approximately the same temperature as that in the pond. It only remains to keep out as many fallen tree leaves as possible, either by skimming them off the water surface or, better still, by covering the pond with a net.

If next year you listen to others bemoaning the mysterious deaths of their fishes, during the early spring, and learn that they had been kept in ponds which were seldom cleaned, you can smile to yourself and think "perhaps the effort WAS worthwhile after all"!

### Scottish Goldfish Group

Readers who live North of the border may be interested to learn that there is a Scottish Goldfish Group—which is a branch of the Goldfish Society of Great Britain—that has a core of keen goldfish enthusiasts who are making enthusiastic efforts to improve the quality of their stock, and further the hobby in their area. At present they hold only one meeting during the year; however, members keep in touch during the other months of the year through the medium of a regular news letter. Membership of the group costs only £2.00, and full details can be obtained by writing to Mr. T. McLean, 36 Corston Park, Craigshall, Livingston, West Lothian.

During recent months the Bristol A.S. newsletter has contained an interesting series of notes, and sketches, showing the most common faults in the fancy goldfish varieties. By using these notes, in conjunction with the Society's Standards booklet, Bristol members should be able to assess the quality of potential show fish with little difficulty—no matter how little previous experience a new member may have had—by being able to recognise both the good and bad points of a fish.

This is, perhaps, an idea that other societies could use for the benefit of their less experienced members.

### Sale of Koi

Although rain kept threatening it did not prevent quite a goodly crowd of people preceding me to the Botanical Gardens at Edgbaston, in Birmingham. I went along to view the koi which were to be offered for sale by auction during the afternoon. This was the second year that the Birmingham Section of the British Koi-keepers Society had arranged, and staffed, the event for their Society. A few days previously Mrs. Gill Minchin, wife of the Birmingham Section Chairman, had called into my office to remind me that Sunday the 22nd of June was the day scheduled for this interesting sale of fishes—with viewing from 10 a.m. until 2 p.m., at which time the sale would commence.

A number of different varieties were on display, their sizes ranging from around six inches up to about 22 inches, in blue plastic-sheet lined vats which were set out in a pleasant grassy area.

In general the public were showing great interest in the various fish, and the stewards were being kept busy answering the many questions which were being put to them. Some of the overheard snippets of conversation were quite amusing, like the lady who informed her friend, in a knowing voice, that "no matter what they say, they are meat-eaters otherwise they wouldn't grow so big" or the official who claimed "goldfish are rubbish compared to koi" or the elderly man who was told to "shush" by his wife as he loudly proclaimed "I cannot understand what they can see in such big, ugly brutes, I still prefer my goldfish." Ah well, I suppose everyone is entitled to their opinion.

Prior to the auction, the fishes were judged and rosettes awarded to the best six. Of these a 22 inch Kin Ki Utsuri was judged to be the best fish—and was subsequently sold for £215.

No doubt the organiser, Mr. Ron Hodgson, Mr. Dennis Minchin and his wife Gill, together with their band of "helpers," will feel that their busy day, and hard work, was well worth the effort. Certainly the public seemed to enjoy the spectacle of so many large, colourful fishes and I am sure that the Birmingham Section managed to recruit a number of new Society members from among the throng of people who attended the event.

Let me finish by quoting a conversation that took place in one of the hot-houses. I was admiring the splendidly exotic flowers on a tropical vine when a couple came alongside, "Oh, look Joe, isn't that gorgeous—did you see any like that when you were out East?" to which her husband replied, in a most disinterested manner, "yes, the bloody prison camp was surrounded by the things."



# Fishkeeping Exhibition - Belgium Style

*by Dr. David Ford  
of Aquarian*



A beautifully furnished  
aquarium containing  
many lovely corals.

Another attractive tank  
demonstrating the usual  
method of presentation.





Coldwater fishkeeping represented by tanks of common and fancy goldfish.

ORGANISERS of fishkeeping exhibitions at local and national level may be interested in the methods employed by the Belgium Federation of Aquarium and Terrarium Societies BBAT (*Belgische Bond van Aquarium- en Terrariumhouders*).

The Federation celebrated its 30th anniversary by staging an exhibition in Antwerp over Easter week, April 5th to April 13th, 1980. The Federation only exhibit every 5 years (perhaps one idea we shouldn't adopt!) and the title is *Aquarium Wereld* (Aquarium World) because the theme is completely furnished aquaria.

As you may know, Belgium is a country divided by language. The Northern areas speak Flemish, a dialect of Dutch, and the Southern areas speak French. Hence the BBAT has to be bilingual and their national magazines are two quite distinct journals, the all-French "*L' Aquariophile*" based in Brussels and the Flemish "*Aquarium Wereld*" based in Antwerp. The Flemish connection tends to be the important one, because of the 60-odd societies which make up the Federation only 10 are French-speaking.

Hence the 30th anniversary exhibition was held in Antwerp (or Antwerpen, as the locals call it) and everything was presented in the Flemish language. The City's exhibition centre, set in the heart of Antwerp, was used for the week-long exhibition and some 15,000 visitors were catered for.

Fifty society members were invited to take part with an allocation of two tanks each, making exactly 100 exhibits. Each tank carries a number and a loose-leaf sheet in the (free) full colour catalogue presented to each visitor identified the type of aquarium and its contents by this

number. This technique meant last minute changes were easily printed on the loose-leaf sheet, whereas the full-colour brochure containing articles on fishkeeping in general could be prepared well in advance.

In the final event 33 societies exhibited 93 tanks. These were all arranged at eye-level on wooden stands supplied by the exhibition centre and faced with hardboard to box-in all the tanks. Each society was responsible for the appearance of its own tanks and members attended the exhibition outside opening hours to prepare the aquarium for each day's viewing.

Additionally, a member of BBAT roamed behind the scenes checking equipment. On the back of every tank was a notice listing an emergency contact telephone number, feeding instructions (if necessary) and any special information about the tank.

There was no judging and no award ceremony. However, after the event, prizes donated by sponsors, were given to the clubs which exhibited the longest, the deepest, the most crowded and the most bare, aquarium. The BBAT Committee explained to me that they strongly believe a competitive exhibition destroys the integrated nature of the show. Hence they deliberately avoid prizes for the best in a class, best in show, type of competition. However, prizes are still awarded to help generate interest and to give some record of the event, but the prizes are complimentary and purely for fun.

In addition to the furnished tanks a number of special items were advertised in Flemish papers, and on commer-

*Continued on page 40*



LAKELAND HAS TWO HAWESWATERS, the larger lake below Shap, famous as Manchester's water supply, and a much smaller, wooded reedy limestone lake of 20 acres between Arncliffe and Silverdale on the north Lancashire border, now a reserve. Rumours of giant rudd and old stories of char in this water seem to be exaggerated. Rudd yes, and bigger than average from the limestone; but it doesn't seem deep enough and cold enough for char which may have been introduced experimentally years ago, without surviving. Anglers have tried introducing char in many of the smaller Lakeland waters for generations, but these fish want water below 60 deg F., like Windermere, and this little lake is far too warm in summer. Unlike nearby Leighton Hall Moss, it is rather poor in fish and thus much poorer in fish-eating grebes, bitterns and herons or even otters. Its shell-marl deposits make it calcareous.

In Somerset, a new reserve at Tealham Moor preserves two wetland fields with a good flora of yellow iris, kingcup, marsh-bedstraw, meadow-thistle, etc. In Cornwall, just north of Bodmin, another 60 acres wetland reserve, Redmoor, has several ponds left from opencast mining and willow carr, where uncommon plants include lesser marsh-wort, skullcap, marsh-speedwell, royal fern and pillwort (a rare fern-like plant), bogbean, bog-asphodel and spectacular flowerings of yellow iris. It is a refuge of the otter. Another recent wetland reserve in Scotland, 71 acres Tailend Moss near Livingston New Town in West Lothian has several pools surviving from an Ice Age Lake and others from mining subsidence, a haunt of water-plants and waterfowl. In Lincolnshire, efforts are being made at the time of writing to raise funds to purchase the lake and surrounding woodland and heath at Kirby Moor. A shallow lake is forming naturally in the middle of Mere Sands Wood Reserve near Rufford in West Lancashire, where large quantities of sand have been extracted, with the surrounding trees left standing. At present, I find rushes its most numerous colonists, but aquatic plants will increase with waterfowl visitors.

Strumpshaw Fen reserve in East Anglia is also the haunt of interesting water-plants, but dyke-clearance increased its water-soldier, which will easily grow out of control. Pink flowering rush (which isn't a rush) is a feature of dykes on the Ouse Washes. Staying at Loch Awe House again, where I am writing these notes, I notice 2 speed-boats now on this 25 miles loch, the longest and second largest in Scotland, and they must endanger its breeding blackthroated divers. We have seen some large eels on their migration back to the sea, while salmon come up through the loch. This is the corner of the Highlands for fishing divers on loch with islet safety. They are on Loch Rannoch, where wild grelag geese have two young left from their hatch. Blackthroated divers were also on Loch Finnart and the small lochan Eagbeach at Rannoch Station, as well as on the Blackwater Reservoir, Lochs Ba and Nant, Dioighinn near Nant (Taynuilt) and Arklet between Katring and Lomond.

A fishing goosander escorts her brood of 11 ducklings below my bedroom window, and more nest along the River Orchy. Though the high reservoir on Ben Cruachan has



From

a

Naturalist's

Notebook

by Eric Hardy

little aquatic interest, I notice the roadside stream and rocks below its dam bordered with many interesting plants: starry and yellow saxifrages, butterwort, sundews, mountain-sorrel, alpine lady's mantle and creeping New Zealand willow herb, a streamside colonist of British mountains and most unlike its rosebay relative. I saw its tiny leaves also by Loch Awe, below Dalavich.

I am afraid that Scotland's increasing tourists are not always fair to locals. The head forester at Inverliever, permitting me on private roads, asked me to look out for a green, clinker-built boat because someone hired it from him the previous day and did not return it.

#### Adders

We found a cast adder-skin above Llyn Aled, where these snakes inhabit the Denbighshire Moors. We found lizards but no snakes in the Pennines at Grass Wood when visiting Britain's last haunt of native lady's slipper orchid on the steep, stony north side of this limestone wood in Upper Wharfedale, above Grassington, where Dibscar Beck runs down to grayling and crayfish in the River Wharfe. The lady's slipper at Silverdale, Lancashire was introduced. "Beware of Adders" states the notice on a field-gate by Loch Awe Village Hall, but I've never found any in several years visits to this Scottish water. Golden eagle and Merlin feed occasionally on snakes—the hen-harrier occasionally takes crustaceans as well as snakes.

Many aquarists are interested in ferns, which they grow in damp, shaded rocks around their pools. "Seldom on walls", states the leading British *Flora* (Clapham, Tutin & Warburg) about rare forked spleenwort; but over the left hand wall alongside the B 5106 road from Trefriw in the Conway valley of North Wales, I counted 36 of these little, thread-like ferns shortly before the wall ends before Llanrwst, facing the field. It grows also on Gwydyr's old lead-mine walls and spoil near Sarnau, Hafne and Nant Bwlch, as well as Cwn Ystwyth and on Craig Dhu above Cader Idris's Lyn-y-Cau.

#### Otters

Despite publicity about declining otters, that applies chiefly to England. They are still frequent in Scotland, along the shores of the Western Isles, like Skye and the Summer Isles. At Priest Island, in the Summer Isles this year, bird-ringers found 17 storm-Petrels with their heads bitten off by otters. On Arran, dippers have almost been exterminated by escaped mink.

What makes fish predatory? This problem faces most pond-owners when considering certain species for stocking. For example, when shoals of fish were increased from up to half-dozen to at least 20 it was not surprising that predatory pike and perch became less successful. This is one of only two references to fish in Dr. John Deag (Edinburgh University's) recent new 91-page paperback *Social Behaviour of Animals* (Arnold £3.20). The other is a sketch of a male Siamese fighting fish raising its gill-covers and fins in aggressive display. With many references to monkeys and birds, fish-watching seems to come out badly, though its contributions to our knowledge of animal behaviour have been well shown by Lorenz and others.

#### Lobsters

Losses of lobsters either in the marine aquarium or when commercially stored alive, due to the bacterial disease *Gaffjaemia* can be heavy. Thus one welcomed a new 11-page informative and readable report by P. A. Ayes (Fisheries Notice 64, MAFF Fisheries Research Lab, Lowestoft) which describes its recognition, treatment and prevention. Caused by the bacterium *Aerococcus viridans homari*, it is rarer here than in North America but may arrive in the current importing of Canadian lobsters. The bacterium occurs naturally on the lobster's skin and the bed of the sea where it lives, but only enters the animal when its 'shell' is damaged or it loses a limb and before the lobster's very effect and quick natural clotting mechanism, which soon seals a wound. Unfortunately, the lobster's blood has little resistance to this bacterium which multiplies rapidly as the lobster weakens, becomes lethargic, lying on one side, casting claws and stops eating and dies. The tail often turns pink underneath, hence the North American name of 'pinktail' for the disease, but this should not be confused with a normal pinkish underside of European lobsters, distinguishing them from Americans. Nor should it be confused with normal loss of about 5% of tanked lobsters after travelling from the sea.

Antibiotic treatment is still experimental, but careful

handling to prevent damage to the 'shell' are and not cutting claw tendons to immobilize them precautions recommended. The disease is almost dormant at 1 to 5°C (34-40°F) and activity increases with rising temperatures. Low temperatures also reduce cannibalism and feeding requirements. Other crustaceans are not affected seriously, but crabs and crawfish or spiny lobsters make act as carriers.

#### River Dredging

A recent survey of the River Wye found that dredging, removing bankside vegetation and other fishery and water authority management made a difference of 11 bird species in a density of less than 5 pairs nesting per kilometre, compared with 25 species in over 14 nesting pairs per kilometre along unmanaged sections. Lower water-levels and drainage of adjacent water-meadows on the River Stour in Dorset reduced breeding waterside snipe, redshank and lapwings to 2 pairs, compared to 180 pairs where the Hampshire Avon has higher water maintained by weirs, and wetted meadows with extensive reedbeds in a game-fishery preserve. The Nature Conservancy has designated stretches of the Welsh Wye and Scottish Tweed as sites special scientific interest. Obviously more are needed, not only for birds but for native water-life like crayfish and burbot. In Argyle, I saw magnificent acres of white water-lily on Siore Loch, above Loch Awe, of an area unlikely to survive in English waters.

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## READERS' LETTERS

#### Missing Persons!

You were kind enough earlier in the year to make enquiries regarding Jose and John Thorn who wrote a book entitled "Starting with Tropical Fish." I should be grateful if you could print this letter in your journal asking if Mr. and Mrs. Thorn could contact me as soon as possible at Saiga Publishing Co. Ltd., 1 Royal Parade, Hindhead, Surrey, telephone Hindhead 6141.

DR. J. BATTY.

#### Snakes

I am wondering if any of your readers can advise me? I have for some time been trying to obtain work with venomous snakes (i.e., rearing and maintaining). I realise that herpetology is not the field of the majority of your readers, but I would be glad to receive any information about getting a career of this sort.

I would also be grateful for the addresses of any snake-farming establishments that your readers may know of.

Thank you for your co-operation.

ROBERT MATTHEWS,  
"The White Horse,"  
Sutton,  
Nr. Pulborough,  
Sussex.





Belgians like well planted aquariums.

*continued from page 37*

cial radio and TV. These included a continuous automatic film show about Goldfish displayed on large triple screens, video recordings about ornamental fish diseases shown on colour televisions mounted on pedestals at rest points around the hall, and a display cabinet showing the latest books available on the hobby.

In a separate lecture hall a series of one hour lectures were given each day at 11 a.m. and 3 p.m. by aquarium experts specially invited to the exhibition. The lecture programme was announced outside the entrance hall so visitors could decide what time, or even which day, to visit the show and hear a particular lecture.

I was guest lecturer for three days presenting slides on the development and manufacture of flake foods. This was quite an honour, but the problem was the language barrier, of course, because my Flemish is limited to "Good Morning." This was overcome by renting small radio receivers with earphones supplied to each member of the audience. A translator sat in a sound-proof booth at the back of the hall and she listened to my talk through earphones connected to a hand-held microphone. She translated instantly into the radio transmitter for the audience to follow the slide show. This meant I could *ad lib* and not just read a prepared script (which always gives a boring lecture).

I noted that about a quarter of each audience dispensed with the earphones because their English was adequate to follow my talk. I also noticed that these visitors laughed at the odd anecdote whereas the other visitors sat silent—I guess something gets lost in the translation when you try to joke!

The exhibition itself I found very pleasing and memorable. The exhibition site was easy to reach being based in the City centre. The entrance fees were reasonable: 50 Belgium Francs (BF) for adults, 30 BF for children and prebooked parties (there is about 67BF to the £) and included a free brochure and leaflet. Opening times were 10 a.m. to 8 p.m. each day.

The opening ceremony took place on Easter Saturday morning with a short speech by the Chairman of BBAT and the Governor of the Province. In attendance were the sponsors who formed the so-called "Beschermoomite" of 15 members. These are all VIPs such as the local burghermasters and councillors. These are men who can be relied upon to use their political muscle in the event of problems during the organisation of the exhibition. The BBAT committee usually find it is enough to "name drop" to some clerk who is being bureaucratic and holding-up the event, but if necessary the appropriate higher authority can be contacted to overrule such people and so ensure everything runs like clockwork (harassed UK committees please note).

After the opening ceremony free sparkling wine or orange juice was offered to VIPs and visitors alike, plus an array of professionally prepared *hors d'oeuvres*.

When entering the grand hall the total effect is quite stunning because the room is well lit, but the aquaria housing includes a canopy that throws shadows enhancing the brilliance of each individual aquarium. The tanks are all in the peripheral areas in a convoluted display to increase the walking area, but leaving the centre of the hall free and open. This gives a feeling of spaciousness and



the show never felt crowded, no matter how many visitors were passing through.

The centre of the hall was actually a rest area with chairs arranged around a pool complete with a fountain and Goldfish.

The individual tanks were all furnished and showed the loving care each society could lavish on the few aquaria that were their responsibility. There were no sections, but a random mixture of coldwater, tropical, marine and specialist tanks such as Cichlids, Killifish, vivariums and plant displays. Hence, as the visitor walked around the display from tank number 1 to 93, each individual aquarium was a surprise item.

The pride of place was the long aquarium measuring 4 metres  $\times$  60 cm  $\times$  50 cm (approximately 13 feet  $\times$  2 feet wide  $\times$  20 inches high) made from 10 mm (almost  $\frac{1}{2}$  inch) glass. When first built, this monster was laid on a continuous sheet of polystyrene but its weight when filled caused a slight bowing which the compressed continuous polystyrene could not accommodate, and the base cracked in the centre. A false bottom was silicone-sealed into place to cure the leak, and the tank was resited on several 1 in. thick pieces of polystyrene only 9 in. long. This allowed the glass to bend under its own weight between these supports and no cracking recurred.

The tank was filled with 7,000 BF worth of plants and a shoal of 600 Cardinal Tetras, giving a breath taking display as the shoal flowed from one end to the other.

The exhibition was certainly different to the UK shows. The open-space and clinical appearance made the show look, and remain looking, very clean—unlike our shows which sadly get very scruffy after one day, let alone a week.

The advantage of showing only furnished aquaria to the general public was obvious—it converted non-aquarists to



Split level aquarium with artistic arrangement of bog plants.

the hobby. I have yet to find a non-aquarist visitor to British shows who is filled with enthusiasm when viewing a zebra fish in a sweet jar.

I know clubs spend hours building tableaux and I do not want to offend these enthusiasts, but surely it is better to direct all that time, trouble and effort *into* the aquarium?

## Flower Animals - Wonders of the Sea

We very much regret that the name of **Peter Wilkens**, the author of last month's splendid colour feature was omitted from the text.

Cichlids have their own set of display tanks.







Arrive at a Show early and give your fish plenty of time to settle down before judging starts.

## A Guide to Exhibiting Fishes

### Part 5

by Barry Durham

WHEN I MENTION to friends that I train my fish to get them ready for showing the reaction is quite comical. I usually get incredulous stares and open mouths followed by giggles and cries of "You must be joking".

But training is something that I am deadly serious about for without it no fish will be at its best on the show bench.

You should begin getting the fish ready for their first show about six weeks before the date of the event as this is roughly the minimum time required. As most shows are held on a Sunday this is a good day to start training your fish as it will get them used to being taken out of their tank on the same day each week.

Just after lunch, fill your show tanks with clean water from the aquarium. The best way to make sure your show tank water is crystal clear—as it always should be—is to choose a corner of the tank away from the airstone or filter so that circulating debris is not swirled near the siphon (or turn the airstone off altogether) then take your water from close to the surface.

If you fix a piece of plastic tubing about 1 in. in diameter on the end of your siphon tubing you can then put a plug of filter wool inside and this will let the water through but hold back any debris. A hamster feeding-bottle with

the base cut off works quite well. They usually have a curved tube out of the top and you can push your siphon tubing on to this.

Incidentally, such a modified siphon is good for doing your usual tank 'housework' as well. Remove the plug of filter wool and set your siphon going, then push it into the gravel—you will be amazed at the amount of dirt it will remove, even from an apparently crystal-clear tank, as it 'tumble washes' the gravel.

When your tanks are full of clean, clear water, the time has come to *slowly* and *carefully* catch the fish you intend to show. Take your time and frighten the fish as little as possible. Put each fish into its tank and place them on a sideboard or somewhere where people will pass them. Have a close look at the fish yourself and get the family to do likewise. Pick the tanks up carefully and study the fish closely. Not only will this get the fish used to being judged it will also enable you to see any blemishes or split or frayed fins or missing scales that may not be so apparent in the main tank, but will need to be healed before the fish goes out to its first show.

The fish will probably be frightened at their first taste of a show tank so they should be returned to their own quarters after about an hour or so.

Each time you take the fish out of the aquarium and put them into their show tanks, extend the time until they are spending four or five hours in the tank without showing any signs of distress. They should be alert with all fins erect and in full colour and in their correct position in the water, even when you pick the tanks up to look at them.

You can also do your training on one or two nights in the week as well, preferably on the night your society meets so that the fish will also get used to going out to evening shows as well.

Having got the fish used to being in the show tank, the next step is to get them used to travelling.

Probably one of the best means of carrying fish to shows, and certainly the most popular, is to use one of the polystyrene boxes used by fish exporters to send fish to this country. They can be bought from most aquatic shops for about 50p and will hold quite a few tanks with packing between them. They are strong and have the advantage of insulating the fish as well. When the fish are packed away in their sealed tanks so that they don't shake about in the box, take them for a ride in your car. A run of about twenty minutes to start with is sufficient. Then bring them home, unpack them, remove the cling-film and wipe the tanks down just as you would at a show, before standing them on the sideboard or table for a few hours.

The fish will probably be a little agitated to start with, but if you have carried out the first part of the training programme properly they should have settled down in about half an hour and be performing as if they had never been out.

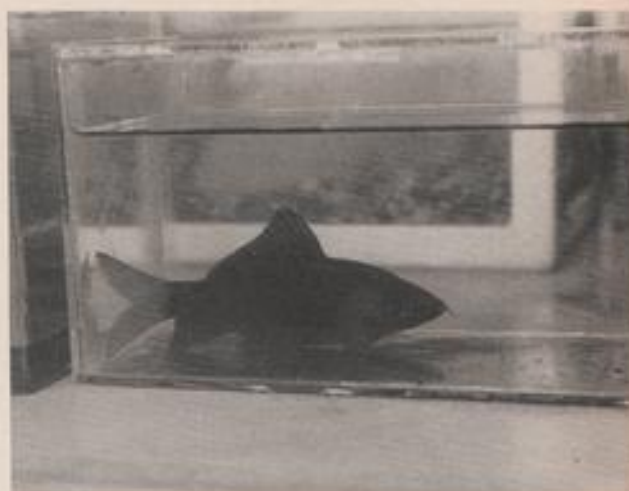
Next time take them out for an even longer trip and repeat the process. A couple more trips should take you up to your first show by which time the fish will be ready for it.

No matter how much you try, however, there will sometimes be the odd fish which will never settle in a show tank. If this is the case after the third or fourth training session, then you may be better off giving up—at least for a while.

It also pays to keep a close eye on your fish and if any look a bit dejected on the show bench at any time, it is time to give them a rest for a week or two. Too much showing can be detrimental to certain fish.

All this may sound very strange to the uninitiated but you have to remember that your fish will have to travel to a show and they must be as used to travelling in their little tanks as swimming around in them for hours at a stretch. A fish may be in its show tank for eight or ten hours if the show is a fair distance away.

The longest my fish were out of their home aquarium was a couple of years or so ago when my brother and I went over to Sheaf Valley show at Sheffield. We left at just after 9.00 a.m. and got back just after nine at night



This red-tailed black shark has obviously been well trained as it departs well with all fins erect.

and being February we were treated to snow for most of the way. We didn't lose a fish that day and the long arduous journey couldn't have upset them that much because we picked up seven or eight award cards between us including a 1, 2, 3 in the Platy class.

As your fish have to spend quite a time in their temporary homes don't fall into the trap of giving them a good feed before you set off. That is one of the worst things you can do. Show fish should not be fed at all on show day and the last feed should be late afternoon on the day before. The reason for this is two-fold: fish excreta will pollute the water and you must remember that your fish are confined in a small volume of water for a relatively long time. Polluted water can not only have an adverse affect on their performance on the show bench; in extreme cases it can make the fish ill and possibly contribute to its early demise.

The second reason is that the droppings are unsightly in a show jar and if your fish is tying on points with another, the final decision could go to the better presented fish, and this means a clean container in which the fish can be easily seen and judged, and clean water.

For evening table shows, nothing should be fed after the morning feed. Don't think you are starving your fish by doing this because you are not. It will do them no harm at all, especially when you consider that when you go on holiday they probably don't get fed for a week or a fortnight.

It pays to get to a show as early as possible—at least an hour before judging is scheduled to begin. This will give you time to bench your fish and polish your tanks with





You don't have to be long in the tooth to win at shows. Young Lee Groves of Sandgrounders got amongst the prizes at the B.A.F. last year.

a soft cloth to remove any drops of water or finger marks, and will also give your fish plenty of time to settle down after their journey and be ready for showing.

Once your fish are on the bench there is nothing more you can do for them. They are well and truly on their own. So leave them alone and let the judges get on with their job. It depends upon the local rules under which you are showing whether you will be allowed to watch the judging or not. The Federation of Northern Aquarium Societies (F.N.A.S.) allows exhibitors to watch the judges at work, at the time of writing, as does the Yorkshire Association of Aquarist Societies (Y.A.A.S.) but the Federation of British Aquatic Societies (F.B.A.S.) excludes people from the judging area, which may mean you can watch what is going on from a distance, or you may have to leave the room entirely.

And there are differences in the style of judging as well. In the South of England judges try to point every fish and the points are then displayed at the shows. In the North judges tend to use the 'gate' system when there are large classes to be judged. That is to say they look at every exhibit and then use their experience to decide which are the best six or eight fish in each class. Those few fish will then be pointed under the 'five twenties' system to decide the winners.

The merits and otherwise of both systems have been argued about for years but it is only when all the Federations

and Associations finally get together, will we get a uniform system throughout Great Britain.

Whichever system is used it can be anything from a few minutes to a few hours before you know if all your hard work has been worthwhile. There is nothing quite like seeing that first award sticker going on your tank . . . and if all goes well, it should be the first of many.

Don't be too disappointed if you don't pick up an award at your first show, though. Not many people do. Put it down to experience and see if you can find out from the judge why your fish didn't win, then go home and see if it can be put right. If you have done everything right it will probably be only a little thing that is wrong which another couple of weeks of care and good feeding will put right. And don't be too alarmed if a fish you have won with one week doesn't get anywhere the next. There could be a lot of factors involved in this. The fish may not be quite at its best; the lighting may not be as good as the previous show and while judges do all judge to the same system (unless you have gone into another organisation's area) they are only human and do have their own opinions. Still, once a fish has started winning it usually gets the habit and will continue to do so for a while—but don't flog it to death. It is nice to win prizes but it is not going to do you much good if you kill the fish in the process. Try and give your fish a rest from showing every two or three weeks or so. They will benefit from it.

**NEXT:** Showing more than one fish (Pairs and Breeders Classes).



# THE POND SAGA

## Part 5

by Roy Pinks

By the beginning of August, therefore, I found myself with one large but leaking pond, planted but without fish; one small leaking pond bursting with plants and fish destined for deployment, and one hole in the ground with nothing to fill it other than my somewhat dented plans. The leak in the large pool was particularly dispiriting, because at this advanced stage the last thing I wanted was the job of draining it completely once again—the repair work based on the advice of Lotus had looked so very promising, and the whole family had inspected the shell for undetected holes. A lot would depend on whether the trouble lay at the waterline or down below. I suspected the former area, as this is nearly always the most troublesome region, irrespective of the method of construction, as it receives the full range of effects of weathering from baking sunshine to the most severe frost. The waterline separates one area of comparative warmth from another which may be vastly hotter or colder, and because the waterline rises and falls in step with evaporation or rainfall, there is a belt of perhaps 6 inches which fails—or is likely to fail in some way if subjected to external pressure or violence of some sort. Many of the repairs I had done were in this region, and were complicated by the fact that the fabric had had to be folded to conform with the informal contours of the pool. I was not, therefore, particularly surprised that the refurbishing had proved not to be perfect, but I gave a lot of thought as to how I would tackle the job if it proved that the leak was in such tricky territory.

### Leak detection

The first thing to do was to drain the pool to an inch or so below the leak—when I had discovered it! This turned

out to be not as difficult as I had feared, and I isolated three fairly large patches, the edges of which had not been properly waterproofed with the black Bostick, so I removed them completely, dried the under surface thoroughly, and simply went through all the motions of repair again. After a couple of days to allow the bitumastic paint to settle, I refilled the pool and kept a careful watch on the water level. All seemed to be well, but there remained an uneasy feeling about what might happen to the many other patches in this danger belt, but they looked well set and I decided to hope for the best and not to scratch them all away and repeat the repairs. Time was passing all too quickly for my peace of mind, as I still had to line and cap the Pit pool and then decide what to do with the Nursery pool after all the contents had been transferred. I was quite determined that no fish would be added to the main pond until the plants were showing real signs of growth, and until it was bulging with *daphnia* and other forms of aquatic life, thus to make sure that the Comets and Orfe would have the best possible start in their new quarters.

Meanwhile, I was not having great success in the Nursery pool. This contained a large quantity of plants (mostly marginals, for crating and planting in the two smaller pools after they had received my attention), my recently purchased Sarasa Comets and Orfe, plus the balance of my neighbour's fish which had overwintered with us and meantime defied my attempts to recapture them. The water in the pool looked pretty murky, it did not smell very sweet, and the fish were not feeding at all well: these were menacing signs, and I was particularly anxious about the orfe, whose need for well oxygenated surroundings is well known, to the extent that they usually just die if conditions are



wrong, without giving you any warning that things are amiss. But it was the comets which gave the trouble, and 3 died within as many days. Although there was no ready answer to this I decided to try trickling fresh water into the pool via the garden hose pipe, all round the clock. Just a trickle, and no more, as if there had been a down-pour I am sure that some of the fish would have disappeared through the cracks in the plastic sheeting at the waterline, for some of these were extensive.

#### Improved conditions

It was quite astonishing how much difference this miniature waterfall actually made. Within minutes of its inception fish were swimming round it, and they displayed far more liveliness than I thought they possessed. There were no further losses, and within a couple of days most of them were taking soaked and crushed pond pellets or pieces of earthworm. In the meantime conditions in the main pool were improving, and an interesting feature was the quite staggering build-up of midge and gnat larvae. The wrigglers rose and fell in the water like wavy clouds, and it was possible to net huge quantities and transfer to the fish, which went mad with delight when these treats were offered. *Daphnia*, too, were there in their millions, and the water was, of course, as clear as crystal.

So long as these conditions obtained I felt that I could safely divert my energies to the Pit, which at least was excavated and could be lined and capped fairly easily, so I duly ordered the necessary materials. Whilst waiting for them I acquired a few additional plants. *Calla palustris*, the Bog Arum, has heart shaped leaves and white flowers, and does nicely in shallow water. Nothing too rampant about this, and always attractive-looking, whether in flower or not. Then, of a similar nature, but quite new to me, was a specimen of *Lysichiton americanum*, which is a larger arum with a yellow flower. Its mottled leaves were most attractive, too, and it promised to act as something of a showpiece if properly situated. I also invested in an *Orontium aquaticum*, the Golden Club, which requires deep water and no disturbance if it is to do well. Its golden blossoms are short lived, but its beautiful elongated bluish-green leaves, which may either float or be raised above the water, are most impressive, and I hope that I shall in due course have a planting of this wonderful species worth writing home about. Another newcomer to my experience was *Saururus cernuus*—Lizard's Tail or Swamp Lily, said to grow to about 2 feet high and to produce scented flowers. A pot of *Scirpus albescentis*, the graceful white rush, and some *Eriophorum* or Cotton Grass (for the bog garden) completed this round of purchases. I intended to make a few more before the end of the year, so that they could be established in such a way that I would be in a position, within a season or so, to comment fairly fully on their actual performance, for the benefit of readers.

*continued from page 28*

of this long-favoured genus, is ornamented with alternate horizontal stripes of silver and blue, that even extend into the caudal fin and are repeated on the anal fin. The dorsal and pelvic fins are marked with blue. There is more than a suspicion of shining yellow when the light entering the aquarium plays over the sides. *B. rerio* is popularly known as the zebra fish. A congener is equally beautiful. It is called the opalescent fish or *B. alboineatus*. This species is a fugitive gun-metal blue overlaid with shell-pink to fresh grass green. A wine to deepish pink stripe extends along the sides and terminates at the fork of the caudal fin. The fins are yellowish green, the anal crossed longitudinally by a narrow green line above a blue one.

It is always advisable to keep several of the same species of tetra or cyprinid in groups of seven or more. Most of them are shoaling fishes and a group of them playing follow-my-leader is a pleasing sight.

#### Catfish

Most of the smaller catfish are something well worth investing in for any owner of a community tank. *Corydoras aeneus* (the bronze coloured type or the albino form) and *C. paleatus* deserve their great popularity. They usually live for years and come and go across the bottom like mice venturing from their hideouts in search of food. Thankfully corydoras catfish are not nearly so given to hiding for long periods out of sight as mice, and every so often they can be seen zig-zagging about the floor of the aquarium and then, pausing for a few moments, finding what edible matter is present in the interstices of the compost. A cichlid that behaves itself very well is the keyhole cichlid (*Aequidens maronii*). It is not clad in brilliant hues but is handsome all the same in a subdued sort of way. It is roughly beige in colour, with a dark keyhole-shaped marking on the sides and a dark band extending from the top of the head, through the eye, and terminating on the gill-cover. The keyhole cichlid does not go in for much rushing around but prefers to hover about a slab of stone and leave it only for occasional visits to other parts of the aquarium or when it joins the other fishes enjoying the excitement of a sudden rain of food.

It is either because the beginner fears his fishes will suffer from starvation, or because the presence of food sinking through the water triggers off a lot of mad swimming about that, generally speaking, fish are sometimes fed too often and too much (at a time), and this results in foul conditions.

Ordinarily about as much slightly crushed flake food as can be heaped onto a 1p piece will make a meal for up to a dozen small fish. Offer up to three or four such meals during a day. Extra nourishment can be given in the form of tangled balls of live whiteworms or minute fragments of raw red meat (scrape a sharp knife held vertically over a piece of lean beef. The flesh left adhering to the edge of the blade can then be fed to the fish).



# Commentary

by  
Roy Pinks

IN SPITE OF repeated hints in this column that there is a greater call for native coldwater fish than most dealers would admit, there is not much evidence of any response to them. So much for the claim that if there is a demand, the trade will meet it. Generally the reverse is true—the trade first acquires its goods at competitive rates and then tries to convince you that you need them. However, one local dealer did have some Crucian Carp (though I was too late to secure any of them), and another did us proud by offering some golden rudd, bitterling and common rudd, all very nice fish, priced at around the £1 mark. I bought two pairs of bitterling and four golden rudd, the former to grace an indoor tank, and the latter to fatten up in the outdoor pool. But I was greatly disappointed that not only was the bitterling mussel (*Unio pictorum*) not available, but my dealer knew of no source for this essential adjunct to the breeding of one of the most attractive and interesting of all coldwater fish.

I first tried my hand with bitterling when I was 15—over 40 years ago—and I recall most vividly the exciting courtship and spawning procedure, but although I had taken care to get things right, nothing emerged from those mussels even well after the expiry of the normal period for the appearance of the fry, and I resolved that one day I would try once again to breed these fish. The bitterling mussel was not, even in those days, a subject stocked by many importers, but there were several firms who advertised in the aquatic press, and who could be relied upon to supply this sort of thing. I wonder whether any readers or suppliers who read this column could give me information about obtaining some of these creatures, as I hope to do an article on this species at some future date, and the lack of the mussel is the only real drawback. I assume that it is essential, at any rate, though I often wonder what the bitterling do if some pollutant, for example, causes a shortage of these molluscs during the breeding season. I imagine that there is no alternative, and that their absence would count as a natural disaster of sorts.

## Minnows

Whilst on the subject of articles in short supply, I was asking around for minnows recently, as I now have a circulation system and would like to attempt to breed these most attractive fish in the garden pool—said by many writers to be a most difficult undertaking. In one shop I was looked at rather suspiciously and asked whether the White Cloud was what was intended, and when I stated that it was the coldwater fish I had in mind, I was told that

it was rarely stocked, though there were always plenty of other native fish like rudd and shubunkins. At another establishment I was offered sticklebacks. Passing the word round all the local schoolboys elicited nothing more encouraging, and there were several who had never even heard of minnows. A later discussion with another lad revealed that he was unaware of the existence of the roach. Clearly, the resourcefulness of the schoolboy, once an occupational hallmark, has become a thing of the past—or at least it seems to have done so in these parts, which is all the more astonishing since it is in the heart of one of the finest rural areas in the country.

## Toads

A conservationist questioner in Gardeners' Question Time on BBC4 recently asked how he could cope with the annual toad migration, much of which tended to end up in his garden pool. A humane and thoughtful person, he had to struggle annually with competing demands of his fish and newts on the one hand and the toads on the other. I greatly admire his tolerance and responsibility, because anyone who has had a pool favoured by toads in the mass has a real problem on his hands. It is unnerving just how many of these creatures can cram into a pool with the object of mating and proliferating, and I personally find the whole thing pretty repellent on account of the sheer excess and unreasonableness of the undertaking.

For once the experts seemed at sea, as they recommended draining the pool, thus making it a non-starter so far as the toads were concerned, who would then lumber away to the next available stretch of water. This struck me as an odd and unsatisfactory way of handling the difficulty. For one thing this migration takes place when the pond fish are just emerging from their torpor, and when they are at their lowest ebb. If they and the newts are to be removed for the benefit of the toads, their whole cycle is likely to be upset, and it will probably be necessary to accommodate them temporarily in an indoor tank, to weather the unexpected disturbance. Considering that all marginal plant growth will at this time be minimal, it would seem to be quite a simple matter to cover the pool with fine mesh material tacked to a framework and anchored down by rocks or bricks, just until the toads have exhausted their energies elsewhere. This would harm nothing, it would redirect the toads, and allow the normal inhabitants of the pool to go about their business without competition, and furthermore could be removed and stored away until the following year. This could be done just when the plants were beginning to make early growth, and thus, they, too, would not suffer from the rather extreme suggestion that draining should be carried out.

The habit of covering pools during leaf fall or at other critical periods is very much neglected. Many pool owners are reluctant to set about constructing covers because they think their pools are too large. However, it should be noted that these can be made in sections, which makes for simpler storage. The very fine meshed green shading material which is sold for greenhouse protection is highly suitable for this purpose, and will even keep flies out!



# Product News and Views



TETRA PELLETTED FOOD, manufactured in the U.S.A., and distributed by Tetra, of 15 Newlay Lane Place, Leeds, LS13 2BB. Available in drums at 45p for 84 grams or 95p for 196 grams.

Tetra Pelleted Food is a new fish food from Tetra—a company that needs no introduction from me because most aquarists must have already tried some of the wide range of foods and treatments available in the Tetra range. This pelleted food is intended for "pool fish, goldfish and koi" and the label on the 3 oz. drum states that it's for "cold water ornamental fish only". The drum has a metal base, and a handy, revolving plastic lid that only has to be turned to enable one to shake out some pellets. This means that the container is quickly and easily opened and closed and one does not have to hold a container in one hand and a lid in the other; or set down the lid somewhere and then have to search for it afterwards.

Enough food should be shaken from the can for the fish to consume in two to three minutes; and fish should be fed twice daily on the pellets. The label also recommends the use of TetraFin Basic Diet for goldfish.

The guaranteed analysis of the food is: crude protein—

not less than 38.00%; crude fat—not less than 5.50%; crude fibre—not more than 7.00%; moisture—not more than 10.00%; and ash—not more than 15.00%.

The ingredients consist of: animal protein products; plant protein products; processed grain by-products; grain products; fish oil; lignin sulfonate; di-calcium phosphate; salt; Lecithin "A Preservative"; Ethoxyquin "A Preservative"; vitamin premix consisting of: vitamin A acetate; pyridoxine hydrochloride (B6); vitamin B12 supplement; ascorbic acid (C); alpha tocopherol (E); menadione sodium bisulfite (K); riboflavin (B2); choline chloride; thiamine mononitrate; biotin; niacin; inositol; calcium pantothenate; folic acid; methionine hydroxy analogue calcium; traces of manganese sulphate; magnesium sulphate; iron sulphate; iron carbonate; iron oxide; calcium carbonate; copper carbonate; zinc sulphate; zinc oxide; potassium iodide; sodium carbonate; cobalt sulphate; and cobalt carbonate. Added mineral matter is not more than 3.00%.

The pellets are relatively small in size and about as thick as an ordinary match. My goldfish certainly enjoyed them: they tended to grab a piece into their mouths and then spend some time "masticating" the piece.

Although the label states: "for cold water ornamental fish only," I could not resist the temptation to try the pellets, on a number of occasions, with my tropical fish. They caused an amazing amount of interest amongst both large fish and small fish. Large angels grabbed a piece and made off to "chew" it, while pellets that reached the gravel—the pellets sink easily and quickly—were greedily attacked by gouramies which made a fair amount of noise as they chewed at the pellets with obvious pleasure. Cardinals, neons and guppies are too small to eat whole pellets; but as soon as the pellets landed on the gravel these smaller fish spent considerable periods of time chewing at them until they were consumed.

The pellets proved to be very attractive to Malayan sand snails in the gravel. After I had added the pellets to the snail tank for a day or two the snails seemed to know when pellets were added and quickly moved across to them in large numbers making a peculiar picture of heaving shells in mounds in the gravel.

These pellets are certainly very popular with my fish and snails, both tropical and cold water—even though they are obviously not intended for tropical fish but for pond fish. The pellets certainly cause a lot of activity and excitement in my tropical tanks and I shall continue to add the odd few pellets to supplement the tropicals' and the snails' usual diets. Obviously I'll continue to make sure that I do not over feed either cold water or tropical fish—on this or any other food.

Tetra Pelleted Food is an interesting addition to the Tetra range and the food obviously appeals to my fish. Perhaps they enjoy the challenge of having to work at eating this food because they are usually "spoon fed" on much more easily eaten flake foods that do not seem to need to be chewed—if one can say that fish chew or masticate.

B. WHITESIDE.

THE AQUARIST



## COLDWATER Queries

by Arthur Boarder

I have had a goldfish in my pond for ten years and now it has turned white, having lost its golden colour. It appears quite healthy otherwise. What is the matter with it please?

The fish has just lost its colouring pigment and no doubt it is through old age. Many goldfish turn white, or silver as it is called, and it is usually because there have been silver coloured fish in the strain. Such fish usually start to show silver patches long before they are as old as your fish. Most goldfish which show a patch of silver one year will show more silver each year. I have never known such a fish to turn all gold again. This is not a disease and there is nothing you can do about it.

I have a shubunkin in a garden pond which appears to have trouble swimming. It rises to the surface, sometimes on its side, and cannot seem to keep below the surface. What is the trouble and how can it be cured?

The fish is suffering from swim bladder trouble and cannot be cured while it is still in the pond. If it is not too badly affected, it might improve as the water turns warmer. However, it should be removed from the pond and placed in a shallow container; a washing-up bowl will do. It should then be kept in a warm place, or have a small heater inserted in the water to keep it at about 70°F. The fish should not be fed while on an uneven keel and when cured it should be fed for a time on soft foods only.

I am thinking of making a pond about two feet deep and five feet in diameter. I want to have small goldfish and would like to know what plants to use and shall I have to put soil and gravel on the bottom?

You do not have to put soil and gravel on the bottom as all water plants should be set in separate containers. It is then easy to remove them each year when you clean the pond out. The pond is small and you must not over-stock it either with plants nor fishes. A few shoots of *Elodea canadensis* or *Ceratophyllum demersum* will be enough as water plants soon grow when the water warms up. You could have one water lily of the pygmaea type. These keep very small and you could choose from: *Nymphaea laydeckeri purpurata* (rose crimson); *N. odorata alba* (scented white); and *N. rose nymphae*.

### READERS SERVICE

Our experts are always pleased to receive your letters which should be addressed to:  
Readers Service, The Aquarist & Pond-keeper, The Butts, Brentford, Middlesex, TW8 8BN.

All queries requiring a personal response must be accompanied by a stamped addressed envelope.

Can you tell me how to make up a good dry food for feeding goldfish?

There are many ways of making up a good dry food for fishes but with the number of flaked foods on the market today, it is hardly worth the effort. However, a lot depends on the number of fishes you are keeping. Many years ago, before the advent of dried flaked foods, I used to make up my own mixture and found it very good and not as expensive as bought prepared foods. As goldfish will eat almost anything humans can eat there should be no problem in making up a nutritious food. I will add the type I used to make and you can use this or add anything you may have which is eatable for fishes.

I used a good proportion of rolled oats, a little Bemax, some dried shrimp, some dry type of cat food, some lightly baked brown bread and when mixed, a very little cod liver oil to assist in keeping the food on top of the water for a time until eaten. The mixture was run through an old fashioned coffee mill set rather coarsely. The food was then sifted and the fine material put through the grinder at a finer grade. The dust-like result was ideal for feeding young goldfish. All was stored in screw-top jars and so it was always available for use. In addition, I fed with garden worms as often as they were available. I used to bake my own dried shrimp, and as I am a sucker for sea foods, I used to eat the meat from them and only bake the head, tail and skin.

I have a 48 in. x 12 in. x 15 in. tank with some Redcap orandas, Comets, fantails, moors, loaches, bitterling and medakas. What other coldwater fishes can I get for the tank and where can I get some freshwater mussels so that the bitterling can breed?

I have no idea of the sizes of your fishes, but I imagine that your tank could be overstocked already. It will only hold 24 inches of length of fish not including the tail. As you have other tanks I suggest that you keep the fancy goldfish in one tank and the other species in another. You could have gudgeon, minnows and sticklebacks apart from larger growing types such as rudd, carp and tench. You may be able to get the mussels you require from one of the dealers advertising in the *Aquarist* magazine. To breed the bitterling you should have them in a separate tank or fry could be eaten when they emerge from the mussels.





# PLANT Queries

by  
**Vivian De Thabrew**

My tank is three feet long and two feet deep, lit by a 20 watt tube kept on for 12 hours a day. The tank is unheated with a temperature of 60°F at night and 65°F during the day. All my plants were purchased from a dealer selling plant collections. The plants are, *Acorus pusillus*, *Echinodorus tenellus*, *Sagittaria natans*, *Rotala rotundifolia*, *Samolus*, *Vallisneria spiralis*, *Bacopa monnieri*, *Elodea densa* and *Ludwigia millertii*. My problems are: *Vallisneria*—the runners grow, but the leaves which float on the surface go brown from about halfway up and rot. *Acorus*—this will simply not root in the gravel. *Sagittaria* and *Echinodorus*—a very light green algae or fungus grows on the end of the leaves.

I did not get any information about the plants from the dealer nor can anyone help me with my problem.

Let me first of all tabulate some information about the growth requirements of plants you have listed. I shall then deal with the particular problems you have encountered.

Species	Ideal Temp.	Water pH	Water DH	Planting medium
<i>Acorus calamus</i> var. <i>pusillus</i> (Dwarf Sweet Flag)	65°-70°F	6.5-7.0	10-20	Nutritious muddy bottom, unwashed sand and clay.
<i>Echinodorus tenellus</i> (Dwarf Amazon Rush)	68°-75°F	7.0-8.0	10-12	Coarse sand with clay, muddy bottom.
<i>Sagittaria natans</i>	66°-75°F	7.0-8.0	9-12	Muddy bottom.
<i>Rotala rotundifolia</i>	68°-75°F	6.5-7.0	6-15	Good detritus.
<i>Samolus floribundus</i> (Green Water-cress)	60°-66°F	6.5-7.0	10	Mud and clay.
<i>Vallisneria spiralis</i> (Ribbon grass)	68°-75°F	6.5-7.5	10	Sand and peat.
<i>Bacopa monnieri</i>	68°-75°F	6.5-7.0	12-15	Mud or peat.
<i>Elodea densa</i> (Dense Pondweed)	52°-75°F	7.0-8.0	20	Muddy clay.
<i>Ludwigia natans</i> (Millwort)	68°-78°F	6.5-7.5	10-15	Clay and sand.

As you can see from the above table, five of the nine species you grow need alkaline conditions, while five of the selection require an optimum temperature of not above 65°F. Therefore the species which appear most suitable for you to grow in an unheated tank are: *Acorus calamus* var. *pusillus*, *Sagittaria natans*, *Samolus floribundus* and *Elodea densa*.

Why only the top half of your *Vallisneria* leaves brown off and die away is probably due to the fact that the leaves which grow above the water become dry at the top and rot away to some length upto the end of the damaged cells. *Acorus* should be anchored down with pieces of lead wire until they root. Provided the planting medium is favourably nutritious with some peat or clay, the roots will develop rapidly.

The problem of whitish fungus-like particles in your

tank most probably is not a fungus at all, but settlement of calcium particles on the leaf-tips. However, if it is an algae growth it can be remedied by adjusting the light intensity. Your lighting by a twenty-four inch 20 watt tube over 12 hours a day could be reduced by two hours a day.

I have a 48 in. x 18 in. x 15 in. tank which is lit by two 20 watt tubes placed in the front half of the tank. I also put a three foot tube at the back half for plants. All I get is a growth of long hairy algae. I destroyed all my plants, boiled all gravel and rocks and set the two 20 watt tubes at the back of the tank. The plants died and I have the hairy algae back again. The fish are in perfect health and growing well. Can you solve my problem of getting rid of this algae?

The appearance of this hair-like algae growth in tropical tanks is fairly common. Such growth is due to many factors. Some of these growths are induced by water of a high acid content. Some are encouraged by excessive organic material, such as uneaten food particles in the water. Some are brought into existence by high temperature and high humidity. Some by a high concentration of particular groups of light rays activating their growth.

Therefore it can be seen from the above factors that the organism causing the problem in your tank is very difficult to be determined without careful systematic observation and experimentation. However, as you do not give the temperature at which the water is maintained and the intensity of light given, it is difficult even to surmise. Nevertheless I suggest you check to see whether you are maintaining a very high temperature and also giving an intensity of light for a longer period than is necessary. Check also to see if the pH value of your water is below 6.5, and if it is so, then raise it.

My 36 in. x 20 in. x 15 in. tank contains gravel to a depth of three inches over two undergravel filters. Lighting is by one 40 watt white two foot tube and one 20 watt tube, on for twelve hours daily. Water temperature is 74°F, a pH of 6.6 and 6DH. The bulbs which you so kindly sent me have produced many delightful leaves of beautiful shape and colour, many flower-spikes and floating leaves to such an extent that I wonder if a little pruning may be necessary to prevent loss of energy.

Once the plants are flowering, unless you want to propagate some plants from seed, you can certainly snip these off at the base of the plant. If there are any long leaves which are floating on the surface, then these can be pruned too. All this will certainly help conserve the energy of the plant and also encourage new growth and maintain a bushy appearance. You may, if you wish, reduce the period of lighting to about ten hours per day. You are keeping the temperature and water condition to an excellent level.





## TROPICAL Queries

by Roy Pinks

Please can you give me the following information on a fish species named Arowana (*Osteoglossidae*).

- (1) Food requirements.
- (2) Will it destroy plants eat or (uproot)?
- (3) Water conditions, will tap water do?
- (4) What fish if any will I be able to keep with it?
- (5) Does it like a bright or shaded tank?
- (6) What size can it grow, in my 48 in. x 15 in. x 24 in. tank?
- (7) Water temperature.

The Arowana (*Osteoglossum bicirrhosum*) comes from the Amazon area and is listed as growing to almost a yard long under good conditions. It prefers temperatures in the upper 70's, soft peaty water and a large tank sparsely planted. The main thing is to give it room to grow! Small fish are an essential to continued good health, but a variety of other live food, especially floating midge larvae, should be offered. Other floating food might also be tried, including lettuce.

These fish, which should be given a tank to themselves because they will swallow any fish which can be encompassed by their scoop-like mouths, are quite amenable to tank conditions and many become quite tame. They are unusual, attractive in a slightly bizarre fashion, and make interesting exhibition fish.

An interesting feature is that a gill element, once thought to be an auxiliary respiratory facility, may actually enable it to double as a filter feeder in times of food shortage, the trapped material being conveyed to the stomach by a mucus secretion. I am sure that your management methods will not cause your specimen to lean on this device for its survival!

There are no special preferences over light, but I would think it should be on the bright side.

**I am writing to you to see if you will advise me about breeding angels.**

I would suggest that you buy a number of small angels and let them pair up naturally. Try the natural type not the horrible distorted sports which sometimes pass across the counter, and which will never make old bones. If you can get some bamboo leaves, these are ideal spawning platforms, and my fish always seemed to like them. After the eggs are laid, cut off the leaf and suspend it in a small, separate, tank containing water from the spawning tank, and at the same temperature. This is just a bare tank, otherwise. Place an airstone about an inch from the eggs and just colour the water with methylene blue. If

the eggs are any good—and this will vary with the parents, they will remain jelly-like until they hatch. Try to remove fungused eggs with a medicine dropper, as once this begins it spreads like wildfire.

When the young are free swimming—this is usually about a week after hatching, you must cram newly hatched brine shrimp into them about 3 times a day for a week, but no longer (since then there is a salt build-up and many will succumb); at this point they can go on to micro-worm and thence to finely chopped grindal.

"Your Angel Fish" by Jack Hems—a Colourmaster publication—is a small book which gives a very fair guide to the subject. I do just doubt the wisdom of the *infusoria* treatment for fry, because I have always found that the young fish fall to the bottom and wriggle, foodless, for several days. They then suddenly take off like a swarm of bees and it is then that they can take the brine shrimp. It is perhaps best to start with the San Francisco type for the first 2 days, and then to use the normal shrimp. I would suspect that it is your stock rather than your technique which is letting you down, but I hope this will help you to overcome the snags and to raise a few broods of these marvellously interesting and beautiful fish.

**Could you please supply me with some information on a cichlid called *Haplochromis moori*? The pair I have are about 6 ins. in length and they are in a 3 ft. tank with under gravel filters. I feed them on aquarium flake, *Daphnia*, and live earthworms. I would very much like to breed this fish, they have had one batch of eggs which they held in their mouth for about a week, much to my disappointment I think they must have eaten them. Also could you tell me how rare they are as there doesn't seem to be much information in the books I have. I look forward to hearing from you.**

*Haplochromis moori* belongs to a genus not especially suited to the aquarium, though it is in itself a very choice species, and has the curious bumped head which makes it an interesting exhibit.

It would be impossible to include in such a short letter as this full details of the requirements of the Rift Valley fish, but I would commend to you the Axelrod and Burgess book published by TFH under the title *The African Cichlids of Lakes Malawi and Tanganyika*, which is the standard work.

I think that you will succeed with your fish (since they have spawned once already) if you apply to them the general advice given in this book, but you may meanwhile note that you should give them a tank entirely to themselves, and that things may go better if you shade it somewhat. It is also most important that any breeding fish are left undisturbed, so that if the tank is in a place where folk are passing it for much of the day, you are most unlikely to do well with these fish so far as breeding is concerned. As you will be aware, they are unafraid enough in the normal course of events, but if breeding is contemplated special measures must be taken, and this applies to all fish, not just these.



# Crossword

## Puzzle

Compiled by Dave Roberts

Merseyside A.S.



### CLUES

#### ACROSS

1. *Trichogaster leeri*, the ..... Gourami (4)
4. *Crenicara* ....., a Cichlid, growing to four inches (8)
8. *Cichlasoma* (*Herichthys*) ..... the Rio Grande Perch, or Texas Cichlid (13)
9. Dorsal, Anal and Caudal are all types of this (3)
11. Predatory Fish (7)
13. *Sorubim* ....., a hardy, peaceful Catfish from S. America (4)
14. *Aphyosemion australe* and the American Flagfish, are such (9)
15. One of the Pencilfish (5)
17. Decorative items for the marine aquaria (6)
18. A black and yellow banded Goby (9)
20. *Haplochromis* ....., Rift Valley fish (4)
21. Name given to newly born fish (3)
22. Genus of Catfish (9)
24. *Helostoma* ....., the pink kissing Gourami (7)
26. Genus of Livebearer (8)
29. The tail of *Macropodus opercularis* is the shape of this (5)
30. .... *jaedator*, Archerfish (7)

#### DOWN

1. Species of *Colisa* (5)
2. Oscars, Angels and Discus are such (8)
3. *Corydoras aeneus*, the Catfish (6)
5. The Bloodfin is one (8)
6. Common name of *Lepomis gibbosus* (11)
7. *Aplochelus* ....., the sparkling Panchax (8)
10. Red-tailed Black Shark (5, 7)
12. *Aphyosemion* ....., a Killie (8)
15. *Barbus melanampyx*, ..... Barb (5)
16. *Outoglossum* ....., relative to the Araswana (8)
17. *Cichlasoma* ....., Cichlid, around 8 inches (6)
19. *Betta horae*, the ..... Betta (5)
21. *Ceratopteris pteridoides* and *C. thalictroides* are such (5)
23. This snail is useful in obtaining Infusocia (5)
25. This wood is used ornamentally (3)
27. *Burkholderia* ....., Rift Valley Cichlid (3)

Solutions on page 56

# News from Aquarists' Societies

Monthly reports from Secretaries of aquarists societies for inclusion on this page should reach the Editor by 3rd of the month preceding the month of publication.

## SOUTH EAST



RESULTS of the South East London A.S. open show held on 6th July. There were 571 entries. Best Fish (Dev.), D. Hart (Wic. and Broomer); Best Catfish (G.), B. Hadland (Hastings); Best Goldfish (V.), R. Minner.

Class Ag: 1, T. Waller (E.L.A.P.A.); 2, R. Mitchell (Bex.); 3 and 4, S. Fursdon (BA); 5, G. Owen (Osp.); 6, M. Howells (E.L.A.P.A.); 7, J. Payne (S.E.L.A.S.); 8, D. P. Lambert (Kington); 9, B. 1 and 2, B. Stevens (Brighton); 10, R. F. Thoday (Brighton); 11, R. Mitchell; 12, G. A. P. Fennis (Strood); 13, R. Mitchell; 14, J. Waller; 15, J. C. Richards (Southbury); 16, R. D. Scoring (Ashford); 17, C. Osborne (S.E.L.A.S.); 18, J. Owen (Osp.); 19, D. G. Stoppow (Rom. and Bex.); 20, Mr. and Mrs. Smith (Brighton); 21, T. Woolley (Hastings); 22, D. Pomer (Havant); 23, J. W. Hastings; 24, D. Hart (Brighton); 25, 4, R. Mitchell; 26, 1, D. Hart (Brighton); 27, Mr. and Mrs. Smith; 28, J. V. Payne; 29, C. Osborne; 30, R. Mitchell; 31, G. Stoppow; 32, P. Mills (Walth.); 33, 1, A. F. Chandler (Walth.); 34, C. Fennis; 35, G. Owen; 36, C. Osborne; 37, B. and L. Lough (Kington); 38, A. J. Feat (Ton.); 39, G. A. Edgewood (BKA); 40, H. Johnson; 41, C. Osborne; 42 and 43, V. Payne; 44, W. Hastings; 45, 1 and 3, B. Hadland (Hastings); 46, C. Richard (Southbury); 47, T. Woolley (Hastings); 48, 1, T. Woolley; 49, K. Wood (E.D.A.S.); 50, A. Kibson and Walker; 51, Mr. and Mrs. Brook (S.E.L.A.S.); 52, 1 and 2, C. Osborne; 53, H. Armitage (Havant); 54, T. A. Crickshaw (Kington); 55, 1, H. Armitage; 56, Mr. and Mrs. Hills (Brighton); 57, J. Adams (Rom. and Bex.); 58, C. Fennis; 59, 1 and 3, Mr. Raggio; 60, R. F. Thoday (Brighton); 61, S. King (S.E.L.A.S.); 62, K. 1, A. Kibson and Walker; 63, 2 and 4, C. Osborne; 64, M. A. Feat; 65, Mr. and Mrs. M. Smith; 66, H. Johnson; 67, 1, H. Edwards; 68, 1, H. Johnson; 69, P. Laphon (S.E.L.A.S.); 70, C. Osborne; 71, D. and P. Lambert; 72, N. M. 1, D. Swale (E.D.A.S.); 73, A. P. Chandler (Walth.); 74, C. Osborne; 75, R. Mitchell; 76, 1, A. Merck (Brighton); 77, 2, C. Fennis; 78, Mr. and Mrs. Riddle (Brighton); 79, L. E. Humphrey (Providence); 80, 1, L. E. Humphrey; 81, J. Edwards; 82, P. Edwards (Thorn); 83, J. J. Holding (Walth.); 84, J. P. Pitt (Rom. and Bex.); 85, R. D. Scoring (Ashford); 86, B. and J. Jackson (Thorn); 87, F. Chapman (E.L.A.P.A.); 88, Q. 1 and 2, E. and J. Jackson; 89, W. Hastings; 90, A. Kibson and Walker; 91, J. Edwards (Thorn); 92, H. Armitage (Havant); 93 and 4, C. Fennis; 94, 1, A. Chapman

(E.L.A.P.A.); 2, J. Pitt (Rom. and Bex.); 3, E. and J. Jackson; 4, W. Hastings; 5, T. J. Edwards; 6, J. J. Holding; 7, A. Kibson and Walker; 8, Mrs. Waller (E.L.A.P.A.); 9, 1, Mr. and Mrs. Brook; 10, P. Mills (Walth.); 11, T. Woolley (Hastings); 12, S. Brown (E.L.A.P.A.); 13 and 14, R. Shiner; 15, S. Hogan (E.D.A.S.); 16, 1, 2, 3 and 4, G. Owen (Osp.); 17, 1, M. and J. Falch (Hastings); 18, P. Redden (Brighton); 19, G. Stoppow (Rom. and Bex.); 20, R. Downes (E.D.A.S.); 21, J. Edwards (Thorn); 22, 1 and 3, D. P. Lambert (Kington); 23, Mr. and Mrs. Smith; 24, Y. L. G. Stoppow; 25 and 26, T. Dearing (Walth.); 27, M. E. Hill (Strood); 28, J. R. Downes (E.D.A.S.); 29, P. Mills (Walth.); 30, R. Downes (E.D.A.S.); 31, W. F. Woodhead (Bex.).

THIS year's Catfish Association Great Britain open show was down on entries from previous years, but an entry of 254 cannot be had for a specialist society. Entries came from as far apart as Penryn in Cornwall and Manchester, Lancashire. The entries broke down as follows: 79 species large (G) catfish; 32 species Corydoras and Bioclin (B); 122 entries in (D); 78 entries in (H); 26 entries in Specialist class; 17 entries in pairs Ng and Nh; 10 entries in breeders Xg and Xh.

At the association's meeting on 16th July, held at the York Hall Library, 97, St. Paul Street, London, SW11, guest speaker was Katherine Johns who spoke about the paints and drawings of fishes in Egyptian tombs. She showed slides of the drawings and then identified the fishes drawn by showing slides of live or preserved specimens.

Change of Secretary. This is now Mrs. Gina Sandford, 5 Victoria Road, Earlswood, Redhill, Surrey.

Open show results: Class Gc: 1, Roy Davis (Sussex); 2, J. V. Payne (S.E.L.A.S.); 3, 1, P. Thorpe (Cat. Assoc.); 4, Mr. and Mrs. Pannell (Hastings); 5, G. 1, B. Hastings (S.E.L.A.S.); 2 and 4, J. V. Payne; 6, 1, B. Hastings; 2, Mr. and Mrs. Brook (S.E.L.A.S.); 3, N. Galton (Cat. Assoc.); 2, Diana Ruggert (Cat. Assoc.); 3, Mike Sandford (Rugate and Redhill); 4, Monty Ray (West Cornwall); 5, 1, Mr. and Mrs. A. Waterhouse (Cat. Ass. N. Group); 2, R. Thoday (Cat. Assoc.); 3, Margaret Lambert (Rom. and Bex.); 4, Mr. and Mrs. Pannell (Hastings); 5, 1, T. Deeproot (Hastings); 2, Mr. Parr (Rom. and Bex.); 3, R. A. Johnson (Hyde); 4, D. Sanda; 5, B. Black (Cat. Ass. N. Group); 6, 1, Mr. and Mrs. Sands (Cat. Ass. N. Group); 2, B. Hastings; 3, Malcolm Field (Amersham); 4, Peter Meyer (Houghton Regis); 5, 1, 2, 3 and 4, D. J. Wood (E.L.A.P.A.); 6, 1, Bob Hadland (Hastings); 7, T. Woolley (Hastings); 8, Mark Gorch (Aberdeen); 9, R. Thoday; Best Catfish: Mr. and Mrs. Sands (Class Gc) (Cat. Ass. N. Group); Best Catfish 12 in. or over: Roy Davis (Class Gc) (Sussex); *Myias yoshii*. President's Choice trophies awarded to: Mr. and Mrs. Alan Waterhouse with a *Hypostomus alpinus* (Class Gc) and Andrew Birch with a *Tandanus raudouxi* (Class Gc). Show Secretary's choice also awarded to Mr. and Mrs. Alan Waterhouse with their *Hypostomus alpinus*. Ha: 1, Pete Rushbrooke (Reading); 2, D. Winder (Hart Dabrich); 3, B. Hastings; 4, Mr. and Mrs. Brook (S.E.L.A.S.); 5, 1, Mr. and Mrs. Baldwin (Cat. Ass. N. Group); 2, B. Hastings; 3, Mr. and Mrs. Sands; 4, Gary Lester (Sussex); 5, 1, Mr. and Mrs. Sands; 2, S. J. Barker (Hastings); 3, Mr. Parr (Rom. and Bex.); 4, J. Adams (Rom. and Bex.); 5, 1, Pete Rushbrooke; 2, D. G. Roberts (West Cornwall); 3, H. Johnson (Buxleyhead); 4, B. Knight (Havant); 5, 1, J. Adams; 2, D. Winder; 3, Mr. and Mrs. Sands; 4, Gary Lester; Best Corydoras or Bioclin: Mr. and Mrs. Baldwin; 1, 1, B. Hastings; 2, Pete Rushbrooke; 3, Mr. and Mrs. Brook; 4, J. V. Payne; 5, 1, 3 and 4, Gary Lester (Sussex); 2, D. G. Roberts (West Cornwall); Best Pair of Fish: Bill Hastings (S.E.L.A.S.); 1, Gina Sandford (Rugate and

Redhill); 2, Gary Lester; 3, Roy Davies (Sussex); 4, D. G. Roberts; 5, 1, 2 and 3, Gary Lester; 6, M. J. Falch (Hastings); Best Breeders Team: Gary Lester with *C. nigus* (Class Xh); Furnished Aquaria Class won by Terry Waller (E.L.A.P.A.); Special Class: 1, M. Chapman (Hastings); 2, Dennis Hart (Amersham); 3, Mr. and Mrs. Pannell (Hastings); 4, H. Johnson (Buxleyhead); The Dennis King Trophy and the Aquarist Gold Pin award for Best Fish in Show was awarded to Mr. and Mrs. Sands of the Cat. Ass. Northern Group for the *Brachycephalus inotauris*.

THE Ichiban Rancho Society are holding their annual national Rancho open show on 18th October at the Fourth Endfield Scout Headquarters in Gordon Road, Infield. Anyone wishing to enter fish please contact Frank Hilton, 2, Holloway Crescent, Leaden Roding, Essex (Tel: White Roding 43). Since the resignation of Gary Lewis as Show Secretary, Frank Hilton has taken over as Acting Show Secretary.

AT the July meeting of the Mid-Sussex A.S. members were entertained with a top-side lecture on one of the most important aspects of fishkeeping—"Aquarium Maintenance". Thanks were expressed to John Smith and Marilyn Young for publishing the club at the recent Sussex Fares held in Hayward's Heath. The 50 club winners for the month of July were: 1 and 2, J. Riddley; 3, C. Corbin. The table show was judged by Jim Bunter. Results: Class La: 1, 2 and 4, E. and T. Tester; 3, S. Smith; La: 1, S. Smith; 2 and 3, E. and T. Tester; 4, S. Smith; 5, J. Perrin. Meetings are held on the second Thursday of each month at Oakley Lodge, Oakley Lane, Keymer, from 8 p.m. Further information from the Secretary, John Birch, 11a Sandrocks Way, Hayward's Heath, W. Sussex (Tel: H. Heath 9598).

Reinford and Besscombe A.S. would like to thank all who participated in their open show, in particular the judges, J. A. Carney, W. R. Dale, N. Durrant, R. D. James, T. A. King and C. Wood. A total of 332 entries were received and the Best Fish in show was a Betta Splendens owned by M. Lambert (Romford). Best Cichlid was a *Lamprologus tetraodon* owned by W. Hastings (S.E. London). Highest pointed Club Cup was won by (E.L.A.P.A.). Other results:

Class Ag: 1, M. Waller (E.L.A.P.A.); 2, M. Lambert (Romford); 3, T. Waller (E.L.A.P.A.); 4, P. Victory (Romford); 5, J. J. Parr (Romford); 6, S. Beck (Romford); 7, M. Smith (Romford); 8, F. E. Riley (Bethnal Green); 9, 1, J. Parr; 2, B. Riley; 3, T. Woolley (Hastings); 4, M. Smith; 5, 1, M. Lambert; 2, J. Adams (Romford); 3, J. Parr; 4, P. R. Riley; 5, 1, W. Hastings (S.E. London); 2, M. Lambert; 3, J. Parr; 4, J. Rink (Romford); 5, G. Stoppow (Romford); 6, P. Chapman (E.L.A.P.A.); 7, A. Chapman (E.L.A.P.A.); 8, J. Pitt (Romford); 9, 1, W. Hastings; 2, J. Parr; 3, G. Stoppow; 4, T. Woolley (Hastings); 5, 1, N. Smith (Hilford); 2, J. Parr; 3, N. Smith (Hilford); 4, M. Smith; 5, 1 and 4, R. C. Smith (Romford); 2, Pitt; 3, 1, 3 and 4, R. C. Smith (Romford); 2, J. E. Myers (Hilford); 3, 1, M. Lambert; 2 and 3, T. Woolley; 4, J. Parr; 5, 1, 3 and 4, J. Adams (Romford); 6, 1, E. Myers (Hilford); 7, 1, T. Woolley; 2, 1, W. Hastings; 3, J. Adams; 4, J. Parr; 5, 1, S. King (S.E. London); 2, J. Parr; 3, J. Rink; 4, M. Smith; 5, 1, M. Lambert; 2, J. Brown (Bethnal Green); 3, W. Hastings; 4, M. Waller; 5, W. Hastings; 6, 1, W. Hastings; 2 and 4, F. Chapman (E.L.A.P.A.); 3, M. 1, G. Stoppow; 2, P. Prior (Romford); 3, P. Lambert (Romford); N.B.M: 1, M. Waller; 2, W. Hastings; 3, G. Moore (Romford); 4, P. E. Riley; N.O.T: 1, M. Smith; 2, G. Stoppow; 3, W. Hastings; 4, T. Waller (E.L.A.P.A.); 5, 1, J. Parr; 2, T. Allen (Romford); 3, M. Lambert; 4, J. Adams; 5, P. J. W. Hastings; 2, J. Pitt; 3, M. Lambert; 4, J. Adams; 5, 1, W. Hastings; 2 and 4, E. Ward (Romford); 3, A. Chapman; 4, W. Hastings; 2 and 3, S. Beck (Romford); 4, E. Ward; 5, 1 and 4, P. Chapman; 2, T. Woolley; 3, W. Hastings; 4, J. F. Chapman; 5, J. E. Myers (Hilford); 6, T. Woolley; 7, M. Waller; 8, J. F. Chapman; 9, T. Woolley; 10, S. Brown (E.L.A.P.A.); 11, A. Chapman; 12, 1, S. Brown; 2, J. Parr; 3, C. Brown (E.L.A.P.A.); 4, D. Cross (Romford); 5, 1, 2 and 3, S. Brown; 4, B. Compton (Romford); XRM: 1, J. Parr; 2, G. Stoppow; 3, E. Ward; 4, G. Moore (Romford); XOT: 1, M. Smith; 2 and 3, T. Waller; 4, P. R. Riley; 5, 1 and 2, B. Compton (Romford); 6, J. Rink; 7, M. Waller; Junior Tropical: 1, Tracy Waller (E.L.A.P.A.); 2, Matthew Allen (Romford); 3, David Reynolds (Romford); 4, Kevin Lambert (Romford); Junior Goldwater: 1, Paul Cochran (Romford); 2 and 3, Colin Brown (E.L.A.P.A.); 4, David Woodham (Ind).



**Kington & District A.S.** held their annual Pond Hunt on July 2nd. Fortunately they picked one of the few fine evenings at that time of the year and made their way to a stream near Sudbury. There was great competition to get the champion catch. An interesting and enjoyable evening was had, as was proved at the following club meeting on July 7th, which was mainly for the exhibition of pond fish. It proved surprising how many different forms of life were found in one small pond area. The catch which proved to be a winner turned out to be a very large bottle larva caught by Mike West. The Kington Club always welcome prospective new members or visitors. Meetings are held the first and third Thursday every month at the Raynes Park Methodist Church Hall, Wexley Road, Raynes Park, S.W.20. Secretary, Pat Lambert. (01-542 9585).

Change of address and telephone number of the secretary of the **Sudbury A.S.**: Tim Gilson, 13 Moyley Mews, Harrow, Middlesex HA1 2RD (Tel. 52-661 1982). The club meets every Wednesday at 8 p.m. at St. John's Church Hall, Crawford Avenue, Wembley, Middlesex.

## SOUTH WEST



**THE Nailsea & District A.S.** held their seventh annual open show in July. It proved a great success, attracting 435 entries from 24 visiting clubs including 65 entries from abroad (America, Germany and Austria). Incorporated in the show was the first open show of the Fancy Guppy Association (Glocester Section). The prizes were presented by Dr. Klappel, chairman of Düsseldorf A.S. (Germany) with which the Nailsea Club is twinned.

Results: **Fishes:** 1, J. Heenan (Trehomas); 2, E. Jones (Port Talbot); 3, W. J. Klappel (Düsseldorf, West Germany); 4, P. Weil (DGLZ, West Germany). **Swordtails:** 1 and 2, A. Chaplin (Basingstoke); 3, Mrs. P. Cripps (Newbury); 4, M. Saunders (Bournemouth). **Molluscs:** 1, A. Phillips (Trehomas); 2, Mrs. Bebb (Bournemouth); 3, W. Holland (Nailsea); 4, P. Fichett (Nailsea). **Algae/Ceratrodan/Bryozoa/Platypella/Giardinia:** 1, 3 and 4, P. Weil; 2, C. M. Howe (Newbury). **Notozoumidae / Carididae / Gambusia / Phyllichthys:** 1, 3 and 4, I. Dibble (Nailsea); 2, J. T. Mayle (Slag). **Phaeocystis/Pocilia/Xiphophorus:** 1, Herr Steffen (Vienna, Austria); 2, A. Chaplin; 3, P. J. Holding (Walthamstow); 4, P. Weil. **Gonistidae (Ameca/Goodei/Limnoria/Xenophysa/Xenotoca, etc.):** 1, D. Kenwood (Nailsea); 2, 3 and 4, I. Dibble, Belovon; **Hemibarbatidae / Heterostid / Berytyridae and A.O.V. species:** 1 and 2, I. Dibble; 3, P. J. Holding; 4, F. Cripps (Newbury). **Barbs / Barbodes:** 1, F. Cripps; 2, P. Burton (Slag); 3, G. Arnold (Havant). **Barbs, Goodei and Poecilia:** 1, A. Chaplin; 2, C. M. Howe; 3, Mrs. Bebb (Bournemouth); 4, J. T. Mayle. **Hemigrammus and Hybostomus:** 1, R. Toote (Bristol); 2 and 3, F. Burton; 4, A. Phillips (Trehomas). **A.O.V. Characins:** 1, A. Chaplin; 2, G. Arnold; 3, Clair Thomas (Trehomas); 4, J. T. Mayle. **Siamese Fighters:** 1, A. Nelder (Trehomas); 2, R. Toote (Bristol); 3, A. Phillips; 4, R. Prior (Newbury). **A.O.V. Anabantids:** 1, J. Heenan; 2, E. Jones; 3, A. Chaplin; 4, A. Phillips. **Catfish-Corydoras and Brochis:** 1, 2 and 4, M. Evans; 3, Mrs. Bebb. **A.O.V. Catfish:** 1, G. Arnold; 2, J. T. Mayle; 3, M. Saunders; 4, L. Hunt (Newcastle). **Bottas and True Loaches:** 1, A. Nelder; 2, F. Cripps; 3, J. T. Mayle; 4, Clair Thomas. **Rainbow:** 1, Mrs. Bebb; 2, K. Luscombe (Plymouth); 3, P. R. Cooke (Plymouth); 4, I. Chamberlain (Basingstoke). **Danos and Minsnows:** 1 and 3, Cive Billinger (Nailsea); 2, P. R. Cooke; 4, M. Saunders. **Labras and Sharks:** 1, R. Prior; 2, G. Street. **Dwarf Cichlids:** 1, D. Barrett (BBC, Thorne); 2, M. Evans; 3, P. Fichett (Nailsea); 4, J. Bunn (Newcastle). **Angels and Discus:** 1, Mrs. P. Cripps (Newbury); 2, S. Mansel (Selective). **Red Valley Cichlids:** 1 and 4, A. Phillips; 2, F. Burton; 3, R. Prior. **A.O.V.**

**Cichlids:** 1, G. Arnold; 2, Mrs. Bebb; 3, R. Prior; 4, P. Fichett. **Toothcarps:** 1, M. Addison (B.K.A.); 2 and 3, R. Prior; 4, C. D. Chesser (Southend). **A.V. Pairs (Livebearers):** 1, J. T. Mayle; 2, L. Hunt (Selective); 3, B. Banks; 4, D. Barrett. **A.V. Pairs (Egglayers):** 1, C. M. Howe (Newbury); 2, B. Banks (BBC, Thorne); 3, J. T. Mayle; 4, M. Evans. **Brooders (Livebearers):** 1, Tropical; 2 and 4, I. Dibble; 3, J. T. Mayle. **Brooders (Egglayers):** 1, Tropical; 2 and 4, M. Evans; 3, B. Banks. **A.V. Fish (Juniors):** 1, Darren Mahara (Nailsea); 2, Paula Street (Nailsea). **Shubunkins:** 1 and 4, J. Newman (Nailsea); 2 and 3, Julie Rundle (Plymouth). **Two-tail Goldfish (with Dorsal):** 1, 2, 3 and 4, P. Sawyer (Trehomas). **Single Tail Goldfish:** 1, J. Varrdell (Plymouth); 2, Julie Rundle. **A.V. Pond or River Fish:** 1, J. Varrdell; 2, Craig Busack (California, U.S.A.); 3, Herr Steffen (Vienna, Austria); 4, M. Jones. **A.O.V. Tropical Freshwater Fish:** 1, Mrs. Bebb; 2, J. T. Mayle; 3, A. Chaplin; 4, S. Mansel. **Any Tropical Aquatic Plant:** 1, D. Kenwood; 2, 3 and 4, W. Holland. **Best Fish in Show:** A. Chaplin. **Best Livebearer in Show:** P. Weil. **Highest Pointed Individual:** 1, I. Dibble. **Highest Pointed Visting Club:** Newbury A.S. **Highest Pointed Guppy:** P. J. Holding. **Highest Pointed Mollusc:** I. Dibble. **Highest Pointed Openwater Exhibitor:** P. Weil. **Fancy Guppy Association:** Classes: **Deltail Male:** 1, J. Geerson (F.G.A.); 2, Mrs. P. Cripps (Newbury); 3, R. Francis (F.G.A.). **Long Dorsal Ventral Male:** 1, J. Geerson (Plymouth); 2, S. W. Outby. **Short Dorsal Ventral Male:** 1, 2 and 3, F. J. Holding (Walthamstow); 4, Mrs. Bebb (Bournemouth). **Bottomward Male:** 1, J. Geerson (F.G.A.). **Double Sword Male:** 1, R. Prior (Newbury). **Colour Male:** 1 and 2, F. J. Holding. **Superb Female:** 1, Mrs. P. Cripps (Newbury). **Wedgetail Female:** 1, P. R. Cooke (Plymouth). **2, J. Walters (Nailsea); 3, P. Sawyer (Trehomas). Nantail Female:** 1, J. Geerson (F.G.A.). **Metropolitan Female:** 1, E. Jones (Port Talbot). **Roundtail Female:** 1, J. Rundle (Plymouth); 2, J. Heenan (Trehomas). **Colour Female:** 1 and 2, Mrs. Bebb (Bournemouth); 3, Mrs. P. Cripps; 4, J. Geerson. **Brooders Female:** 1, P. R. Cooke. **Brooders Pair:** 1 and 2, J. Geerson. **Best Male:** F. J. Holding. **Best Female:** J. Geerson. **Best Brooder:** J. Geerson. **Names of Visiting Clubs:** Ala California (U.S.A.), Vienna A.S. (Austria), Wuppertal A.S. (West Germany), Düsseldorf A.S. (West Germany), D.G.L.Z. (West Germany), Bristol Tropical Fish Club, Plymouth A.S., Basingstoke A.S., Fancy Guppy Association, Southern Livebearers Aquarist Group, Walthamstow A.S., BBC, Thorne A.S., Southend A.S., Trehomas and District A.S., Bournemouth A.S., Newcastle Guppy and Livebearer Society, S.A.S. Marthys, Cheltenham A.S., Port Talbot A.S., Newbury A.S., British Killifish Association, Havant A.S., Selective A.S. and Hull A.S.

## MIDLANDS AND WALES



**Llanrwst Major A.S.** open show results: **Class Ad:** 1, 2 and 3, J. A. Thomson (Llanrwst Major); 4, Debra Lewis (Llanrwst Major); 2, Andrew Thomson (Llanrwst Major). **Ba:** 1, J. Edwards (Llanrwst Major); 2, J. Egan (Port Talbot). **Br:** 1, Paul Willis (Merthyr); 2, A. Ibberson (Llanrwst Major); 3, C. Turner (Llanrwst Major); 4, R. Winterridge (Sudbury). **Ca:** 1 and 3, C. Richards (Sudbury); 2, Mrs. T. Ross (Port Talbot); 4, A. Phillips (Trehomas). **Ce:** 1, J. Edwards (Llanrwst Major); 2, C. Turner (Llanrwst Major); 3, R. Winterridge; 4, R. Morgan (Merthyr). **D:** 1, C. Turner; 2 and 3, J. Egan; 4, C. Richards (Sudbury). **Da:** 1, S. Mansel (Selective); 2, L. Parks (Malvern); 3, J. Egan; 4, C. Richards; 1 and 4, Mrs. T. Ross; E: 1, C. Turner; 2, A. Phillips (Trehomas); 3, J. Egan; 4, E. Jones (Port Talbot). **Et:** 1, A. Phillips; 2, C. Richards; 3, C. Thomas (Trehomas); 4, S. W. Outby (Trehomas). **F:** 1 and 2, M. Addison (Llanrwst Major); 2, J. Heenan (Trehomas); 4, M. Lanier (Llanrwst Major). **G:** 1 and 2, C. Richards;

3 and 4, L. Parks. **H:** 1 and 3, D. C. Davies (Aberdare); 2, C. Richards; 4, R. Winterridge. **Hy-Sy:** 1, 2 and 3, Miss Estina Newton (Llanrwst Major); 4, A. Samuel (Aberdare). **J:** 1, A. Wintone (Aberdare); 2, R. Winterridge; 3, C. Turner; 4, S. Mansel (Selective). **K:** 1, C. Richards; 2, Mrs. T. Ross; 3, A. and G. Parker (Barry); 4, J. A. Thomson (Llanrwst Major). **L:** 1, C. Richards (Sudbury); 2 and 3, C. Turner; 4, R. Winterridge; 5, J. A. Thomson; 6, S. W. Outby (Trehomas). **M:** 1, R. Jones (Merthyr); 2, Mrs. T. Ross; 3, E. Morgan (Merthyr); 4, J. Heenan (Trehomas). **N:** 1 and 2, R. Morgan; 3, Mr. and Mrs. S. Yallop (Malvern); 4, R. Winterridge. **O:** 1, Mr. and Mrs. P. Sawyer (Trehomas); 2, R. Winterridge; 3, J. A. Thomson; 4, S. W. Outby (Trehomas). **P:** 1, B. Winterridge; 2, R. Jones; 3, E. Jones; 4, J. Edwards (Llanrwst Major). **Q:** 1, J. Egan; 2, A. Wintone (Aberdare); 3, S. Mansel; 4, J. E. Jones; 2, J. Egan; 3, A. and G. Parker; 4, A. Wintone; 5, 1, L. W. G. Andrews (Llanrwst Major); 2, J. A. Thomson (Llanrwst Major). **T:** 1 and 4, C. Richards; 2 and 3, C. Turner. **Ua-U:** 1, R. Morgan; 2, M. Lanier; 3, S. Mansel; 4, C. Turner. **Na-1:** 1, S. Mansel; 2 and 3, A. Ibberson; 4, Mr. and Mrs. R. Thomas (Merthyr); 5, U and Ua: 1 and 2, C. Turner; 3, A. Hillman (Llanrwst Major); 4, Debra Lewis (Llanrwst Major). **Nu:** 1, N. Clifton (Merthyr); 2, A. Hillman (Llanrwst Major); 3, A. and G. Parker (Barry); 4, C. Turner; 5, A. and G. Parker. **Best Fish in Show, winner of Aquatic Gold Pin:** C. Richards. **Highest Pointed Llanrwst Major entrant, winner of the Percy Guppy Trophy:** M. Addison.

**RESULTS of the Sherwood A.S.** open show held on 29th June at Lady Margaret's Hall. There were 712 entries. **Best Fish in Show:** Mr. and Mrs. Krom (Sheaf Valley) with a Barbs classmate **Gold (Dorsal Barb)**. **Best Exhibit:** B. Banks (BBC Thorne). **Best Society:** BBC Thorne. **Society with most entries:** A. D. Fishkeepers. **Class results:** **Guppies:** 1, Mr. and Mrs. Johnson (Sherwood); 2, Mr. and Mrs. Chester (Merthyr); 3, K. Harrison (Sherwood); 4, A. Marples (A.D. Fishkeepers). **Fishes:** 1 and 4, R. and S. Cherryholme (Ind.); 2, Mr. and Mrs. Wainwright (Fishkeepers); 3, Mr. and Mrs. A. E. Smith (BBC). **Molluscs:** 1, Mr. and Mrs. Parritt (Doncaster); 2, Mr. and Mrs. Mitchell (Workop); 3, A. Marples (A.D. Fishkeepers); 4, Mr. and Mrs. Pickford (Castor). **Swordtails:** 1, G. Clark (BBC, Section winner); 2, Mr. and Mrs. Collins (Ind.); 3, J. Chown (Cherryholme); 4, R. and S. Cherryholme. **A.O.V. Livebearers:** 1 and 2, Mrs. D. Cruickshank (Sherwood); 3, Mr. and Mrs. Wright (Durfield); 4, R. Barker (BBC). **Small Anabantids:** 1 and 4, P. V. Noble (Boston); 2, Mr. and Mrs. Everett (York); 3, T. Sanderson (Boston). **Large Anabantids:** 1, Mr. and Mrs. P. Howell (A.D. Fishkeepers), Section winner; 2, Clark Brothers (Pottery and Dist.); 3, Mr. and Mrs. Johnson; 4, K. Lancashire (Doncaster). **Fighters (True Siamese):** 1, T. Stanfield (Sherwood); Section winner; 2, Mr. and Mrs. P. Howell; 3, Mr. and Mrs. Hooley (Fishkeepers); 4, L. Cartwright (Hallerott). **Figures (Mini Colours):** 1 and 3, Mr. and Mrs. Frisby (Wyke); 2, W. Rodger (Leamthorpe); 4, Mr. and Mrs. Everett. **Small Characins:** 1, Mr. and Mrs. Walker (Cherryholme); 2 and 4, L. and M. Price (Rothwell); 3, Mr. and Mrs. Lake (South Humberdale). **Large Characins:** 1, T. A. Cruickshank (Sherwood), Section winner; 2, H. Thorpe (Doncaster); 3, F. A. Hughes (Leamthorpe); 4, Mr. and Mrs. Frisby (Wyke). **Barbons:** 1, Mr. and Mrs. Lake; 2 and 3, Mr. and Mrs. Wainwright; 4, L. and M. Price. **Danos:** 1, A. Cook (Hallerott); 2, Mr. and Mrs. Wainwright; 3, Mr. and Mrs. A. E. Smith; 4, Mr. Stephen (Clareford, Minsors). **1, Mr. and Mrs. Lake, Section winner; 2, Caroline (Hallerott); 3, Mr. and Mrs. Chester (Rothwell); 4, Mr. and Mrs. K. Hare (Grimsby and Cleethorpes). **Toothcarps, Aplocheilichthys:** 1, Mr. and Mrs. Wainwright; 2, B. Banks; 3, Mr. and Mrs. Blades (Fishkeepers); 4, F. S. A. Hogwood (Darwin). **A.O.V. Toothcarps:** 1, H. Buckley (Fishkeepers), Section winner; 2, T. Reid (Ind.); 3, A. Smart (Cherryholme); 4, Mrs. Johnson (Le and E. Louth). **Sharks:** 1, Mr. and Mrs. Clifton (Sherwood), Section winner; 2, M. Rice (Ind.); 3, Mr. and Mrs. A. E. Smith; 4, Mr. and Mrs. Lane (Castledon). **Foxes:** 1, Mr. and Mrs. Riley (Leeds P.O.); 2, Judy Cook (Oley); 3, P. A. Hughes; 4, J. Colley (Sherwood). **Small Barb:** 1 and 4, Mr. and Mrs. Kemp (Sheaf Valley); 2, A. Marples (A.D. Fishkeepers); 3, Mrs. D. Cruickshank (Sherwood); 4, Mr. and Mrs. Kemp (Sheaf Valley). **Large Barbs:** 1 and 2, Mr. and Mrs. Kemp, Section winner; 3, Mr. and Mrs. A. E. Smith; 4, Clark Brothers. **Dwarf Cichlids:** 1, L. and M. Price (Rothwell); 2, T. Reid; 3, P. A. Hughes; 4, K. Fisher (Sherwood). **A.O.V. Cichlids:** 1, Mr. and Mrs. Wainwright, Section winner; 2, K. Fisher (Sherwood); 3, Mr. and Mrs. A. E. Smith; 4, R. Harrison (Sherwood). **Angels:** 1, Surton and Harve (Wath); 2, Mr.**

and Mrs. Kenworthy (Gley); 3. Mr. and Mrs. Bates; 4. Mr. and Mrs. Wall (Ind.); Lake Malawi; 1 and 2. L. and M. Price, Section winner; 3. Mr. and Mrs. Wainwright; 4. L. Cartwright (Haltwhistle); Lake Tanganyika; 1. Mr. and Mrs. Mitchell (Widnes); 2. K. Fisher; 3. L. and M. Price; 4. Mr. and Mrs. Akroyd (Doncaster); Corydoras; 1. L. and M. Price; 2. A. Mayles (A.D. Fishkeepers); 3. T. A. Crutchbank (Sherwood); 4. Mr. and Mrs. Riley (Leeds P.O.); Botia and Loaches; 1. Mr. and Mrs. Blades (Fishkeepers); 2. M. Gregory (Tunworth); 3. Mr. and Mrs. Long (Castleford); 4. Mr. and Mrs. Barlow (Sheaf Valley); Armoured A.O.V. Catfish; 1. T. Stanfield (Sherwood); Section winner; 2. Mr. and Mrs. Guitard (Sheaf Valley); 3. B. Sida (Barnsley); 4. Mr. and Mrs. P. Howell (A.D. Fishkeepers); Naked A.O.V. Catfish; 1. Mr. and Mrs. Guitard; 2. T. and P. Stanfield (Barnsley); 3. Mr. and Mrs. Chester (Retford); 4. K. Lancashire (Doncaster); Egglayers (A.V. Female); 1. Mr. and Mrs. Riley; 2. B. Sida; 3. and 4. F. Wilson (Grimsby and Cleethorpes); Livebearers A.V. (Female); 1. D. Barrett (BBC); Section winner; 2. Mr. and Mrs. Sutcliffe (Sherwood); 3. B. Banks; 4. Miss L. Wilson (Grimsby and Cleethorpes); Small A.O.V. (Tropical); 1. D. Arnold (Barnsley); Section winner; 2. Mr. and Mrs. Long (Castleford); 3. Mr. and Mrs. Silk (Sheaf Valley); 4. Mr. and Mrs. Riley (Leeds P.O.); Large A.O.V. (Tropical); 1. Mr. and Mrs. A. E. Smith; 2. Mr. and Mrs. Snowden (York); 3. C. and J. Johnson (Workop); 4. Mr. and Mrs. Sisk; A.V. Marine; 1 and 3. Mr. and Mrs. Hooley (Fishkeepers); Section winner; 2. S. Simkins (Sherwood); Pairs (Livebearers); 1. G. Clark (BBC); Section winner; 2. N. and P. V. Noble (Boston); 3. Mr. and Mrs. G. Flint (Doncaster); 4. W. Hodges (Loughborough); Pairs (Egglayers); 1. A. Smart (Cheserfield); 2. Mrs. Johnson (I. and E. Louth); 3. H. Thorne (Doncaster); 4. Mr. and Mrs. Wright (Darfield); A-B Breeders (Live); 1. B. Banks; 2. G. Clark (BBC); 3. B. Shaw (Hildesley); 4. T. Sanderson (Boston); C-D Breeders (Live); 1. B. Banks; Section winner; 2 and 3. D. Barrett (BBC); 4. Mr. and Mrs. Sutcliffe (Sherwood); A-B Breeders (Egg); 1. Mr. and Mrs. Richardson (Scarborough); 2. N. and P. V. Noble; 3. Mr. and Mrs. Walker (Cheserfield); 4. B. Banks; C-D Breeders (Egg); 1. Mr. and Mrs. Chester (Retford); Section winner; 2. B. Banks; 3. Mr. and Mrs. Mitchell; 4. T. Reid; Juniors (Live); 1. Miss L. Wilson (Grimsby and Cleethorpes); 2. Master J. Banks (BBC); 3. Miss B. Banks (BBC); 4. Miss L. Wilson (Grimsby and Cleethorpes); Juniors (Egg); 1. S. Price (Retford); Section winner; 2. Miss A. Hollingsworth (Sherwood); 3. Miss J. F. Hollingsworth (Sherwood); 4. Master S. Dawn (Sherwood); Mini Jars; 1 and 2 and 4. Mrs. and Mrs. Hooley (Fishkeepers); Section winner; 3. E. S. A. Hopwood (Darwin); A.V. Novices; 1. K. Pilon (A. D. Fishkeepers); Section winner; 2. Mrs. S. Barton (A. D. Fishkeepers); 4. M. Wells (Sherwood); Novely Jars and Tanks; 1. F. S. A. Hopwood (Darwin); Section winner; 2, 3 and 4. K. Lancashire (Doncaster); Ladies (Egg); 1. Mrs. E. Stanfield (Sherwood); 2. Mrs. M. Price (Rothwell); 3. Mrs. R. G. Pike (Castleford); 4. Mrs. Blades (Fishkeepers); Ladies (Live); 1. Mrs. C. Banks (BBC); Section winner; 2. Mrs. May Sutcliffe (Sherwood); 3. Mrs. T. Johnson (Sherwood); 4. Mrs. M. E. Wainwright (Workop); Gold Fish and Comets; 1. Sutton and Harris (Wath); 2. Mr. and Mrs. Walker (Cheserfield); 3. Mr. and Mrs. Silk; 4. Mr. and Mrs. Blades; Fancy Goldfish; 1. A. and B. Lane (Goaghy); 2. Miss D. Wainwright (Fishkeepers); 3. H. Backley (Fishkeepers); 4. Mr. and Mrs. Blades; A.O.V. Goldfish; 1. B. Banks; Section winner; 2. Mrs. C. Cook (Haltwhistle); 3. Sutton and Harris (Wath); 4. Mr. and Mrs. Snowden (York).

## EAST



King's Lynn A.S. committee changes: chairman, T. Turner; secretary, Mrs. J. Eyles; 10 Burs Club, Fairstead Estate, King's Lynn; show

secretary, M. Laws; "Sunnys," West Winch Road, King's Lynn.

The latest East Anglian Federated Aquarists show was held at the Community Centre, Diss on 27th July. The show was hosted by the Bury society and the following member clubs took part: Bury (B); Diss (D); Great Yarmouth (GY); Ipswich (I); Kings Lynn (KL); Thetford (T) and Thorpe & District (TD). The Best Tropical Fish in Show award was presented to S. Rix of King's Lynn for a Lake Nyasa Cichlid, and the coldwater equivalent was awarded to A. Moughton of Diss for a Braint Shubunkin. Other results: Barbic; 1. B. Bysouth (I); 2. L. Bird (GY); 3. S. and M. Crooks (TD); 4. D. Newman (I); Characin; 1. Mrs. S. Bysouth (I); 2. S. and M. Crooks (TD); 3. T. Williams (B); 4. C. Newman (I); Cichlid; 1. D. Cooper (TD); 2. R. Bysouth (I); 3. M. Hodgson (TD); 4. A. Beattie (T); Angui; 1. A. Beattie (T); 2 and 4. S. and M. Crooks (TD); 3. M. Hodgson (TD); Dwarf Cichlid; 1. D. Cooper (TD); 2. A. Kemp (GY); 3. C. Newman (I); Red Valley Cichlid; 1. S. Rix (KL); 2. A. Kemp (GY); 3. D. Newman (I); 4. P. Withers (D); Fighters; 1. Mrs. S. Bysouth (I); Labrythia; 1. B. Bysouth (I); 2. C. Bades (I); 3. S. Rix (KL); 4. S. and M. Crooks (TD); Goldfish; 1 and 4. P. Withers (D); 2. S. and M. Crooks (TD); 3. D. Newman (I); Catfish; 1. T. Cook (TD); 2 and 3. D. Beethoven (I); 4. D. Newman (I); Corydoras; 1. D. Newman (I); 2 and 4. S. and M. Crooks (TD); 3. T. Cook (TD); Rasthoro; 1. D. Beethoven (I); 2. Mrs. S. Bysouth (I); 3 and 4. D. Newman (I); 5. Rix (KL); 6. S. and M. Crooks (TD); 7. A. Kemp (GY); 4. T. Cook (TD); Loaches; 1. D. Cooper (TD); 2. M. Hodgson (TD); AOV Egglayers; 1. D. Newman (I); 2. D. Beethoven (I); 3. T. Cook (TD); 4. D. Cooper (TD); Labers; 1. M. Hodgson (TD); 2. S. and M. Crooks (TD); 3. A. Soper (T); Pair Egglayers; 1 and 2. L. Bird (GY); 3 and 4. D. Newman (I); Pairs Livebearers; 1. S. Forrest (B); 2. S. Rix (KL); Guppies; 1. and 4. T. Cook (TD); 2. A. Kemp (GY); 3. S. and M. Crooks (TD); Finies; 1 and 2. M. Hodgson (TD); 3 and 4. S. and M. Crooks (TD); Mollies; 1 and 4. S. and M. Crooks (TD); 2 and 3 Mrs. S. Bysouth (I); AOV Livebearers; 1. 2, 3 and 4. T. Cook (TD). Swords; 1 and 2. Miss S. Bysouth (I); 3 and 4. A. Kemp (GY); Singantial Goldfish; 1. 2 and 3. A. Moughton (D); Tropical Goldfish; 1. 2. 3 and 4. A. Moughton (D); AOV Coldwater; 1 and 4. G. Hume (D); 2. T. Cook (TD); 3. A. Moughton (D); Breeders Livebearers; 1 and 2. T. Cook (TD); 3. Miss S. Bysouth (I); 4. S. Palmer (D); Breeders Egglayers; 1. L. Bird (GY); 2. Junior Tropical; 1. N. Dams (D); 2. D. Thorpe (GY); 3 and 4. A. Moore (T); Junior Coldwater; 1 and 2. N. Ellingford (D); 3. B. Horrey (T).

The second annual open show of the Kings Lynn A.S. was a great success with an increase in exhibitors and visitors. There were 130 fish on the bench from 14 societies, and about 1,000 members of the public attended. The Best in Show award was won by Mike Laws, Show Secretary, with a Hill Valley catfish. The trophy for the King's Lynn member with the most exhibitors was won by Mr. and Mrs. S. Rix. Other results: Class B; 1. J. Parr (Romford and Becontree); 2. B. Bysouth (Ipswich); 3. P. A. Hughes (Loughborough); Cat; 1. E. and N. Hallam (Loughborough); 2 and 3. J. Parr; Co; 1, 2 and 3. G. and E. Davies (Corby); C; 1. J. Parr; 2. P. A. Hughes; 3. C. Simper (K.L.); D; 1. J. Parr; 2. T. and P. Penzler (Kettering); 3. P. A. Hughes; Da; 1. N. McQuade (Ridgway); 2. M. Short (Corby); 3. R. Elliot (Corby); Dn; 1 and 3. P. A. Hughes; 2. R. Elliot; Dc; 1, 2 and 3. M. Laws (K.L.); E; 1. B. Bysouth (Ipswich); 2. C. Taylor (Loughborough); 3. P. and S. Rix (K.L.); F; 1 and 2. T. and J. Palmer; G; 1 and 2. D. Beethoven (Ipswich); A. B. Evans (Dunmow); H; 1. H. Henderson (Corby); 2. R. Elliot; 3. P. A. Hughes; J; 1 and 2. G. and E. Davies; 3. J. Parr; K; 1. N. Hume (Diss); 2. R. Vickers (Kettering); 3. B. Evans (Dunmow); L; 1. G. and E. Davies; 2. E. and N. Hallam; 3. B. Evans; M; 1. G. and E. Davies; 2. M. Short; 3. A. Ford (K.L.); Nbn; 1, 2 and 3. G. and E. Davies; Nov; 1. G. and E. Davies; 2. S. Vickers (Kettering); 3. B. Evans (Dunmow); O; 1 and 2. J. Parr; 3. R. Evans; P; 1. L. and Y. Pickford (Causton); 2. P. Owen (Corby); 3. J. Peen; Q; 1. J. Parr; 2. L. and Y. Pickford; 3. S. Bysouth; R; 1. G. and E. Davies; 2 and 3. E. and N. Hallam; S; 1. N. McQuade (Ridgway); 2. Mrs. Coxon (South Humberidge); 3. A. Ford (K.L.); T; 1. Mr. and Mrs. Onslow (Loughborough); 2. G. Taylor; 3. Mr. and Mrs. Onslow; U; 1 and 3. D. Wood (Thetford); 2. S. Vickers (Kettering); V; 1. A. Wood (Thetford); 2. D. Southwood (Ass. Midland Goldfish Keepers); 3. C. Finch (Ass. Midland Goldfish Keepers); Xbn; 1 and 2. J. Parr; 3. T. and P. Penzler; Xc; 1. R. Day (Causton); 2. S. Vickers; 3. T. and P. Penzler; W; 1. V. Wood (Thetford); 2. S. Asquith (K.L.); 3. R. Day (Causton).

## NORTH



AT the a.g.m. of the Northern Goldfish and Pondkeepers Society the following officers were re-elected unopposed: President, Mr. W. Ramsden; vice-president, Mrs. L. Baxter; chairman, Mr. P. Johnson; treasurer, Mr. B. Rothwell; secretary, Mr. P. Lane; editor, Mrs. P. Hodgkinson. The new P.R.O. is Mr. R. Hodgkinson. An honorary vice-presidency was made to Mr. L. Baxter.

At the June meeting Mr. D. Lord and Mr. W. Gregory gave a detailed account of their experience in breeding and culting Bubble eye goldfish. The N.G.P.S. meet at the Anglers Club, Rishon Lane, Bolton, Greater Manchester, on the second Tuesday in each month. New members welcome.

NEW officers of the Hoyleake A.S., following the resignation of the vice-chairman and show secretary are: chairman, Mr. D. Lakin; vice-chairman, Mr. D. Morris; secretary, Mr. G. Robinson; treasurer, Mrs. S. Lakin; show secretary, Mr. P. Edwards; committee members, Mr. S. Wilkinson and Mrs. S. Wilkinson. The society meets on the 2nd and 4th Tuesday of every month at "The Coach and Horses Hotel," Moreton Cross, Moreton Watford, Macclesfield at 8 p.m. Visitors and new members always welcome. The society would also appreciate the names of anybody willing to give lectures, film shows, etc., on any aspect of the hobby. For further details of the society please contact Mr. D. Lakin (051-617 8297) or Mr. P. Edwards (051-610 4976).

AT the Darfield & District A.S. mini-show on 16th June entries were slightly up on the last mini-show at 173, and standard of entries was very high.

Abbreviations: (D) Darfield, (B) Barnsley, (C) Castleford, (De) Dewson, (Do) Doncaster, (F) Fishkeepers, (R) Rothwell, (Sw) Swillington, (Sv) Sheaf Valley, (W) Workop, (Wa) Wath, (I) Independent.

Results: Guppies; 1. Sutton and Harris (W); 2. Mr. Lancashire (Da); 3. Mr. and Mrs. Mitchell (W); Mollies; 1 and 2. Mr. and Mrs. Mitchell (W); 3. P. and N. Jackson (D); Swords Platen; 1. Mr. and Mrs. Wall (Wa); 2. R. and S. Cherryholme (I); 3. T. and J. Harrison (D); A.O.V. Livebearers; 1, 2 and 3. Mr. and Mrs. Hill (B); 4. Mrs. Dan; Miss; 1 and 2. Mr. and Mrs. Wainwright (F); 3. S. Corbishley (D); Small Characins; 1 and 2. L. and M. Price (B); 3. R. and S. Cherryholme (I); Large Characins; 1. Mr. and Mrs. Simpson (D); 2. Mr. and Mrs. Wainwright (F); 3. D. Jones (D); Small Barbic; 1. Mr. and Mrs. Kemp (S); 2 and 3. Mr. and Mrs. Lunn (W); Large Barbic; 1. Mr. and Mrs. Kemp (S); 2. S. Corbishley (D); Small Cichlid; 1. Mr. and Mrs. Hill (B); 2. L. and M. Price (B); 3. Mr. and Mrs. Wainwright (F); Best Fish in Show; 3. D. Jones (Da); 2. L. and M. Price (B); Corydoras; 1 and 2. L. and M. Price (B); 3. D. Jones (Da); A.O.V. Cat; 1. Mr. Lancashire (Da); 2. Mr. and Mrs. Mitchell (W); 3. T. and J. Harrison (R); Botia; Loaches; 1. K. Blades (F); 2. Mr. and Mrs. Long (C); 3. E. Sutton (I); Sharks and Fishes; 1. Mr. and Mrs. Mitchell (W); 2. Mrs. C. Sutton (I); 3. Mr. and Mrs. Long (C); A.V. Anabantid; 1. Mr. and Mrs. Wainwright (F); 2. Mr. Lancashire (Da); 3. Mr. and Mrs. Asquith (C); Killies; 1. Mrs. M. Wainwright (W); 2. Mr. and Mrs. Wainwright (F); 3. Mr. Stubbs (B); Pairs; 1. S. Sutton (D); 2. W. and A. Wright (D); 3. Mr. Jones (W); Breeders Livebearers; 1 and 2. Mr. and Mrs. Hill (B); 3. R. and S. Cherryholme (I); Breeders Egglayers; 1. L. and M. Price (B); 2. Mr. and Mrs. Mitchell (W); 3. Mr. and Mrs. Wainwright (F); A.O.V. Tropical; 1. Mr. Stubbs (B); 2. Hodgson and Jackson (D); 3. Mr. and Mrs. Mitchell (W); A.O.V. Coldwater; 1. K. Blades (F); 2. Miss D. Wainwright (W); 3. D. Jones (Da).

THE 5th annual general meeting of the Yorkshire Koi Society was held on 22nd June at Delacy Manor Club, Brotherton, when the following officers



were elected: Chairman, Syd Farrer; Deputy Chairman, Stuart Barr; Secretary, Bill Houghton; Treasurer, Phil Peckitt; Show Secretary, Stuart Bent; Membership Secretary, Mrs. Brenda Hoyland; two additional Committee Members Brian O'Toole and Arthur Gill. Following the meeting, members were shown the Zin Nippon Animal film of the 1978 All Japan Nishi Koi Show. Thanks to Dr. Paul Cook, president of the Z.N.A. UK, for the loan of this film.

**RESULTS of the Sandgraders A.S. 10th annual open show, held at Meols Cop High School, Meols Cop Road, Southport, on 20th July:**

Guppies: 1, 2 and 3, Mr. and Mrs. B. Baldwin (Sandgraders); Swordfish: 1, H. Askroyd (Doncaster); 2, S. McGreal (Haylake); 3, S. Waterhouse (Leigh); Platies: 1 and 2, M. and J. Bradshaw (Longridge); 3, Mrs. Edwards (North Staffs); Mollies: 1, Mrs. Iddon (Sandgraders); 2, K. Johnson (Longridge); 3, Mr. and Mrs. Iddon (Sandgraders); A.O.V. Livebearers: 1, Mrs. D. Crookshank (Cathish Association G.B.); 2, J. Corbett (Merseyside); 3, Mr. and Mrs. B. Baldwin (Small Anabaptist); 1, L. and M. Buckley (Bridge-water); 2, Mr. Hartley (Lytham); 3, K. Johnson (Large Anabaptist); 1, Mr. and Mrs. Underwood (Sandgraders); 2, Mr. and Mrs. P. Yates (Darwen); 3, Miss C. Armour (Ellenmore Park); Siamese Fighters: 1, Miss Smeltzer (Merseyside); 2, R. Rowland (Sandgraders); 3, K. Corbett (Merseyside); Small Cichlids: 1, Mr. and Mrs. Underwood; 2, R. Rowland; 3, J. Buckley (Northwich); Large Cichlids: 1, Mr. and Mrs. Iddon (Sandgraders); 2, Master L. Groves (Sandgraders); 3, P. Stanhope (Pierwood); Rift Valley Cichlids: 1, Mr. and Mrs. A. Waterhouse (Leigh); 2, Mr. and Mrs. Iddon; 3, Mr. and Mrs. Norton (Sandgraders); Angels: 1, Mr. and Mrs. Weaver (Warrington); 2, Mr. and Mrs. Stevenson (Oldham); 3, Miss C. Armour (Ellenmore Park); Small Characins: 1, Mr. and Mrs. Baldwin; 2, Mr. and Mrs. Muckle (Runcorn); 3, Mr. and Mrs. Underwood; Medium Characins: 1, J. O'Connor (Runcorn); 2, T. A. Crookshank (Cathish Association G.B.); 3, L. and M. Buckley; Large Characins: 1, Mrs. Houghton (Independent); 2, Mr. and Mrs. Underwood; 3, K. Kryger (Wrexham); Small Barbs: 1, Mr. and Mrs. Underwood; 2, B. W. Carter (St. Helens); 3, Mrs. Crookshank; Large Barbs: 1, Mrs. Houghton; 2, Mr. and Mrs. B. Baldwin; 3, Mr. and Mrs. O'Connell (Wrexham); Rainbow: 1, Mr. and Mrs. Muckle (Runcorn); 2, Mrs. Houghton; 3, Mr. and Mrs. Underwood; Minnows: 1, Mr. and Mrs. B. Baldwin; 2, S. Waterhouse; 3, J. Corbett; Danios: 1, Mr. and Mrs. Casey (Blackpool); 2, Mr. and Mrs. Baldwin; 3, H. Roberts (St. Helens); Corydoras & Brochis: 1, Mr. and Mrs. B. Baldwin; 2, Mr. and Mrs. Underwood; 3, Mr. and Mrs. Muckle; Suckermouth Catfish: 1 and 2, Mr. and Mrs. B. Baldwin; 3, Mrs. D. Crookshank; Synodontis Catfish: 1, L. and M. Buckley; 2, Mr. and Mrs. B. Baldwin; 3, D. Parkinson (Skelmersdale); A.O.V. Catfish: 1, P. Harris (St. Helens); 2, Mr. and Mrs. Mulla (Merseyside); 3, Mr. and Mrs. Waterhouse; Loaches: 1 and 2, Mr. and Mrs. Underwood; 3, Mrs. Houghton; Mosaks: 1, J. Corbett; 2, R. Stradman (Runcorn); 3, Mr. and Mrs. Iddon; Flying Foxes: 1, P. Kenyon (Sandgraders); 2, Mr. and Mrs. Perritt (Doncaster); 3, Mr. and Mrs. Massey (Bridge-water); Killifish: 1 and 3, L. and M. Buckley; 2, B. Birchwood (Oldham); A.O.V. Female Fish: 1, L. and M. Buckley; 2, Mr. and Mrs. Waterhouse; 3, J. O'Connor; Pairs Livebearers: 1, P. Harris (St. Helens); 2, Mr. and Mrs. Waterhouse; 3, Mr. and Mrs. Stevenson; Pairs Egglayers: 1, A. Crookshank; 2, D. Parkinson; 3, Mr. and Mrs. Mathers (Wrexham); Breeders Livebearers 1-10: 1, L. and M. Buckley; 2, A. Chadwick (Oldham); 3, S. Pritchard (Cathish Association G.B.); Breeders Livebearers 11-20: 1, T. L. Penny (St. Helens); Breeders Egglayers 1-10: 1, L. and M. Buckley; 2, A. Chadwick (Oldham); 3, Mr. and Mrs. Briem (Blackpool); Breeders Egglayers 11-20: 1, S. Alms-cough (Bridge-water); 2, L. and M. Buckley; 3, Mr. and Mrs. A. Waterhouse; A.O.V. Tropical: 1, Master L. Groves (Sandgraders); 2, Mr. and Mrs. P. Yates (Darwen); 3, Mr. and Mrs. High (Blackpool); Faunals: 1 and 3, R. Dingley (Herwood); 2, Mr. and Mrs. Colley (Aireborough); A.O.V. Coldwater Single Tail: 1, S. Walsh; 2, D. Harvey (Sandgraders); 3, Mr. Brannon (Bella Vue); A.O.V. Coldwater Twin Tail: 1, R. Dingley; 2, Mr. and Mrs. Williamson (Leigh); 3, Mr. and Mrs. Stevenson; Lionheads: 1 and 2, Mr. and Mrs. Harvey (Sandgraders); Juniors Livebearers: 1, M. Kinnear (Sandgraders); 2, K. Corbett (Merseyside); 3, M. Allison (Sandgraders); Juniors Egglayers: 1, P. and I. Iddon (Sandgraders); 2, Miss J. Baldwin (Sandgraders); 3, K. Corbett; Juniors Coldwater: 1, I. Whitaker (Sandgraders); 2, Miss J. Baldwin

3, A. Baker (Warrington); Ladies Fish (any variety): 1 and 2, Mrs. Waterhouse; 3, Mrs. Baldwin; Mares: 1, 2 and 3, S. Almscough; Furnished Mini-tanks (no fish): 1, 2 and 3, Mr. and Mrs. Stevenson; Best fish in show: All-glass tank with accessories, Aquaria de Pindarup Gold Pin, Entry into Championship of Champions Contest, Top tank prize money, the Iddon Trophy, L. and M. Buckley; Society with most points: The Bernard Cawtree Trophy, Sandgraders A.S. Society with most entries: The Kingsway Casino Punch Bowl, Bridge-water A.S. Exhibitor with most points: The Fish Pad Trophy, Mr. and Mrs. B. Baldwin; Top tank prize money: 2nd best fish in show (Pairs Class), T. A. Crookshank; 3rd best fish in show (Breeder's Class), S. Almscough; Total number of entries in show: 560.

**AT the Scarborough & District A.S. open show on 13th July at Gladhope Road Junior School, Scarborough, there were 518 entries. The Best Fish in Show was won by Mr. K. Webb of Scarborough A.S. Society with a Leopard Catewoma.**

Other results were: Guppy: 1 and 3, Mr. and Mrs. Pawcett (York); 2, Mr. and Mrs. Johnson (Scarwood); Molly: 1, A. Marples (Ashfield P.K.); 2, M. R. Coon (Grimsby and Cleethorpes); 3, S. Wilson (Hall); Swordfish: 1, R. and S. Cherryl-holme (Garfield); 2, E. Hooson (Scarborough); 3, M. Jordan (Bridlington); Platy: 1, R. and S. Cherryl-holme (Garfield); 2, A. D. Fisher (Bradford); 3, B. Huzla (B.R.C. Thorne); A.O.V. Livebearer: 1 and 2, D. Barrett (B.R.C. Thorne); 3, R. and S. Cherryl-holme (Garfield); Small: 1, R. and S. Cherryl-holme; 2, Mr. and Mrs. Waller (Chesterfield); 3, K. Webb (Scarborough); Characin (Large): 1, Mr. Moody (Grimsby and Cleethorpes); 2, C. Quastok (Wyke); 3, Mr. and Mrs. Wall (Wath); Barb (Small): 1, D. Barrett; 2, A. Marples; 3, Mr. and Mrs. Kemp (Sheaf Valley); Barb (Large): 1 and 2, Mr. and Mrs. Kemp; 3, M. Jordan; Rainbow Dan. Allen: 1, D. Swadlow (Bradford); 2, Mr. and Mrs. Lake (Grimsby and Cleethorpes); 3, Mr. and Mrs. Hare (Grimsby and Cleethorpes); A.V. Aphrodisium: 1, Mr. and Mrs. Richardson (Scarborough); 2, Mr. and Mrs. Tindall (York); 3, B. Banks; A.O.V. Koi: 1, R. Brown (Morley); 2, Mr. and Mrs. Tindall; 3, Mr. and Mrs. Johnson (I. and E. Angels); 1, Mr. and Mrs. Snowden (York); 2, Mr. and Mrs. Hare; 3, Mr. and Mrs. Lunn (Wath); Cichlid (Small): 1, B. Brook (Huddersfield); 2 and 3, L. and M. Price (Rothwell); Cichlid (Large): 1, D. Jones (Dunelm); 2, K. Harrison (Sherwood); 3, P. Steward (Ind); Rift Valley Cichlid: 1, T. Bowley (Scarborough P.K.); 2, M. A. Hollingsworth (Sherwood); 3, N. G. Farrand (Goole); Anabantid (Small): 1, Mr. and Mrs. Hare; 2, C. Womack (Doncaster); 3, Mr. and Mrs. J. Riley (Leeds P.O.); Anabantid (Large): 1, K. Webb; 2, Mr. and Mrs. Howell (Ashfield P.K.); 3, Mr. and Mrs. Johnson; Fighter: 1 and 2, Mrs. Gray (Hall); 3, Mr. and Mrs. Priday (Wyke); Corydoras & Brochis: 1, S. Price (Rothwell); 2, A. Marples; 3, P. Camfield (Ind); A.O.V. Catfish: 1, S. Sutton (Ind); 2, Mr. and Mrs. Ashton (Wyke); 3, Miss J. Cook (Osley); Loaches & Botias: 1 and 2, S. Sutton; 3, Mr. and Mrs. Wall; Sharks & Power: 1, Mr. and Mrs. R. K. Shaw (Osley); 2, B. and J. Jackson (Doncaster); 3, Pete and Sylvia (Bridlington); A.O.V. Tropical: 1, Pete and Sylvia; 2, Mr. Stubbs (Barnsley); 3, M. A. Stevens (Middles-brough); Breeders Live A & B: 1, B. Banks; 2, R. and S. Cherryl-holme; 3, M. Jordan; Breeders Live C & D: 1, 2 and 3, B. Banks; Breeders Egg A & B: 1, Mr. and Mrs. Richardson; 2, B. Banks; 3, Mr. and Mrs. Waller; Breeders Egg C & D: 1, R. Brown (Morley); 2, Mr. and Mrs. Richardson (Scarborough); 3, P. McArthur (Scarborough); Pair Livebearers: 1 and 2, M. D. Barrett; 3, B. Banks; Pair Egglayers: 1, R. Brown; 2, B. Banks; 3, M. R. Coon; Female Egglayer: 1, L. and M. Price (Rothwell); 2, Mr. and Mrs. J. Riley; 3, E. Sida (Barnsley); Female Livebearer: 1, R. Clodhill (Redcar); 2, Miss D. Banks; 3, Mr. and Mrs. Johnson; Gold-fish & Comet: 1, Mr. and Mrs. Waller; 2, Mr. and Mrs. Chadwick (Osley); 3, A. D. Fisher (Bradford); Fancy Goldfish: 1, Mr. and Mrs. Waller; 2, D. Jones (Dunelm); 3, Mr. and Mrs. Silk (Sheaf Valley); A.O.V. Goldwater: 1, Mr. and Mrs. Snowden; 2, D. Jones; 3, B. Banks; Junior Any Variety: 1, Miss J. E. Hollingsworth (Sherwood); 2, S. Price; 3, Miss L. Richardson (York).

**RESULTS of Novo's Tropical Fish Club open show held 6th July at Newcastle Class B: 1 and 2, L. Hall (Stanley); B: 1, J. Priday (Stanley); 2, J. Middleman (Stanley); 3, B. Robinson (Ind); 4, A. Stevens (Middlesbrough); Cat: 1, P. Wright (Caer Ufa); 2, T. Sayers (Stanley); 3, D. Smith (Caer Ufa); 4, I. Wright (Stanley); Ch: 1, and 3, D. Renwick (Throckley); 2 and 4, C. Clark (Hartlepool); C: 1, M. Hall (Newo); 2, H. Lake (Stanley); 3, G. Barron (C.S.S.); 4, D. Renwick (Os); J: 1, L. Hall; 2, J. Carter (Newbiggin); 3, K. Carter (Newbiggin); Db: 1, J. Curry (Stanley); 2, D. House (Ind); 3, A. H. Maw (Houghton); 4, Mr. and**

Mrs. Darby (Houghton); De: 1 and 4, H. Douthwaite (Newo); 2, D. Clark (Hartlepool); 3, J. Lakey (Throckley); D: 1, G. Hunt (Newo); 2, K. Forster (Ind); 3, D. Russell (Stanley); 4, J. R. Douthwaite (Newo); Be: 1 and 3, P. Wright (Caer Ufa); 2, H. Lakey; 4, J. Priday; E: 1, L. Blackburn (Throckley); 2, A. H. Maw; 3, G. and M. Paskin (Berwick); 4, J. Wright (Caer Ufa); F: 1, J. Sayers (Stanley); 2, J. H. Lakey; 3, P. Wright; 3, J. Middleman (Stanley); 4, A. Robinson (Throckley); G: 1, D. Dixon (Stanley); 2, P. Buglass (Berwick); 3, L. Hoar (Ind); 4, P. Wright; H: 1, J. C. Coxe (Newo); 2, P. Wright; H: 1, J. Coxe (Newo); 2, J. Curry; 3, P. Wright; 4, Mr. and Mrs. Leaf (Ind); J: 1, A. & J. King (S. Shield); 2, A. Robinson; 3, P. Wright; 4, B. Robinson (Ind); K: 1, A. Robinson; 2, T. Marshall (Throckley); 3, J. Curry; 4, P. Best; L: 1, W. J. Gray (Hartlepool); 2, A. Venus (Throckley); 3, P. Wright; 4, Mr. and Mrs. Collins (Ind); Ms: 1, J. Carter; 2, W. Laws (S. Shield); 3, J. H. Douthwaite; 4, D. Smith (Caer Ufa); M: 1, J. Watson (Hartlepool); 2, A. Stevens (Middlesbrough); 3, P. Bell (Stanley); 4, J. G. Chisholm (Ind); Nfm: 1, K. King (Ind); 2, J. Middleman (Stanley); 3, E. Fish (Berwick); 4, A. H. Maw; Nov: 1, J. Coxe; 2, L. Hunt (Ind); 3, J. Wright (Stanley); 4, T. Marshall; Q: 1, G. and M. Parkin (Berwick); 2, R. Rodham (Throckley); 3, A. H. Maw; O: Or: 1, T. Sayer; 2, J. Wright; 3, A. H. Maw; 4, W. Horby (B. Ackland); P: 1, A. H. Maw; 2, J. Middleman; 3, G. R. Sayers (Ind); 4, T. Marshall; Q: 1, G. and M. Parkin (Berwick); 2, R. Rodham (Throckley); 3, A. H. Maw; 4, T. Marshall; U: Miss M. Wright (Caer Ufa); 2, D. House (Ind); 3, J. Priday; U: 1, G. Jacques (B. Ackland); 2 and 3, D. House (Ind); V: 1, Mr. and Mrs. Gosick (B. Ackland); 2, H.arker (Hartlepool); 3, Mr. and Mrs. Leaf; 4, R. Elliot (B. Ackland); W: 1, Lynne Emberton (Newo); 2, K. Dodds (B. Ackland); 3, A. Robinson; 4, A. Venus; X: Nov: 1, P. Wright; 2, H. Lakey; 3, G. R. Sayers (Ind); 4, A. Stevens; X: Nov: 1, H. Lakey; 2, D. Renwick (Throckley); 3 and 4, T. Sayers; X: Nov: 1, Sayers; Best Society: Stanley; Best Exhibition: P. Wright (Caer Ufa); Best in Show: J. Watson (Hartlepool).

**Wyke Show Society** welcomed Mr. J. Hall for a talk about setting a pond up and general fish-keeping. He showed an interesting selection of slides of unusual fish, with a little story about the fish. Results of the Show: Seniors: 1 and 3, Mr. Ron Haverick; 2, Mr. C. Charlton; Juniors: 1 and 2, Mr. N. Muncie; 3, Tony Gould; Fish of the Night (Characins): 1, Mr. A. Dudding; 2, Mr. Ray Laverick; 3, Mr. N. Muncie. Meetings are held on each 2nd and 4th Thursday of each month at 7.30 p.m. at "The Rose" Public House, Beverley Road, Hall.

**THE Wythenshawe & District A.S.** have had to cancel their annual open show until early next year (date not yet decided).

**APPEAL**  
**Hartlepool A.S.** appeal for the return of trophies from the last show in 1978. Please send to the secretary, Mrs. K. J. Harker, 23 Windsor Street, Hartlepool, Cleveland.

**ANSWERS TO CROSSWORD**

ACROSS	DOWN
1. Lace	1. Lilla
4. Maculara	2. Cichlids
8. Cyamogstrans	3. Bronze
9. Fin	5. Characin
11. Piranha	6. Pumpkinseed
13. Lima	7. Lineatus
14. Killifish	10. Labco Bicolor
15. Espei	12. Australe
17. Corals	15. Ember
18. Bumblebee	16. Ferreira
20. Ahli	17. Crassa
21. Fry	19. Cream
22. Corydoras	21. Ferns
24. Rudolf	23. Apple
26. Anableps	25. Bog
29. Spear	27. Leo
30. Toxotes	

# Dates for the diary

A monthly information column to keep you up to date on forthcoming events.

## SEPTEMBER

**7th September:** Bristol and West Section B.K.K.S. local Kai show at Athlon Court Mansion, Bristol.

**7th September:** North Wilts A.S. open show. Further details from secretary, G. Reynolds, 29 Mansell Way, Wroughton, Swindon, Wilts. (Tel: 0793 812107).

**7th September:** Haddenfield Tropical Fish Society open show at Slithwaite Civic Hall. Show secretary, Mrs. P. Town, 187 Abbey Road, Shepley, Nr. Haddenfield. (Tel: Kirkhamton 7640).

**7th September:** Bethnal Green A.S. open show. Show Secretary, S. J. Strubbing, 3 Munton Road, Clapton, London E5 9LH.

**7th September:** Middlesbrough & District A.S. open show at the James Finlayson Hall in Eton. Inquiries to Show Sec. D. Riddam, 40 Stanton Street, North Ormsby, Middlesbrough, County Cleveland.

**7th September:** Willingborough & District A.S. open show at Westfield Road Boys School, Birch Hill Road, Willingborough, Northants. Show schedules from Show Secretary, A. J. Crew, 67 Swinbourne Road, Willingborough, Northants (Tel: 677113).

**12th September:** Bristol A.S. open Coldwater show at St. Ambrose Church Hall, Strerford Road, Whitehall, Bristol 5. Schedules from W. O. Ham, 18 Imperial Road, Bristol BS14 9ED (Tel: 0272 776924).

**12th September:** Hounslow & District A.S. open show at the Youth Centre, Cecil Road, Hounslow. Information and schedules from Show Secretary, Mr. T. Bolingbroke, 2 Holmwood Close, Addlestone, Surrey (Tel: Weybridge 54976).

**12th September:** Merthyr A.S. 4th open show at Rhydycar Leisure Centre, Merthyr Tydfil. Benchings 9-11.30 a.m. Inquiries to R. Morgan, 4 Poplar Place, Bethesda Street, Merthyr Tydfil, Mid-Glamorgan.

**12th September:** Bangor Aquarists and Breeders Society 2nd annual open show in the Hamilton Road Gymnasium, Hamilton Road, Bangor, Co. Down, N. Ireland. Schedules from Show Manager, J. McGrawdy, 69 Colliehiside Park, Glengormley, Co. Antrim, N. Ireland. (Tel: Glengormley 41694).

**12th September:** Plymouth A.S. open show at Trinity United Reform Church, Torr Lane, Hareway, Plymouth. Schedules from Show Secretary, J. Hande, 50 Ducham Avenue, Liphon, Plymouth.

**12th and 14th September:** East Kent A.S.C. hobbying exhibition at Lower Hardens Village Hall, Lower Hardens, Nr. Canterbury (on R2066).

**14th September:** Harlow A.S. open show at Moot Hall, The Stow, Harlow. Details from Dave Henman (Tel: White Roding 275) or Peter Murdoch (Tel: Epping 72124).

**14th September:** B.K.K.S. annual open show at Bessingham Gardens, Nr. Diss, Norfolk.

**14th September:** Porton and District A.S. first annual show at the Stoke-on-Trent Technical College, Moorland Road, Burnley, Staffs. Schedules from Melvin Clarke, 5 Towns Triangle, 63/65 Birchwood Road, Hanley, Stoke-on-Trent, Staffs. Over £500 in cash prizes.

**14th September:** Diss & District Fish Keepers Club open show at the Youth Centre, Shelton Road, Diss, Norfolk. Schedules later from Show Manager, N. A. Hume, 22 Blunsfield Road, Diss, Norfolk IP22 3NU.

**14th September:** Bridgewater A.S. open show at the St. George's Community, Little Walton. Details from the Show Secretary, S. Kincaid, 33 Oaktree Close, Howe Bridge, Atherton (Tel: Atherton 891899).

**14th September:** Kai '80 at Bessingham Gardens, Nr. Diss, Norfolk at the A1066.

**14th September:** Caer Urf A.S. 2nd annual open show at Chester Ede Community Centre, South Shields, Tyne & Wear. Further information from Show Secretary A. E. King, 24 Australia Grove, South Shields, Tyne & Wear.

**21st September:** Tonbridge & District A.S. open show at the Hadlow Community Centre, Hadlow, Kent. Schedules from Mrs. V. Pratt, 5 Fellards Wood Road, nr. Oxed, Surrey.

**21st September:** Hoylake A.S. open show at the Hoylake Y.M.C.A. Further details from Show Secretary S. McGread (Tel: 051-674 8661).

**21st September:** L.A.D.A.S. open show at Lillingdon Community Centre, near Leamington Spa.

**21st September:** Chesterfield & District A.S. open show at Westfield Upper School, Mosborough. Benchings 12-2 p.m. Schedules on receipt of £.s.f. from L. Walker, 79 West Street, Eckington, nr. Sheffield S31 9GA. (Tel: Eckington 2531).

**21st September:** Newbury & District A.S. open show at the Core Exchange, Newbury. Details from Show Secretary, Mrs. Iris Gale, 34 Jubilee Road, Newbury (Tel: Newbury 30616).

**21st September:** Bishop Auckland A.S. open show. Details from R. N. Gough, 40 Clyde Terrace, Spensymoor, Co. Durham (Tel: 0388-615365).

**24th September:** Keighley A.S. mini-show at the R.A.O.B. Club, Stapton Road, Keighley. Benchings 7-8 p.m. Judging 8 p.m.

**25th September:** Cambridge & District A.S. first meeting at St. Luke's School, Victoria Road, Cambridge (8 p.m.). Further information from C. Johnson, 15 Vesey Road, Hatfield, Hemmington (Tel: 0480-59965).

**27th September:** Ilford & District Aquarist and Pondkeepers Society annual exhibition of fish and allied subjects at the Lambourne Rooms, Ilford Town Hall, High Road, Ilford, Essex.

**28th September:** Bexleyheath & District A.S. 2nd open show at the Crayford School, Iron Mill Lane, Crayford, Kent. Schedules from Show Secretary, N. M. Raven, 39 Mount Pleasant Road, Lewisham, London SE13 6RD. (Tel: 01-690 2954).

**28th September:** Wolverhampton A.S. open show at the Community Centre, Marsh Lane, Furdhouses, Wolverhampton. Enquiries to L. Crook, 18 Birston Way, Wolverhampton, West Midlands WV1 2NT. (Tel: Wolverhampton 53383).

**28th September:** Wyke Show Society first open show at the College of Higher Education, Beverley High Road, Hull.

## OCTOBER

**4th October:** British Aquarists Study Society annual conference at the Meeting Rooms, Zoological Society of London, Regent Park. A series of illustrated talks on Livingstone Fishes. Tickets may be ordered in advance from W. E. Goodwin, 14 Dawlish Drive, Devon Park, Bedford.

**4th October:** 10th anniversary to be held at Leicester Centre Hotel. Lectures, luncheon, films, D. dance. Contact R. Talbot, 6 Buck Lane, Garboldisham, nr. Diss, Norfolk. (Tel: Garboldisham 368) for details.

**4th October:** South Park Aquatic (Study) Society coldwater inter-club show for tropical and coldwater plants at Wimbledon Community Centre, St. George's Road, Wimbledon. Details from Show Secretary, L. B. Clapp, 16 Overhill Way, Beckenham, Kent (Tel: 01-650 6954).

**4th October:** British Kai-Keepers Society Seminar at the Centre Hotel, Leicester in celebration of the 10th anniversary of the B.K.K.S., 11 a.m. Lectures and slides on films by Dr. C. Andrews (Fish Diseases and cures); a representative of Beverford Pumps; a Fisheries manager (Fish husbandry); Mr. P. Stratford (P.P. Nutrition); and B.K.K.S. chairman, Mr. Roland Snel (film on Japanese fish). To be followed by a dinner-dance in the evening. Last booking date 14th September at Kai '80 B.K.K.S. national open show at Bessingham Gardens, Nr. Diss, Norfolk.

**5th October:** Bridgewater A.S. open show. (Note: this is a change of date from 14th Sept.).

**11th October:** East London Aquarists and Pondkeepers Association 33rd open breeders show at Ripple School, Suffolk Road (off Ripple Road), Barking, Essex. Further details from Show Secretary, T. Waller, 32 Hamilton Road, Heath Park, Romford, Essex. (Tel: 49-59962).

**12th October:** Lintorpe A.S. open show at Therrone Community Centre, Therrone East, Middlesbrough. Schedules from club secretary, S. Cook, 19 Berner Street, Middlesbrough, Cleveland TS5 6AU (Tel: 0442-626935) or show secretary, S. Cousins, 28 Endeavour Drive, Achlam, Middlesbrough (Tel: 0642-625637).

**12th October:** Darwin A.S. open show at the Liberty Theatre, Darwin (Town Centre). Details from Show Sec. P. Yates, 21 Rosegate, Darwin, Lancs. (Tel: 77812).

**12th October:** South Leeds A.S. annual open show at Hunzler Boys Club, Hillside Road, Leeds 10. Benchings 12-2 p.m. Judging 2.15 p.m. Schedules from A. Austwick, 151 Thronie Road, Middleton, Leeds LS10 6DF.

**17th, 18th, 19th October:** British Killifish Association convention. Open to the public on Saturday 9 a.m.—7 p.m. Venue, Vista Complex, Municipal Caravan Park, Priory Road, Swanage, Dorset. Convention inquiries with s.a.c. to Rod Roberts, 55 Rowan Road, Bexleyheath, Kent DA7 4BN. (Note—this is a slight change from that published in May issue).

**19th October:** Basingstoke A.S. open show at the Carnival Hall, Basingstoke. Show Manager, B. Chaplin. Show Secretary T. Fraser. For further information phone Basingstoke 51817.

**19th October:** Doncaster & District A.S. 10th annual open show at the Don Valley High School, Jersey Lane, Southorpe, nr. Doncaster. Details from Show Secretary G. Pitt, 37 Gopley Crescent, Scowby, Doncaster.

**Note change of date—**

**19th October (not 12th):** Hartlepool A.S. 21st open show at Lonscar Hall, Seaton Carrow.

**19th October:** Basingstoke A.S. 23rd open show at Carnival Hall, Council Road, Basingstoke, Hants. Details and schedules from T. Fraser, 151 Culver Road, Basingstoke (Tel: 51817) or B. Chaplin (Tel: 55863).

**24th, 25th and 26th October:** Scottish Aquarium Society annual open show in the McLehann Galleries, Sauchiehall Street, Glasgow.

**25th October:** South Park Aquatic (Study) Society cold water inter-club show. Also open show for tropical and cold water plants, at Drake House, St. George's Road, Wimbledon. Schedules from the Show Secretary, L. B. Clapp, 16 Overhill Way, Beckenham, Kent. (Tel: 01-650 6954).

**26th Oct:** Boldon Aquarist Study Society open show at Boldon Community Centre.

**26th October:** Halifax A.S. open show at Forest Cottage Community Centre, Cousan Lane, Ilkington, Halifax. Schedules on request with s.a.c. to Mrs. M. Swales, 34 Earwood Avenue, Bradshaw, Halifax HX2 9JT or ring Halifax 248069.

## NOVEMBER

**3rd November:** Ilford & District Aquarists and Pondkeepers Society, talk on Old Fish—sturgeons, sharks, sunfish, at Wanstead Library, Sporn Hall, Road, Wanstead.

**24th November:** Darfield & District A.S. mini-show at Darfield Village Club School Street, Darfield. Further details from Alan Hodgson (Tel: Barnsley 755160).

1981

**1981—1st March:** Keighley A.S. open show at Victoria Hall, Keighley, Yorks