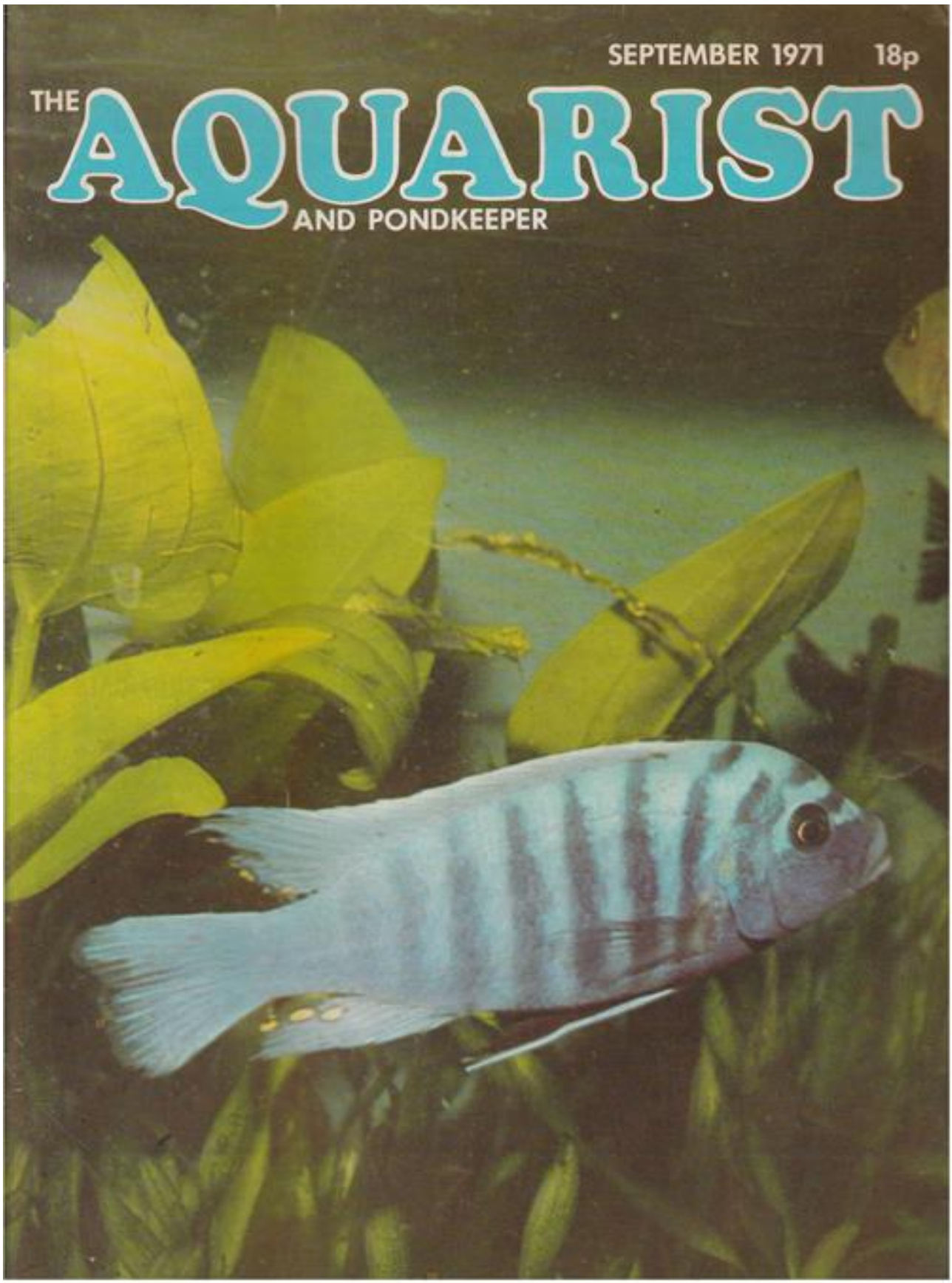
SEPTEMBER 1971 18p

THE AQUARIST AND PONDKEEPER



THE AQUARIST AND POND KEEPER

Published Monthly 18p

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WHAT IS YOUR OPINION?

by B. Whiteside

I'M STILL trying to fit in letters from a previous batch. Judging by your number of letters and compliments you must find this feature as enjoyable and instructive as I do. Nicholas Joyner is 16 years old and a very neat writer of Italic script. He writes from Chennells House, Rusper Road, Horsham, Sussex, to say that he has kept marines for three months. His is an all-glass tank, 36 in. × 15 in. × 18 in., which is filtered by an undergravel filter powered by two "Aquarius" pumps. Once per month he filters the water with a Hykro Crystal filter packed with carbon and a little polymer wool. At present his tank houses one domino damsel, one sunburst butterfly, one clown Wrasse, one French angel fish and one orange and white clown. When a humbug damsel and an electric blue damsel died, it was concluded that the cause was a danio damsel. The French angel fish developed a gill infection which was cured by the addition of Cuprazin to the tank, and daily immersions in fresh water, at tank temperature, with 5ml. of 1 per cent potassium permanganate solution added to every gallon of water. He found it necessary to remove all rocks, corals, etc., to catch the fish. Nicholas thinks that a well laid out marine aquarium, with rocks, corals and shells, and a coating of green algae, can look far better than the freshwater tanks which he has seen. At present his tank is covered in brown algae, with only a few patches of green algae. He hopes that once the copper concentration in the water is lowered by combining with the corals and gravels, and the nutrient level has been increased by the addition of algal fertilizer, the brown algae will be replaced by green. His French angel eats large amounts of brown algae.

Mr. C. Smith, of 34 St. Leonard's Road, Harrogate, Yorkshire HG2 8NX, writes about water wistaria. His wife has a 24 in. × 12 in. × 12 in. tank containing mollies. The water, kept at 78°F, contains one teaspoonful of salt per gallon. The tank is illuminated by three 25 watt bulbs for 10 hours daily and is planted with water wistaria, Indian fern, Vallis. torta, Bacopa, hairgrass and floating Riccia. Mr. Smith states that the growth of the plants is phenomenal: the Indian ferns reach the top of the tank and the wistaria is growing at an alarming rate. Some of the wistaria has been moved to a community tank and although the growth rate has slowed down, it is still very healthy and seems to have benefited from the good start which it was given.

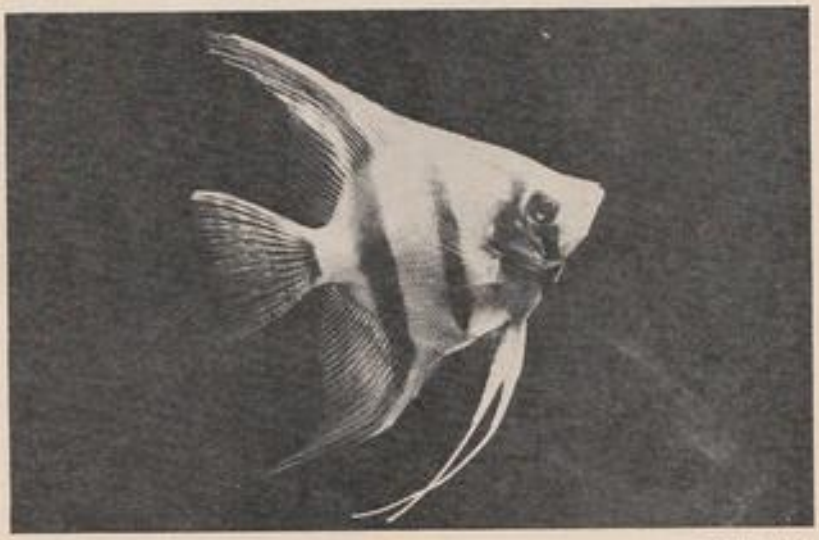
Mr. N. Murfitt's home is 36 St. James Park, Chelmsford, Essex, and his favourite fish is a medium sized angel which has mastered the art of pretending to be dead. When he tries to net the fish it dashes to the bottom, turns upside down, and floats to the top. (Might it be fear, I wonder?) Mr. Murfitt has just succeeded in breeding fighters. At his first try he managed to hatch the eggs. He then put a drop of Liquifry into the baby tank, following the instructions supplied, but the bubble nest burst immediately causing all the babies to fall out, despite the male's attempts at rescue. All the young died. At the second attempt the eggs failed to hatch. The third attempt nearly failed as the female ate as many eggs as she could manage before the male caught her, but about a dozen babies survived and are now three weeks old.

(I'll break off here to mention that I have just returned from the week's summer school at Stirling University in Scotland, which I mentioned in last month's column. Unfortunately the heavy "load" of work on the course kept me busy until after midnight on most nights and I had no opportunities to look for local items of interest to the aquarist. The loch on the university campus had some attractive water-lilies in bloom but the only other sign of aquatic activity which I saw on my short stay in Scotland was a copy of *The Aquarist* on sale, in a newsagent's, in Edinburgh).

Speaking of Scotland it's appropriate that the next letter comes from Mr. J. Watterston, of 8 Woodview Lane, Cairnhill, Airdrie, Lanarkshire, and he has been keeping tropical fish for over a year. About two months ago he found that one of his 3 ft. tanks was starting to develop green water. He consulted an authority which advised not to change the water as fresh water only stimulated green algae; unfortunately, Mr. Watterston had, before consulting the book, changed the water several times, and it was now fairly green. The book advised cutting down on light and increasing the number of plants in the tank. As his tank had its quota of plants, he cut down the light but it had no effect. An experienced aquarist friend told him to use potassium permanganate. The book advised using so many grains per gallon

of water but, as Mr. Watterston did not know "a grain from a lump of coal", he mixed some in a glass of water and added it to the tank. In the morning the entire contents of the tank were dead except for two gouramis—which he thinks survived by using atmospheric oxygen. He says that he will never experiment with aquarium chemicals again and warns other readers. (I know of a similar experience where a friend read "grams" for "grains"; the result was similar. I've used permanganate myself for this problem—weighed carefully on a chemical balance—but have recently found a better solution. A school aquarium developed very green water; I changed most of the water, and the filter wool in the Hykro Power Filter, and added an appropriate amount of an algicide made by Miracle. The tank was still very cloudy for two days but, on entering the school on the third morning, I was pleased to find that the water in the tank was, literally, crystal-clear. There has been no sign of green water and the tank remains, after about six weeks, crystal-clear).

Mr. T. Massey writes from 22 Cypress Gardens, Yewtree Estate, Walsall, to disagree with what I said about angel fish looking as well in black and white as they do in colour. To back up his view Mr. Massey sent me a b/w print of an angel, together with two coloured slides of angels, and one of cardinal tetras. Certainly both the print and slides of the angels were very good—especially as they were photographed using only the normal 2 ft. × 20 watt aquarium light—but I might suggest that part of the impact of the slides comes from the colours of the other items in the slides, e.g., the green of the plants. I feel that the slide with the biggest impact is that of the cardinals, where the bright reds and electric blues contrast well with the green of the plants and the colour of the gravel. Possibly the angels do lose something when reproduced in b/w but the true glory of the cardinals *must* be seen in colour to be appreciated. Mr. Massey took his shots on an Exa S.L.R. camera, using a close-up lens which focuses down to about 9 in. The total cost



B. Whiteside

Miss Linda Williams is 14, and lives at 34 St. John's Way, Corringham, Essex. For one and a half years she has kept two Ceylon sea-horses, with great success, in a 12 gallon tank. She uses an undergravel filter which keeps the tank very clear, and only siphons the bottom once per week. She feeds her sea-horses on baby guppies and newly hatched brine shrimp. Her sea-horses are a pair but they have not bred; she thinks that this is because one is 2½ in. long and the other 4 in. She once had a domino fish but sold it as it was eating the guppies before the sea-horses could get at them.

was £11·50. He used a tripod as he, like myself, is aware of the problems raised when flash is used. His photographic data: slides—Agfa CT18, f2·9 at ½ sec.; print—H.P.4, 1/30 sec. at f2·9. Mr. Massey ends by asking for information from other readers on mortality rates in fishes, apart from old age. He has lost 25 fishes in 12 months—out of 150 fishes which he purchased since starting up.

Mr. A. Wright's home is at 42 Harrington Street, Cleethorpes, Lincs., and he has spawned *Pelmatochromis kribensis* three times. He tried the conventional method but, after seven months of trying, he put

the fish into a community tank of 3 ft. in length. After three weeks the fish dug a hole under a rock and spawned. The eggs were soon eaten. A few weeks later the fish dug a new hole and spawned again; this time the parents raised their young and they are now doing well—all 50 of them. The temperature was 78°F.

275 West Street, Crewe, Cheshire, is the address from which Mr. N. Gutten writes and his favourite aquarium book is "The Encyclopedia of Tropical Fish", by Dr. H. Axelrod, as it "gives details on keeping and breeding most varieties kept by the hobbyist". Mr. Gutten has tried aquarium photography with little success but has found my advice helpful. He sees no more advantage in using centigrade degrees for fish keeping than he does Kelvin degrees; he says that 75°F is approximately equal to 290° Kelvin. Mr. Gutten has just bred *Aphyosemion australe* and would like to know the names of plants which will grow weighted down in a peat base. (You might care to try Indian fern, *Cabomba* and Jarva fern).

Wayne Shaw is 14, and lives at 15 Springfield Avenue, Grappenhall, Nr. Warrington, Lancs. In his opinion the easiest egglayer to breed is the zebra danio. He has found that it will breed in a well planted community tank and that at least one or two of the fry always reach maturity. They will easily breed in a tank on their own and, if the parents are removed, many fish can be raised. The best temperature is 77°F. He brings males and females into breeding condition in the same tank. Wayne thinks that marine aquaria can look very attractive if the coral is carefully arranged but thinks that it is a pity that it is difficult to grow marine algae as he thinks that plants add a bright atmosphere. In Wayne's tanks water wistaria grows well and quickly. A temperature of 78°F. seems to suit best and his plants do better if their roots can grow in peat; however he finds that they do quite well in gravel which contains quite a large mulm content. Neutral water seems best for them. He has a few plants to give away if anyone cares to write. (You might regret having made that offer, Wayne!)

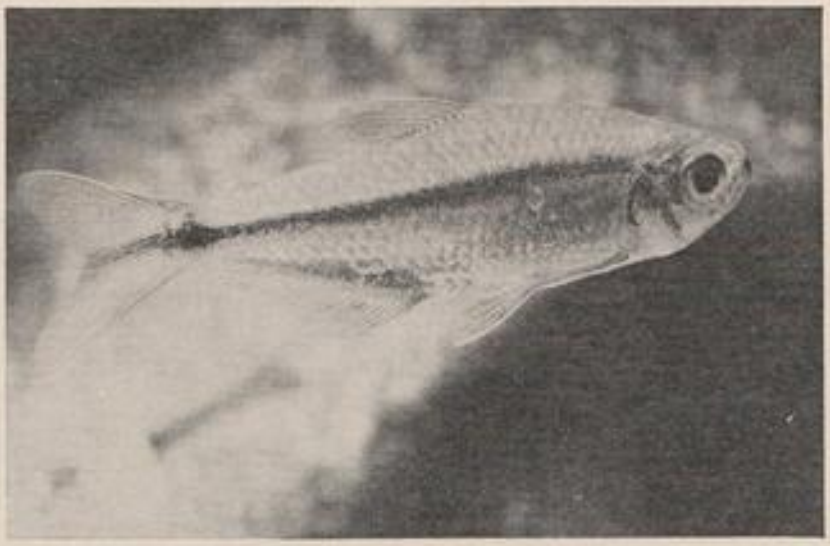
It's some time since I received a letter from someone who does not live too far from where I do, so I was pleased to hear from Mr. I. McMahon, of 21 Slemish Way, Tonagh Estate, Lisburn, N. Ireland. He has been a freshwater fan for a year, and a marine fancier for only six weeks. He grew an excellent Amazon sword in a 24 in. × 15 in. tank. He used two 15 watt clear bulbs, two undergravel filters, and an Airstreem Slimline filter containing peat and filter wool. This was the best sword plant which he has seen. He has not had any success with either Vallis. or Sagitt. His favourite fishes are *P. kribensis*, *P. auratus*, angels and red-tailed sharks. Six weeks ago Mr. McMahon started with marines, using a 20 gallon tank, fitted with three U.G. filters. He had three clowns, one blue damsel, and two butterflies, amongst others; all he has left is a *C. rafflesi*. Two died two days after purchase and four died in what Mr. McMahon did not know, at the time, was an outbreak of Oodinium. He took everything apart, boiled it, and started again, a lot wiser. He bought a yellow-tailed damsel and, half-an-hour after putting it into the tank, it started eating flakes. He has one invertebrate—a transparent shrimp—which gets no special diet. Regarding filters and air pumps: he has three U.G filters and an Airstreem Super

Pelmatochromis kribensis B. Whiteside

Twin, all powered by a Rena Super pump. Mr. McMahon asks if anyone could comment on the use of activated carbon in outside filters on marine aquaria, if there are any plants available for marine tanks, and if there is any special "marine" live food available—(he does not live near the sea). Regarding light bulbs he wired his bulbs up in series—like Christmas tree lights—and used 100 watt bulbs. This gave an output of around 25 watts and the bulbs lasted much, much longer. (On this latter point, light bulbs, you might be interested to learn that since I changed to "rough service" bulbs I have only had to replace one bulb. They are a good investment)!

Mr. J. A. Higham, 112 Kiln Lane, St. Helens, Lancs., writes again to reaffirm his preference for Sterba's "Freshwater Fishes of the World" as the best, large reference work. He finds the method of classification in the T.F.H. looseleaf work confusing unless one knows the name of the fish for which one is looking. For books of rather less scope but excellent value he thinks that the various Hervey and Hems publications cannot be beaten. His favourite is "The Goldfish", which not only contains a large amount of sound information, but is also a real pleasure to read. Mr. Higham considers that Centigrade is inferior to Fahrenheit from our point of view, and intends to "opt out". He ends by saying: "Congratulations on the excellent photographs in recent issues". (Thank you! I hope to have more on the way).

I received a long and interesting letter from Mr. M. Wiles, who resides at 9 Farndale Avenue, Edgecumbe Street, Newland Avenue, Hull, but, as I want to say a few words myself, I'm only using one section of it in this month's feature; I'll use the remainder in the future. Mr. Wiles has a most original way of growing plants. He uses 2 in.—3 in. of gravel, buries the plants up to the root marks, and then he varies the lighting. First he uses 25 watt bulbs, then maybe 100 watts, then 50 watts, then red bulbs, then blue, then red and blue. By so doing he ends up with bunches of plants to throw away. Can you beat that for originality! It's certainly a new idea to me and sounds very well worth trying. If you try this method, please let me know of your results. (By the way, it would help if writers put the date on their letters. I would then be sure I was using letters in the order in which they were posted to *The Aquarist* offices. It would also help if you were to PRINT the proper names of fishes as I cannot read the occasional one).



Buenos Aires Tetra B. Whiteside

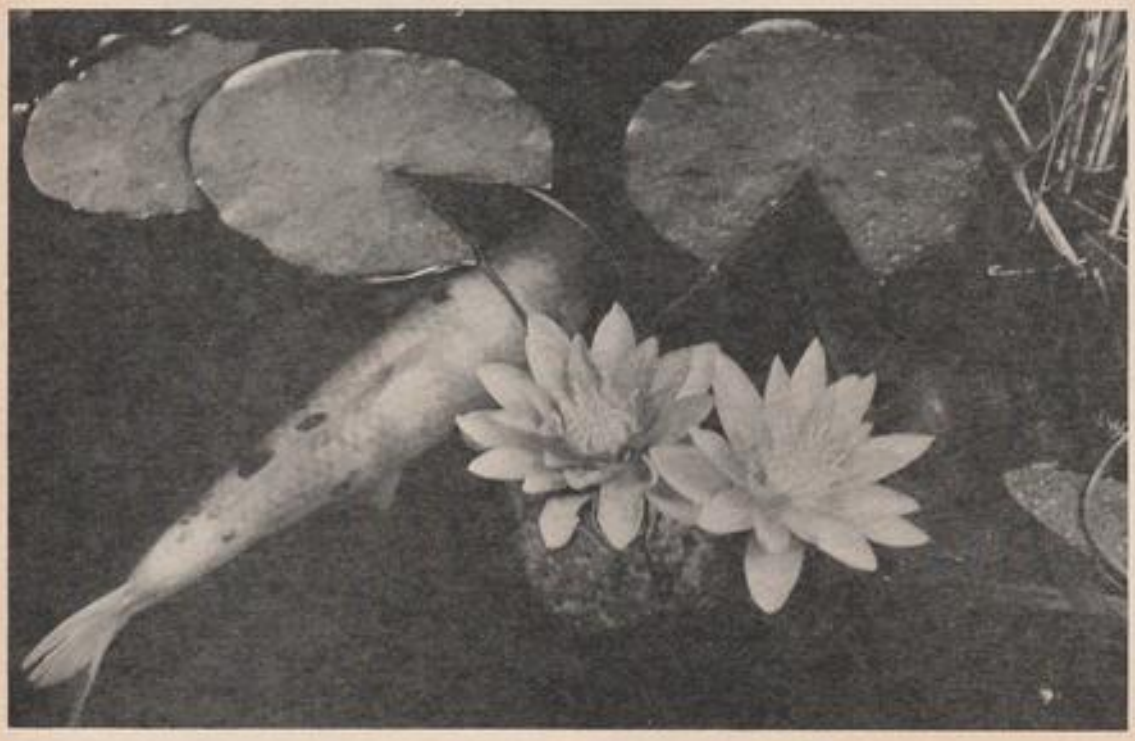
Several readers have written about breeding *Pelmatochromis kribensis* this month. Photograph 2 shows a male fish on patrol outside the "nest" which he and his partner dug. It is in a large community aquarium containing many other kinds of fishes. The gravel is granite chippings and the two fish spent a lot of time digging out gravel using their mouths and tails. They chose their spot underneath two lumps of flint rock. You may notice that the male's tail is somewhat frayed due to his digging operations. The granite chippings do have sharp edges here and there and this accounts for most of the damage. The pair have bred several times in their community tank. *continued on page 183*

THE AQUARIST FISHKEEPING EXHIBITION

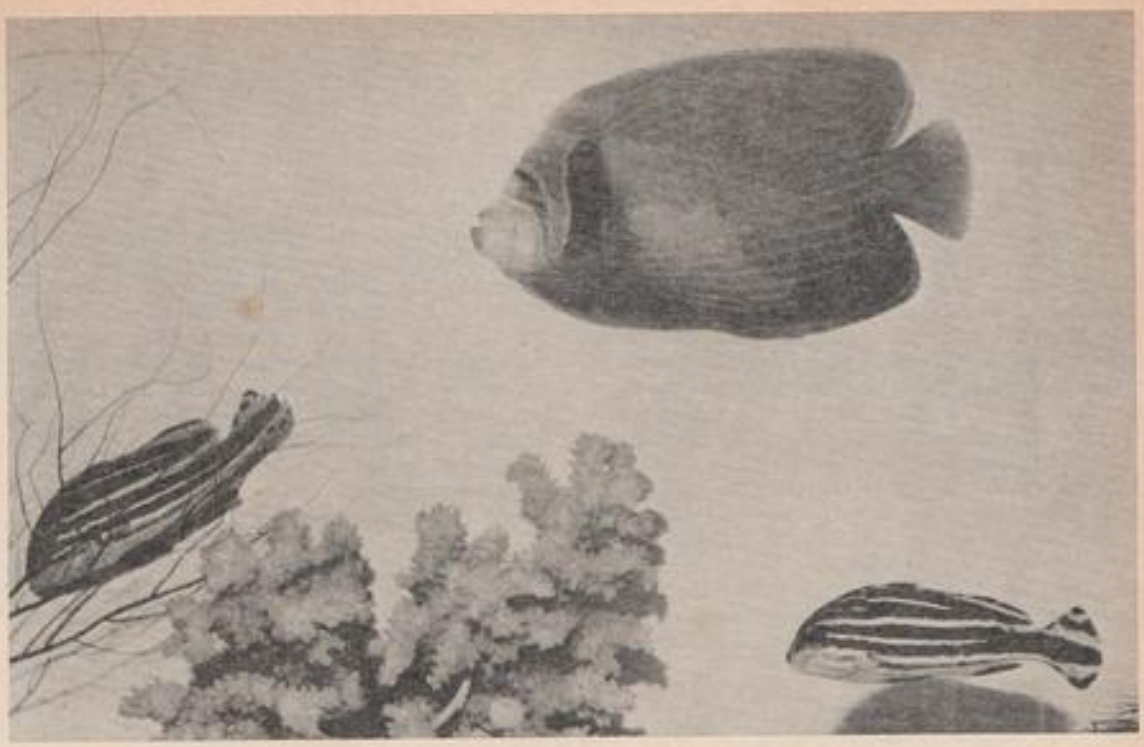
THE FISHKEEPING EXHIBITION sponsored by *The Aquarist* and organised with the co-operation of the Federation of British Aquatic Societies, was held at the Alexandra Palace, on the 9-11 July, 1971. It was an enormous success and was claimed by many as the finest exhibition of its kind held in the London area. The setting for this event was probably the finest in or around the capital, as its unique position lends the Palace so well for this kind of show. The view from the hill is unsurpassed near London and the extensive grounds mean that not only is there plenty of parking space for cars, but visitors are able to enjoy the parkland for resting and picnicking.

Thousands of people arrived to enjoy the exhibition and the weather was splendid for the three days—splendid, that is, for the visitors, but not so comfortable for those on duty inside the building which at times resembled a hot-house. However, there is no doubt that the tropical fishes were able to enjoy the warmth if the coldwater species were not quite as fortunate.

This year saw a great improvement in the number of classes for fishes and plants; in all there were 47 classes, most of which were well filled. Besides the competitive classes, there were exhibits by the Fancy Guppy Association, The Goldfish Society of Great Britain and The British Herpetological Society. In addition, non-competitive displays were set up by Anglo Aquarium Plant Co.; Broad Green Aquarium and



Large Koi, part of Broad Green Aquarium's display



Part of the display of marine tanks by Parsons Tropicals Ltd.

SeAquariums Water Life Centre.

Visitors were able to purchase all kinds of foods for fishes and accessories necessary for the well-being of their fishes from the many stands of the dealers, of which there were 23 in all. Trade appeared to be very brisk throughout the time the exhibition was open and it was difficult to get the visitors to leave at the end of each day. Many aquarists arrived by coach and some came from many parts of the British Isles and also from abroad. One gentleman was visiting from Portugal and some came from the U.S.A. and at least one from Africa.

The furnished tanks made a fine display and the general quality appeared to me to be better than that of previous years. Some tanks still showed too much rock-work in my opinion as this restricts the use of much of the tank from the fishes. Also the plant-life, excellent though it was, was inclined to take over too much of the tank. I know that it is very nice to have a lush amount of plant-life in the tank, but some of the tanks on view would have been so filled with plants after about a fortnight that the fishes would have been hard put to find any space in which to swim. When judging we used to knock off points if the tank did not exhibit permanency, but little appears to be noticed on this score nowadays.

The excess of plants in some tanks meant that it was impossible to see any fishes. I searched in vain in a few tanks to see what species of fishes were shown, to no avail. After all, the fish should be the first consideration at an aquarist show. The coldwater section was certainly an improvement on that of last year but the quality did not come up to the standard to be found in such fishes soon after the last war. Surely the coldwater fishkeeping has not sunk so low as the exhibits indicated? Let us see if the genuine coldwater enthusiasts cannot make a better showing another time.

The tropical classes were very interesting and some good specimens were to be seen. The best fish in the show was a large snake-head. This fish looked enormous in its tank and one must certainly have to consider, for future shows, whether it is not wise to restrict the size of fishes exhibited. In time we may have to borrow one of the large tanks from the Aquarium of the London Zoo to accommodate the exhibits. To me, a very large fish in a small tank looks all wrong and gives one the impression of a set-up fish in a glass case, perpetuated for an angler.

The water plants were once again a fine feature of the show, and some very fine specimens were on view. However, once again the Marine Tropicals almost stole the scene. Those fishes exhibited by the dealers were

spectacular and their colours in many cases were breath-taking. Such fishes always attract a great deal of attention as many visitors are unaware of the excessive beauty of many of these fishes. I was particularly impressed by the exhibits of marine tropicals put up by members of the Tottenham Aquarist Society. I have never seen a better display by any ordinary aquarist society not being a specialist one. Great credit is due to the section which displayed these marines and I am sure that it would have inspired many others to have a try with such fishes. I was fascinated by the actions of some of these fishes but was inclined to think that their constant swimming from end to end would distract me in time, and when I returned home to watch my fantails, leisurely moving gracefully about in their tank, I had a feeling of peace and relaxation which I feel I could never get with marine tropicals.

I am certain that the thousands who visited the show found plenty to interest them and from the number of parcels being carried from the show it was evident that the dealers must have been well satisfied with their efforts. The excellent work done by the steward and helpers for the Federation deserved every praise, as without the dedication of such people no exhibition would be possible.

ARTHUR BOARDER.

Show Secretary's Report

I feel it would be a grand opportunity to thank the people who worked for the most part unseen and without whose assistance this show could not have been staged at all. The committee, who have worked since January to July ironing out problems too numerous to mention. Messrs. Esson, Brown, Pollard, Blake, Tomkins, Glass, and Sherwin, the judges, some of whom travelled from the North and Midlands to judge some 700 entries. Messrs. Esson, Brown, Baker, Ellis, Goodall, Nicoll, Nutt, Skinner, Wood, Holmes, Walker, Stillwell, the night stewards who worked all night during the show looking after the entries. Messrs. Pollard, Mackay, Bowes, Kinsey, Goodhall, Fillimore, King, Lambourne, W. and S. Mason, Leffett, Thornton, Smith, and all the many stewards too numerous to mention who assisted in some capacity, however large or small. Special thanks also to Tottenham and District A.S. who staged, stewarded and organised a magnificent display of marine furnished aquaria for the show. To all of you connected with this venture well done and next year it is hoped to see the return of a marine furnished class at this show.

The final praises are for MY team. No words can describe what a marvellous crowd they were. Pat Lambourne, John Pollard, D. J. Mackay, Nick Martin, Dennis King, Derek Lambourne, Paul O'Connor, Ian Smith, Bill Nethersell and Son, Bill Collins. When it is realised the above team worked an average sixteen hour day from Monday to Sunday you may understand my gratitude.

G. GREENHALF,
Show Secretary.

The full results appear on page 201.

Book Review

Beginner's Guide to Tropical Fish and Fish Tanks, *by Reginald Dutta, B.A., F.Z.S. Published by Pelham Books Ltd., 52 Bedford Square, London, W.C.1, price £1·60.*

This new book is obviously aimed at the beginner, as the title suggests. It's original in that it looks at the hobby from the point of view of the fishes. The book has a very attractive cover, in colour, showing a shoal of cardinal tetras. The cover photograph, and the fifteen other black and white photographs inside the book, are by Laurence E. Perkins, and are good reproductions of the high standard of photography which one expects from Mr. Perkins. The book also contains twenty-five illustrations, drawn by Olive Dutta, but I do not think that it would be unfair to say that these were rather "rough and ready".

The author, Reginald Dutta, takes a rather romantic view of the relationship between fishes and their owner. I've kept fish of many kinds for about twenty years, and have got a great deal of pleasure from doing so, but I have had few signs that any fish has offered me adoration or friendship, or has listened to my voice, despite what the author maintains. Some of the language used is inclined to be rather emotive and "flowery": can plastics really be "endearing"? "Gales of fish laughter" still has me wondering! The fact that the author is the director of a large tropical fish firm in London probably accounts for the occasional confusion which arises when he uses "we" and "us". Clumsy punctuation and the occasional grammatical error also lead to confusion. The author's suggestions for the use of glass vases, wheels, windmills, bangles, bracelets, wire, elastic, springs, clips, nuts and bolts as aquarium decorations, when rendered non-toxic, leave me quite amazed!

In the section dealing with feeding I found a number of points which I would query: the author talks of freeze-dried foods dissolving; he also considers that feeding little and often, and over-feeding, are becoming obsolete. The section on plants leaves something to be desired. One is told that there are "many you can just simply bung in". I don't know of many which would survive this! I'm still wondering about the difference between "hostile nitrates" and

"helpful nitrates". Few plants are mentioned by name; one can understand why when common plant names such as *Cryptocoryne* and *Vallisneria spiralis* are incorrectly spelled, as is *Potamogeton*. It is also surely well known that the majority of plants and fishes do not have a capital letter at their second name. The use of metaphorical language, in which plants tell their preferences if one listens, and show that they are sulking by the colour of their leaves, seems a little childish. The section dealing with fish breeding stretches only to two and a half pages and one notes that pH is incorrectly printed; we are told that 7·0 is the "neuter" point! We are also told that "peat or other 'natural' products" are introduced "to make the water alkaline"! One wonders what "the normal chiclid" type of fish is—another spelling error—but the section on popular fish contains some interesting information on specific fishes.

The book contains 124 pages, including an index of one and a half pages. One of the items indexed is the "underground filter"!

I have reviewed quite a number of aquarium books over the past seven years. On re-reading this review I note that I seem to have devoted most of it to criticising mistakes in the book. The book does contain a lot of useful information but I found that, possibly because of lack of space, the author tried to cover too many subjects and, as a result, resorted to the very frequent use of what I call the "non-sentence". This "bad" English made the book difficult to read, and the mistakes in spelling and facts—although probably not the author's fault—must be blamed on someone. It's a pity they were not corrected before the book went into print, as Mr. Dutta is obviously a well qualified and experienced aquarist.

I will conclude, as I began, by saying that I liked the cover photograph very much.

B.W.

WHAT IS YOUR OPINION?

continued from page 179

I recently obtained a pair of Buenos Aires tetras (photograph 3). They are about 3 in. in length—quite large when compared to the smaller tetras. The body is a silvery colour, with red fins, and the fish is a very fast mover. Does anyone have any experience of breeding this tetra? The photographs were taken on my new Practica Super TL camera, with a Tessar lens, using flash. This was my first roll of film used in the new camera and I have not yet fully worked out the correct exposures using flash. One point which I mentioned in the July issue concerned dirty aquarium glass when doing close-up fish photography. Even when one thinks one has cleaned the glass thoroughly, both inside and outside, it's amazing how little specks of dirt, and scratches on the glass, show up. Apparently clear water also seems to contain a host of little particles which reflect light.

Now to a few questions for next month, including those in the text above: (1) Have you managed to get *Cabomba* to flower in any of your tanks? (2) Have you made any further progress with aquarium photography? (Please enclose a S.A.E. with examples which you may care to let me see). (3) What have been your experiences with the keeping of Malawi cichlids? (4) How co-operative do you find your local dealer? (5) Do you have any further suggestions for new aquarium "gadgets" which you would like to see produced?

Finally, my special guppies have still not produced any young. As I'm off to London next week, I'll have to look out for a few more, and for anything which would be of interest to readers.

BREEDING ANGEL FISH

Some Further Experiences

by Pamela M. Hansen

In the September, 1970 edition of the *Aquarist* I described how my husband and I succeeded in breeding angel fish, letting the parent fish look after the eggs themselves. We had tried several times to hatch the eggs artificially but were completely without success. The subject of this article concerns our recent more successful attempts in this direction. It is always useful to know how to hatch eggs artificially even though it is much more satisfactory, from an aesthetic viewpoint, to see the parents take care of their eggs themselves.

The female of our angel fish pair, placed temporarily in a large community tank to make space for their growing offspring in the original angel fish tank, died suddenly. My husband, Jørgen, attributes her death to an inability to release her eggs as conditions were not right for spawning. The pair had, in fact, spawned a few times but had immediately consumed the eggs and did not in general seem very happy in their temporary home. Most unfortunately, the death occurred the very day before it was intended to return them to their original tank which was now ready for them as their offspring had been sold.

As we were left with only one angel fish (male), having foolishly disposed of all the previous offspring, we bought three more young fish, hoping that at least one pair would form itself. The three we acquired were marble angel fish whose deep black stripes and patches made them irresistably attractive. We could alternatively have bought some blushing angel fish, with a large red patch beneath the eye, but preferred the marble ones.

Our angel fish tank measured 55 × 40 × 35 cm. and contained 77 litres. A large Amazon sword plant grew in the centre of the tank, surrounded by numerous *Vallisneria*. There was a large stone in front of the sword plant and the bottom was covered with red gravel. A piece of slate was placed at one side of the tank. The pH was 7 and the temperature around 24°C.

After some weeks the largest of the marble angel fish began to move around the tank with our original male, which had by now grown quite considerably since the days when it had fathered the brood by its first mate. The marble fish, which we thereafter took to be a female, kept chasing away the other two fish when they approached the couple. We transferred the two superfluous marble angel fish into the inevitable community tank (which receives all fish under such circumstances) where, incidentally, they move around together and from time to time exhibit small breeding-tube extensions; this makes us sure that we have in them another pair which might mate successfully when we eventually have enough space to give them, too, a suitable tank of their own.

We began to take notes of what happened. As can be seen, it took nearly two months before the pair began their spawning procedure. 7.11.70.—The male shows signs of a breeding-tube but no sign as yet in the female. She is still rather small—perhaps too young to mate? 12.11.70.—The female seems to have a small breeding-tube extension. 12.12.70.—Breeding-tube clearly to be seen in the female but not yet prominent enough. She is fatter just above the breeding-tube. 17.12.70.—Eggs laid on the most newly-appeared leaf of the sword plant, which was, incidentally, also the chosen site of our last pair. This time it was the old experienced male telling the female what to do. He attacked her several times in an effort to induce her to spawn, but she evaded his attentions until she was ready. Four Cilex tablets added. Eggs are of varying sizes and limited number. 18.12.70.—Eggs disappeared during the night. Probably eaten by the female, which did not display much maternal interest in them.

One reason why our present angel fish might be more prone to eating their eggs than our last pair is that our little daughter is now nearly two years old and rushes around the room containing the angel fish tank, undoubtedly disturbing them and making them nervous.

Jørgen was convinced that the pair would continue to eat their eggs although I thought they should be given more chances to prove themselves as parents. He was, moreover, very keen to attempt to hatch the eggs artificially, following a tip by a fellow member of the local aquarium club on the importance of aeration in this process. The next time we observed a new spawning and could therefore attempt to hatch the eggs artificially, was almost two months later. Our notes were as follow:

First day. About 110 eggs laid.

Third day. Leaf with eggs moved to bare 6½ litre tank with strong aeration. It contained ripened tap-water, over a month old. Cilex added. 10 eggs fungused.

Fourth day. 4 eggs fungused.

Sixth day. Eggs hatched out.

Eighth day. Young hanging on the leaf or lying on bottom of tank. Extra pump added to give the stronger aeration necessary at this stage to help the young become free-swimming.

Twelfth day. Young free-swimming. About 40 left. Poured into a 25-litre tank.

As can be seen, the whole process from the time of spawning until the free-swimming stage took twelve days, as compared with eleven days with the brood reared by our previous pair. This does not, in fact, tally with statements by various aquarist authors which indicate that the process takes a much shorter time.

Unfortunately, an excess of porridge from our micro-worm culture was accidentally introduced into the tank containing the baby fish and the resultant pollution killed off all but eleven of them. These eleven, however, continuing to be fed more carefully with micro-worms, and later small *daphnia* and *cyclops*, have grown very well, the increase in size being visible every day. Now, at the age of almost two months, they have on average reached the approximate size of 6 cm. high by 3 cm. long. None of them seems to have marble colouring but it is perhaps too early to be certain.

We could not regard this total of eleven young as a success as we are sure that angel fish can produce several hundred young. (I could not find any reference in any of our numerous books on tropical fish as to the maximum or average number of angel fish young). Jørgen was, in any case, keen to try again.

We did give the pair another chance to look after the eggs themselves with the following depressing result. The small number of eggs was perhaps connected with the fact that we had been unable to obtain live food for the fish since the last spawning, which had been preceded by a week's ample feeding of mosquito *larvae*.

8.3.71.—Approximately 30 eggs laid.

9.3.71.—2 tablets Cilex added. No eggs fungused.

10.3.71.—Eggs disappeared.

A short sad tale which left us in no doubt that we should promptly remove the fruits of the next spawning.

The pair were now fed up well with *daphnia* and *cyclops*, and began to clean a leaf two days before the next spawning, which occurred twenty-two days after the previous one.

First day. About 130 eggs laid on leaf of sword plant. Parents didn't show much interest in them. Leaf with eggs transferred to bare tank containing 6½ litres of one-day-old tap-water (DH.14°). Strong aeration (two pumps) which, however, doesn't touch the eggs. 1 Cilex tablet dissolved in water and added to tank. No eggs fungused.

Third day. 6 eggs fungused. We did not remove the eggs which fungused.

Fourth day. 2 eggs fungused and two fallen to bottom without fungusing. The eggs look a bit darker.

Fifth day. 6 eggs fungused. Both the eggs on the leaf and on the bottom begun to hatch out. The tails are vibrating.

Sixth day. 6 eggs fungused. Body, head and tail formed but not eyes.

Seventh day. Over half of young still hanging on the leaf, whilst the rest lie on the bottom.

Eighth day. Eyes almost developed.

Ninth day. Black eye pigmentation apparent.

Twelfth day. Some of the young trying to swim but resting frequently on the side of the tank.

Thirteenth day. All the young swimming freely. About 15 dead babies to be seen. At least 50 surviving. One of the two pumps removed.

Fourteenth day. Baby fish fed with boiled egg yolk infusion. At least 75 fish can be counted. When the tank is in darkness all the fish clump together, their heads towards the centre of the clump.

Fifteenth day. Young moved to 67-litre tank and fed with micro-worms.

Eleven days after this spawning, that is before the baby fish were even swimming freely, the parent fish began to clean a leaf. Two days later we noticed that the breeding-tube of the female was very prominent and that a new spawning would certainly occur soon. Yesterday, fifteen days after the previous spawning, about 300 eggs were laid and duly removed to the small aerated tank. On that happy note it might be fitting to end this article.

N.B.—I recommend that if you follow this method you should equip yourself with a silent pump as our two pumps, which were on for twenty-four hours a day for over ten days each time, made such a racket that our living-room sounded like a factory. The hatching-out tank, complete with pumps, has now been shifted to the cellar!

HERPETOLOGICAL NOTES

by S. J. Peaker, B.Sc.

Far-Eastern Newts

INHABITING parts of China and Japan are two newts of very distinctive appearance. One of these, the Japanese Fire-bellied newt (*Cynops pyrrhogaster*) is found in Japan and adjacent areas of north-east Asia. It lives in ditches, ponds and paddy-fields and is apparently almost entirely aquatic. Dealers in Britain often import this species and it is an ideal amphibian to keep, especially by aquarists who sometimes have a tank to spare. The best way to house these newts is in an aquarium tank of as large a size as possible and this should be planted with hardy specimens well-anchored into the gravel. Rocks can be added as well and it must be remembered to keep the tank covered to prevent escapes. Japanese newts are hardy but they must be protected from over-heating and the tank should not stand in direct sunlight. Room temperature is suitable all the year round.

Hibernation seems to be necessary to induce breeding activity and in research laboratories it is induced by housing them in damp moss contained in a plastic sandwich container (with a few holes drilled to admit air) at 37°F. The bottom shelf of a refrigerator is usually suitable but the temperature should be checked before the newts are placed there. Food should not be given for a few days before hibernation but they must have been well fed previously. The newts can be held in the hibernating state for several weeks before raising the temperature and allowing the animals to become aquatic once more. Breeding is similar to that of many other newts. Following a courtship display the male deposits a spermatophore which is later picked up by the female's cloaca. Fertilised eggs are then carefully laid and wrapped around the leaves of aquatic plants. The eggs can then be removed from the tank and hatched in fairly shallow aerated water.

Until metamorphosis the young may be given *daphnia*, *infusoria* and small worms. When metamorphosed *tubifex* and small earthworms can be given and the adults will also accept these as well as soft insects and pieces of meat and liver. All our newts receive meat and liver as a basic diet to which are added vitamins and mineral supplements. The newts quickly learn to take it from the surface of the water, especially if it is wriggled.

A closely related species I have never seen in Britain is the Hong Kong newt (*Cynops chinensis*) but when in Hong Kong we kept several. The back of this species is uniform dark olive-brown but in an aquarium the underside can be seen and this is extremely attractive. The colour here is deep black interspersed with large red or reddish-orange spots or blotches. This species grows to a length of about four and a half inches and some specimens have the dorsal ridge tinged red. The female is slightly larger than the male and in common with many newts, the cloacal lips of the male are more swollen than those of the female.

The Hong Kong newt is so called because it occurs only in the colony and a small adjacent part of south-eastern China. In Hong Kong it is usually found at relatively high altitudes above one thousand feet and lives in slow-moving streams, ponds and small reservoirs. It is more abundant in the autumn and is caught then to be sold at road-side goldfish stalls.

Varanus

Most zoos have monitor lizards on display and many herpetologists keep a small specimen. However, they tend to be lethargic even in a large vivarium and it is something of a surprise to see their speed in the wild. A fairly large specimen popped its head up to examine us outside a rest house between Nuwara Eliya and Colombo in Ceylon. Before we could change the lens on the camera to take a photograph we moved a little closer and the lizard was soon off along the drive at a tremendous speed and easily avoided us by disappearing into a hedge.

Giant Salamanders

Giant salamanders from Japan and China have rarely reached European herpetologists and it was with some interest that I learned on my arrival in Hong Kong that one of these species is regularly imported into the colony from the People's Republic of China for sale as food. Although the largest amphibian alive today is the Japanese Giant Salamander (*Megalobatrachus japonicus*) which grows to a length of just over five feet, the Chinese species, *Megalobatrachus davidianus* also reaches a considerable size and individuals three-and-a-half feet long have been recorded. The specimens that reach the markets are usually much smaller than this, being about fifteen inches in length.

The family to which these animals belong, together with the Hellbender (*Cryptobranchus alleganiensis*), the Cryptobranchidae is regarded as being a primitive one

since, unlike in most tailed-amphibians, fertilisation is external.

The Chinese species, like so many oriental animals, was first made known to the occidental world by the now-famous Jesuit, Pere David. It apparently inhabits mountain streams like its more northerly Japanese relative. It is almost entirely aquatic feeding on water insects, worms, other amphibians, fish, etc., which it seizes in its large mouth. Incidentally, even small specimens of the Chinese form can give quite a bite.

Housing in captivity was a simple matter—a large tank of water being all that is required. Before trying to obtain one of these animals, remember that they are now on the IUCN list of rare animals whose position is uncertain in the wild and that they have rarely been imported into England. However, there is no reason why the aquarium of a large zoo should not obtain some small specimens of the Chinese species, rear them and eventually try to breed them.

Whiteworms

by Jack Hems

IF YOU'RE LA-DE-DAH you refer to them as oligochaetes or enchytraeids. Ordinary folk call them whiteworms. Whiteworms (there are some fourteen different species in Britain) range far and wide. They choose the undersides of refuse bins (standing on soil), well-rotted farmyard manure, decaying piles of vegetation, the crocked bottoms of aspidistra pots, and the like, to make a home.

The species most commonly bred by the aquarist, because it provides an excellent food for fish, is known to science as *Enchytraeus albidus*. It is creamy white to pale yellow, microscopically bristled, as thick through as a stout sewing thread and almost, if not quite, an inch in length.

It is probable that we'll never know when *E. albidus* was first cultivated as food for fish. Neither Shirley Hibberd nor the Rev. Gregory C. Bateman, perhaps the most informed and readable of the several Victorian writers on fishes in the home, mention it in their works. And coming to more recent times, A. E. Hodge and Arthur Derham, joint authors of *Goldfish Culture for Amateurs* (Witherby, 1926), mention it not at all. Wilhelm Schreitmüller gives it a passing mention in his *Zierfische Ihre Pflege und Zucht* (Müller, 1931). But thenceforward almost every aquarium book off the presses, here and abroad, were not backward in pushing it forward as an easily bred livefood.

To obtain a worthwhile supply of whiteworms it is necessary to cultivate them in a receptacle not smaller than about 15 in. by 5 in. by 12 in. And after the worms have been installed it is important not to feed any of them to your fish for the first couple of months. This will give them time to settle in and begin to multiply.

A plastic container makes the best worm farm. Unlike wood, it does not rot away or create a mould-stained area where it is put. Furthermore, a plastic container is lighter in weight. As whiteworms do not stray away from the culture-medium they can be kept indoors. A range of temperature from about the lower fifties to the middle sixties (°F) suits them best.

The soil for whiteworms should be of a crumblike texture and kept habitually moist. Moist not *wet*. Baked soil from a well-worked garden border (after sifting it for worms, and the like) is suitable, but it is easier to buy about 14 lb. of sterilised potting soil or good yellow loam from a garden shop to fill your container.

After the soil has been introduced into the container, level it off with a piece of board and firm it down. Then procure a piece of glass narrower all round than the surface area of the soil to go on top. As the worms are light-shy cut a piece of hessian, thick card, or black plastic to cover the glass.

You can buy a portion of whiteworms at your local aquarium shop or from certain advertisers in this magazine. The worms should be distributed in shallow depressions made in the culture medium. Then fill in each depression with about a teaspoonful of stodgy milky porage, milky mashed potato, or bread (preferably brown wholemeal or black) soaked in milk. Place the glass over the lot and exclude the light. Do not disturb for a week or two, then remove the coverings to see how things are going on. You should find plenty of whiteworms snaking about and most of the food eaten. If the uneaten food has turned green or developed a mould, throw it away. In any case, introduce more food into the depressions. Return the glass and light-excluding material to the receptacle. Within the space of six weeks you will find it possible to remove many hundreds of worms a week without drawing too heavily on the stock. It is advisable, though, to have two or three receptacles on the go. This will guarantee a supply of the worms for about fifty small fishes all through the year.

OUR EXPERTS' ANSWERS TO YOUR QUERIES

READERS' SERVICE
All queries MUST be accompanied by a stamped addressed envelope.

Letters should be addressed to Readers' Service, The Aquarist & Pondkeeper, The Butts, Brentford, Middlesex.

COLDWATER QUERIES

by Arthur Boarder

I have a small garden pool, four feet across and 10 inches deep but cannot keep the water clear. Would it help to make a rockery with waterfalls worked by a type of pump?

Your pool is very small and as such it is always more difficult to keep in good order than would be a larger one. I do not think that the waterfall idea would be a good one in your case. What is not realised by many pondkeepers is that once a pump is switched on to cause a flow of water, the level in the pond is lowered considerably. It depends on the size of the waterfall and the number and size of any pools between the outflow and the return to the pond. As soon as water is taken from the pond the level of the water would drop and spoil the whole appearance of the pond. To run such a fall successfully one would have to, either have a large deepish pond, or make another reserve pond from which the water for the fall could be pumped. An overflow from the pond to the reserve one would be necessary and this would ensure that the water level in the main pond never fell below the desired level.

I have a pond 8 feet by 4 feet by 2 feet deep. It is stocked with water plants but I cannot keep any goldfish for any length of time. Over the past few months I have bought thirty goldfish but they all soon die. I have read books about goldfish but cannot find what the fatality rate is likely to be. Can you give any advice please?

There is no reason why goldfish should die in your pond as long as correct conditions are supplied. As for a fatality rate, no goldfish should die unless of old age or by an accident. I stocked my pond with fantails in 1937, and have not had to buy another fish to restock ever since. I have bred thousands of fish during this period and do not lose a fish except from old age. Providing the water keeps pure and well oxygenated, goldfish should live for years and years and never ail nor die. Fish only die when they are diseased or cannot obtain sufficient oxygen. Lack of this vital element is the most common cause of the death of goldfish. If you set-up a pond with proper water plants and a few fish, it would keep in good condition until you started to feed the fish. Most pondkeepers, when they begin with the hobby, just cannot resist feeding the fish every time they go near the pond or the fish come to the surface. Leave the fish for a month without any artificial feeding and apart from the water becoming rather green with Algae, the water would keep in good condition and the fish would remain healthy. Once feeding is started and any remains over uneaten, this starts to decay and the water becomes rather foul. Bad gases form, especially in warm weather and the fish are in trouble. Unless the water is well oxygenated the fish cannot digest their food properly and so cannot take more. Any extra which is then given only makes matters much worse. It is surprising how long goldfish can live in a well planted pond without having to be given any food. They can always find plenty among the water plants and the less food that is given the more the fish will have to work about to find what they want. Try again with a few fish and go easy with the dried foods. After all, with the excessive price of some of the dried foods today, it should not be difficult to go easy with such foods. I often wonder if some of the fish-food suppliers have ever read the fable of "The Goose that laid a Golden Egg".

The water in my pond is a muddy green and there is a deposit on many of the plant leaves which falls off when touched. What is the cause as I have plenty of water snails?

Do not be misled by the idea that water snails keep a pond water clear. They never yet did this and are never likely to. The copious droppings from such a large quantity of snails as are in your pond would soon make a quantity of mulm which the movements of the fishes would cause to spread about over the plants.

Too heavy feeding with dried foods could also cause an excess of mulm to float about in the pond. Remove as many of the snails as you can and stop feeding with dried foods for a fortnight at least and see if matters improve.

One of my goldfish had a white covering over its eyes. What is this as it does not seem to improve although I have the fish in a bucket?

The trouble appears to be a form of Fungus disease and although this can often be cleared up with the salt treatment, it can be assisted to clear by dabbing the eyes with cotton wool on which is an equal portion of iodine and glycerine. Hold the fish in a moist hand whilst treating it and do not keep it from the water for long. After a couple of days of such treatment, twice each day, the fish can be placed in a shallow container with a sea salt solution of a tablespoon to a gallon of water. A bucket is not a good receptacle for a sick fish. It is much better to use one of the oblong plastic bowls which are sold at supermarkets. The water only needs to just cover the extended dorsal fin. Such shallow water keeps better oxygenated than that in a deeper container.

How can I clear my pond of leeches?

This is not easy as anything strong enough to kill them could also kill your fish or damage the water plants. Any fish with a leech attached should be caught and the leech removed. Tweezers will pick them off especially if they are dabbed with a spot of paraffin first. As for clearing the pond, if you clean it out you may remove many, but another method is to trap as many as possible. Tie a piece of meat on a string and lower it into the water at night. Wrap a piece of wire netting round the meat to prevent the fish from eating it. Examine the meat each morning and you can catch many leeches. Also a trap as used by me for catching water newts will also be successful. Get a preserving jar and a plastic funnel. Cut the funnel to fit the top of the jar so that the screw top can hold it in place. Place the meat inside the jar and lower the jar into the pond on a string. The leeches will crawl into the jar but will be unable to find their way out through the narrow part of the funnel.

I have just bought an Opre and a Comet. Where can I get the sea-weed to keep the water clear?

Your fish is probably a Golden Orfe. Sea-weed is not used by aquarists but proper water plants which give off oxygen and use up much of the waste matter from the fishes can be obtained from any pet-fish dealer. Get a book on the subject and read up all the information on fishkeeping as in this way you are more likely to save yourself disappointment.

I have recently acquired four 8 in. goldfish which I keep in a 30 gallon tank. When purchased the fish were a deep red-gold colour but after a week or two they have developed black marks on their gills and fins which appear to be increasing in size. They seem quite healthy otherwise and so what can be the cause?

It is quite probable that the fish had been attacked by some form of parasites. These had damaged the skin or flesh of the fish. Once the damaged parts heal the new flesh or skin often becomes black. This black can soon disappear and the fish will return to its normal colour. There is nothing you can do about it, but just have patience and wait.

My garden pond was constructed two years ago and planted with water lilies. I have only had one or two flowers on them since, and would like to know if there is any reason for this?

Some water lilies take a year or two to get established and then they sometimes get too rampant. Also if the lilies were planted too deeply at first this can set them back. In a pond where there are fishes the lilies will find plenty of nourishment from the droppings from the fishes and so need no extra fertilisers. Too many of these would only make the lilies "Lazy," not needing to search with their roots for food.

I have a large pool with plenty of fishes including goldfish, orfe and Koi carp. The fish appear to be attacked by fish lice. How can I clear the pond of these?

It will not be easy to clear the pond of fish lice. No chemical strong enough to kill them could be put in the pond water or it would also kill the fishes. I have heard that Minnows in a pond will eat the fish lice, but I have no actual personal experience of this. However there would be no harm in trying. The lice are as you describe, like miniature Plaice and they can swim about on their own in search of a host. The adults leave the fish to lay their eggs on stones or plants and it is then that the Minnows could eat them, if they are able to as supposed. If you could trap your fish they could be cleared of the lice by an immersion in a solution of a quarter teaspoon of T.C.P. to a gallon of water. The fish must not be left unattended and must be removed after a few minutes. Dettol can also be used but do not make the solution too strong and remove a fish at once if it turns over. Usually the lice will leave a fish as soon as it is immersed in the liquid. The lice can be picked off with tweezers but often one may be hidden under the joint of a fin and be missed.

How can I breed Golden Orfe?

Golden Orfe can be bred by a pondkeeper but usually they require a fairly large pond and the fish

should be about a foot long at least. These fish spawn in spring in a like manner to that of goldfish. The males chase the females among fine water plant leaves and encourage them to lay their eggs. These are larger than goldfish eggs but adhere to plants, etc., as do those of many other fishes. A bunch of willow roots make a fine nest for the receptacle for the eggs and bunches of these should be anchored in the shallowest parts of the pond. The Orfe will eat their eggs if left with them too long, unless there is a dense mass of plant-life available to shield them. This also applies to the fry when hatched. Their incubation and rearing of the fry is carried out as for goldfish.

I have found some sperm on the under sides of the water lily leaves. Are they the eggs of leeches or of fishes?

They are in all probability the eggs of water snails. If they are sausage-shaped they are of the freshwater Whelk, *Limnaea stagnalis*, or if blob-shaped are those of the Ramshorn snail, *Planorbis corneus*.

I have a tank, 3 ft. by 15 in. by 12 in. in which I have Fantails, comets, moors and Orfe. I would like to get some veiltails but do not see any advertised. Where can I get some please?

I can give you the name of a dealer who could supply you but I am sceptical as to whether you would be able to keep them alive and healthy. I would not recommend you to my dealer friend if I thought that any fish he supplied you with were not to be kept under ideal conditions. You may have too many fish already. The tank holds 18 in. of fish only.

TROPICAL QUERIES

by Jack Hems

Can you tell me please if four 1½ in. oscars will do any harm in a 3 ft. community tank?

Young oscars will not do any damage in a well-planted community tank stocked with the usual range of small tetras, catfish and barbs, but oscars grow rapidly and with increasing size tend to throw their weight around. And bear in mind, also, that a well-grown oscar can swallow a platy with ease. I think it is best to keep oscars by themselves or at least with fishes too large to be intimidated or looked upon as food.

Please give me the name of a cryptocoryne that will grow satisfactorily in slightly salty water.

Cryptocoryne ciliata will stand slightly brackish water.

The snakehead exhibited at your recent Fishkeeping Exhibition fascinated me. Are snakeheads readily available and could one be kept in a 3 ft. aquarium without special apparatus or food?

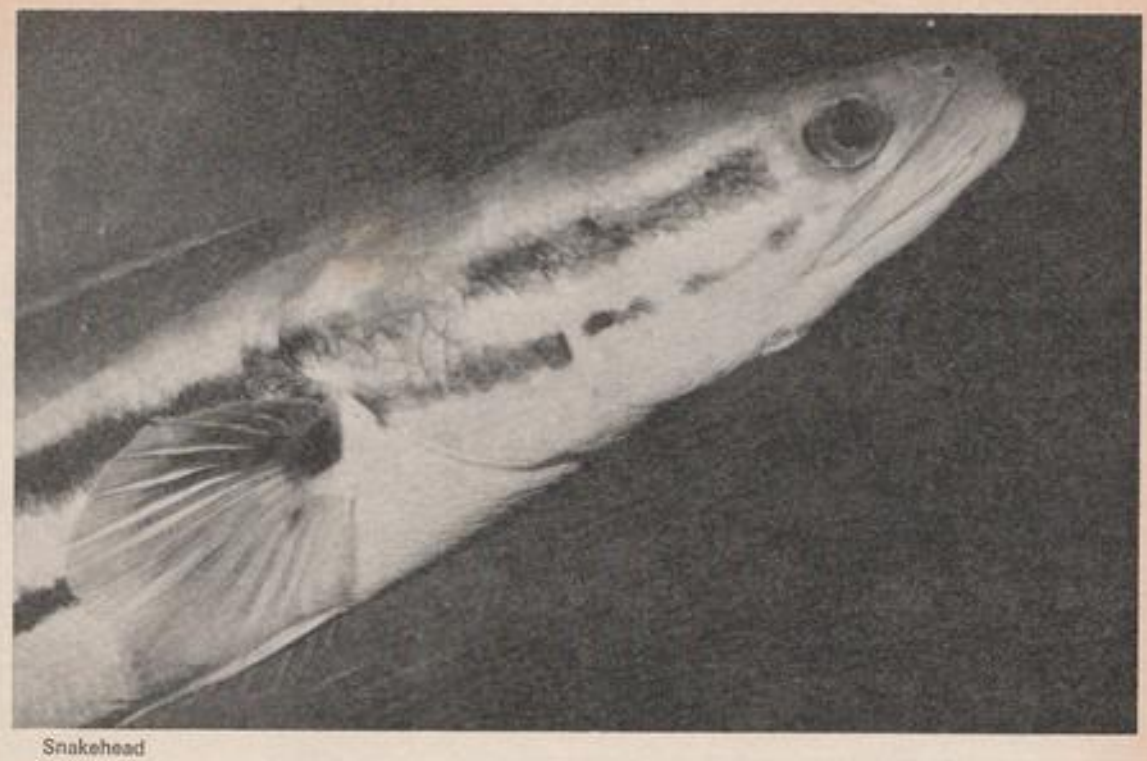
The go-ahead dealers do have snakeheads at infrequent intervals. One has to keep one's eyes and ears open and shop around. A young snakehead would do well in a 3 ft. tank, thickly planted at the rear and at both ends and maintained at a temperature of about 75°F (24°C). Although some snakeheads will accept strips of meat or raw fish, it is customary to feed them on earthworms, live fish, or tadpoles. Another thing, as snakeheads are jumpers and strong into the bargain, it is necessary to stress the importance of keeping their tank properly covered with a sheet of thickish glass (or a well-fitting hood).

I have tried six or seven different drugs to stop the fish in my newly set up aquarium rubbing themselves against the sides and the plants, but they will not give up the habit. Over the last nine days quite a number of them have died. Please can you advise me what to do?

Unless fish show white spots on the body or fins or both it is best to leave well alone. Fish often rub themselves against plants and fixed objects in the aquarium when the water is new. That is to say, before it has had time to age or mature. Introducing different drugs into a tank is not a wise thing to do. If a fish shows signs of fungus or whitespot then, and only then, introduce a drug prepared specially for the treatment of the identifiable disease. If the disease is not identifiable, seek the advice of an experienced aquarist or knowledgeable dealer or read well in the pages devoted to diseases in one of the better aquarium books. The best thing you can do at the present time is to siphon out about a third of the water from your tank and fill up again with fresh water heated up to aquarium temperature. Introduce plenty of plants and see how things go on. If the fish you have now are still alive at the end of a month, then give up worrying and start thinking about introducing a few more.

Please give me some information, historical and general, on the fish called *Telmatherina ladigesi*.

Dr. William Ladiges collected specimens of this atherinid in Celebes in 1934-1935. John Paul Arnold, perhaps the greatest German aquarist between the two World Wars, gave it the popular name of



Snakehead

Celebes sailfin. Dr. Ernst Ahl described the fish for science in 1936. *T. ladigesi* is a 3 in. fish that calls for a bright top light, slightly saline water on the hard and alkaline side, and a temperature in the middle to upper seventies (°F). It spawns in surface-leafing plants, but is neither a ready-breeder nor a prolific fish, that is in captivity.

If I breed brine shrimp and use it frequently to feed fish in a 24 in. by 15 in. by 12 in. aquarium, is there any danger of introducing excessive salt in the water?

Not if you first remove the shrimp from the hatching container in a fine-meshed net and shake it gently before emptying the contents into your aquarium. To be on the safe side, you could submerge the bottom of the net in a jar of freshwater before tipping out the shrimp.

Is it true that the wild betta of south-east Asia is a drab-looking, short-finned fish?

Certainly the wild male betta has shorter fins than the cultivated forms, but when it is courting or fighting, the body and fins display a wealth of metallic and purplish to blue-green tints.

I have bought several young *Cichlasoma nigrofasciatum*. **When they increase in size, what do I look for as a guide to sex?**

Age for age the female is usually the smaller of the two. Also, she is better pigmented than the male. This is usually the case when the breeding instinct is aroused. A male in breeding condition shows few dark bars at all. The female at all times is well-adorned with dark bars.

I have a plastic bowl in which I have collected about two gallons of rainwater standing over a layer of peat. This water, under test, gives an acid reaction and is beautifully soft. If I siphon away an equal amount of water from my 24 in. by 12 in. by 12 in. aquarium, stocked with various small tetras, and top it up with the water in the plastic bowl will it result in livelier and richer coloured fish?

Not necessarily, but there is no question that most tetras flourish best in soft water inclining to acidity. But do not forget that a sudden change of pH value can harm fish. Therefore, to be on the safe side, introduce only about a pint of the soft and acid water into the aquarium every other day, that is over the next month or so.

Eggs of *Colisa lalia* **have just hatched in a tank**

Dwarf gourami

set aside for breeding. As I am a comparative beginner in this wonderful hobby, I would appreciate some advice on what to feed to the fry.

The fry of the dwarf gourami are very small and therefore require microscopic food at the start of their free-swimming lives. Green water (free-floating algae) and freshly cultured infusorians should be given followed, in a week or two, with brine shrimp, micro-worm, sifted baby *Daphnia*, and the like.

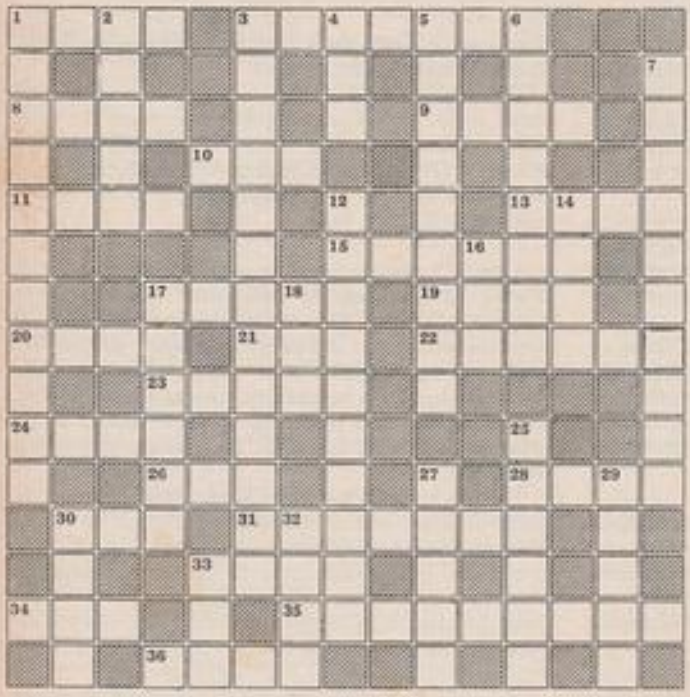
What tips can you give me for growing young angel fish to about full size (4-5 in.) in nine months to a year?

Essential requirements are plenty of swimming space in clean, well-aerated water, a temperature in the neighbourhood of 75°F (24°C), and a diet rich in protein such as chopped earthworms, raw red meat, minced heart and liver.

What thickness and quality of glass do you advise for glazing a steel aquarium frame 36 in. long by 15 in. across and 20 in. high?

You will not go wrong if you use quarter-inch thick plate glass. It might be an advantage to use a wired glass for the bottom.

The AQUARIST Crossword Compiled by M. W. CLARKE



Solution on page 200.

CLUES ACROSS

1. Deep sea fish giving anglers good sport (4).
3. Come home to Shubunkin country (7).
8. Its capital is Baghdad (4).
9. Conventional women? (4).
10. South Wales river (3).
11. Are ritually burnt once a year (4).
13. Sharp tooth (4).
15. Undersea young rascal? (6).
17. You could be for being in a hurry (5).
19. Conan Doyle's world (4).
20. Is often given away by smoke (4).
21. Descriptive of air (3).
22. Group of organic chemicals of which the diethyl variety is used as an anaesthetic (6).
23. Undersea predator with peaceful namesakes in the aquarium (5).
24. Beware if its white (4).
26. A measure of energy in physics (3).
28. Make sure they are before attempting to breed (4).
30. Makes a good road surface (3).
31. Royalty in the Characidae (7).
33. Colour of *Trichogaster trichopterus* (4).
34. Help that may come first (3).
35. Second-class river? (9).
36. Ornamental tail resembling a musical instrument (4).

CLUES DOWN

1. Sharpshooter on the coral reef (7, 4).
2. *Xiphophorus maculatus* (5).
3. Embarrassed cherub? (8, 5).
4. It may be Indian (3).
5. Actually there are only eight (9).
6. Has redundant gills? (4, 4).
7. His majesty the master angler (10).
12. Captain of the foreshore (10).
14. Prefix meaning "before" (4).
16. The tropics are likely to be so (3).
17. Skin eruptions are liable to do so (6).
18. Listening device (3).
25. Bait supreme for mackerel? (6).
27. Each one usually has a headman (5).
29. Exotic teeth (5).
30. Caudal peduncle (4).
32. Used to soften the tone of musical instruments (4).
33. Wide inlet of the sea (3).

THE PREPARATION OF WATER FOR DISCUS FISH

by R. H. Cooke

THE RECENT excellent articles written by Mr. D. K. Brown have created within us an awareness that many of our tropical freshwater fishes would do better if not kept in hard water. The degree of hardness varies considerably over the country and in the London area the water may contain as much as 380 ppm of total dissolved solids. This figure may fall to 200 ppm at intervals; such periods being a good time to run our water through the currently available demineraliser resins.

Since Mr. Brown brought to our attention the water requirements for Discus, many manufacturers have jumped on the band wagon to provide suitable resins. However, since these packs cost £1·25 and provide about ten gallons of usable water for Discus in this region, the cost is still high at the good old-fashioned half-a-crown per gallon. Many pet shops are prepared to sell demineralised water for slightly less than this cost, a figure of 12 new pence per gallon being average. This is not surprising as I know for a fact that they can demineralise water for less than one new penny per gallon. A very favourable profit!

The packs I bought for comparison with my own method, produced excellent water, the best part of the run producing a water with a conductivity of about 10 micromhos and total dissolved solids of about 1 ppm. (For comparison, the tap-water in my area varies about 550 micromhos and 244 ppm solids.) The instructions given on the packet suggest inclusion in the filter system. However, I am very much opposed to this for the following reasons:—

1. The end runs from these resins produce quantities of carbon dioxide;
2. Discus are best kept in tanks of 50 gallons or greater capacities, thus a £1·25 pack does not help to any great extent;
3. Discus would benefit from a water change. They do not like living in their own urine or body waste, however soft you make it for them.

In my own opinion these packs of resin should only be included into the filter system by experienced aquarists and in tanks of a capacity commensurate with the quantity of suitable water that the resin can produce. The answer to reduced costs on water is to regenerate your own resins.

These prepacked resins are the mixed bed type and it may prove impossible to regenerate them as the beds would first require separating before any attempt could be made.

Mixed bed demineralisers are available at a cost and can be regenerated on site; the process requires the use of compressed air to remix the separated resins after the regenerating process, not convenient for the quantities of water in which the home hobbyist is interested.

There is, however, an answer to the problem which requires a little patience and a little trouble but gives a worthwhile end result for a cost of less than two new pence per gallon. The water from these prepacked mixed bed resins is, in fact, better than either is required or desired for the health of Discus fish and so some hard water is remixed with the pure water to provide the desirable hardness and conductivity. Let us say approximately 5 DH of hardness and a conductivity of between 25 and 120 micromhos/cm within this region. It is said by an experienced German breeder that Discus eggs will *consistently* hatch.

If we care to use separate resin beds, the water will not be quite so pure but will be acceptable without remixing with hard water and we can regenerate them at home.

The water first passes through a cation resin and the hardeners are converted into their respective acids; the further passage of water through the anion resins absorb the acids and the result is water down to 2 ppm during the best of the run. Anion resins are also available to produce large quantities of water not in excess of 15 ppm. Messrs. Permutit refer to the latter as H type anion resins.

I am in favour of using conductivity measurements on these processes. Conductivity measurement will be controlled to some extent by pH and after becoming familiar with the regenerating process the safe runs of water can be used without further reference to either pH or ppm measurements. A simple indicator can be made for next-to-nothing and I will give details of this device later. Also with this device, you can check half a dozen tanks containing fish in about 30 seconds.

Before I continue, I would like to issue the following warning. The chemicals used in the regenerating process can inflict *severe burns*. They should not be used in the presence of small children or kept where *anyone* can come into contact with them by mistake. The exhausted chemicals should be buried deep in the

owner's waste ground and not discharged down the household sink or toilet, or put anywhere where they can be contacted.

Anyone not in a position to follow the above instructions should *not attempt* to carry out the regenerating process.

Messrs. Permutit provided me with the following resins for experiment:—

1 lb. Zeo Carb 225 cation resin

2 lb. FFIP anion resins mixed bed Cost—£2·60.

You can try ordering small quantities such as this but I think a certain gentleman in the Service Department of Messrs. Permutit would have me shot at dawn. A favourable quantity would be:—

5 lb. Z Carb 225 and 10 lb. FFIP M.B.

House them in separate plastic canisters where the length is approximately twice the width. A tight plastic sleeve to improve the height-to-diameter ratio in a Eheim 386 case complete, less motor, would provide a starting point, but you will not get all the 15 lb. of resin in one case (the cost per Eheim case is approximately £5). The resin you cannot use because of lack of space you can sell to a friend (I think Aquarist Clubs might be interested in ordering it in bulk and distributing to members) or keep it until your tanks are swollen with young Discus and let them pay for it. I get 12 gallons of excellent water per regeneration and 18 gallons of usable water from my experimental 1 lb. of Z Carb and 2 lb. of anion resin. Cost of regeneration—24 pence, i.e., less than 2 pence per gallon.

When drawing water through these resins, there is a minimum and a maximum rate of flow. If the water is allowed to trickle through, channelling will occur, i.e., the water will find the easiest path through and will not be completely demineralised; the above is also applicable to the prepacked types available.

The canisters which I have made for my resins measure 3½ in. × 7 in. and the rate of flow requires to be 1½ pints per minute. It appears to produce good results, between 1 pint and 2 pints per minute.

A point to note is that if you buy these resins, the Zeo Carb 225 resin will arrive ready for use but the F type anion resin will require regeneration.

To regenerate these resins, you require the following: 6 fluid oz. of Hydrochloric Acid commercial grade per pint of tap-water. Prepare the solution in a plastic container (not nylon). Two pints of this solution should be allowed to pass in its own time through the Zeo Carb 225 resin for 10-12 minutes. Discard the used acid in the manner previously described. Connect the canister via a suitable hose and end attachment to the tap and rinse for 12-15 minutes at 1½ pints per minute. *Warning:* Under-rinsing will allow Hydrochloric Acid to pass into the anion resin and turn it to mud. Over-rinsing will discharge the resin. Place the canister aside and regenerate the FFIP M.B. resin.

Pour 8 oz. of caustic soda into a plastic bucket containing 1 gallon of water at about 20°C. The temperature will rise to about 30°C as you stir the solution. Make sure that all the powder dissolves and do not breathe in the powder dust or fumes from the bucket. Allow the solution to cool to at least 25°C.

Using 1-1½ gallons of this solution, allow it to pour in its own time through the FFIP M.B. resin for 10-12 minutes. Discard the used solution in the manner previously explained. Rinse canister with tap-water at a flow rate of 1½ pints per minute for 45-55 minutes.

A plastic funnel attached to a piece of plastic hose in a tight manner provides a suitable attachment to pour the chemicals through the canisters but be sure they fit correctly or you may be burned by the solutions. If slight irritation or burning of the skin is experienced, wash immediately under a cold-water tap.

Do not forget to dispose of the used chemicals in the prescribed manner.

Now connect the two canisters in series; the water should first flow through the Zeo Carb 225 and then pass through the F type resin.

NOTE: The above instructions are applicable to 1 lb. of Zeo Carb and 2 lb. of F type resins. Other quantities of resin require adjustment to quantities of solution, flow rates and times.

Discard the first two gallons of the run.

On the next gallon run, measure the pH. This may be found to be between 8 and 9 or even higher. The conductivity measurements may also appear unstable giving an initial high conductivity reading rapidly falling to between 75 and 125 micromhos. I throw this water away. However, some 5-8 gallons of water will show alkalinity which is very low in total dissolved solids. This can be neutralised by the addition of one drop per gallon of Phosphoric Acid. As the water swings to acid through the run, a watch should be kept on the pH until you get the feel of it. Towards exhaustion of the resins, try violent aeration on a gallon to free the carbon dioxide. Remember: No metal spoons or containers and nothing that can reharden the water. Carbonates and bicarbonates are formed in the presence of carbon dioxide, aerator stones for instance. Use short stumps of cane or wood such as are used for marines.

When the pH falls to below that acceptable to Discus and when I can no longer drive off the acids with aeration, I stop and regenerate. This will be associated with a rise in conductivity.

Further improvements can be made in the preparation of this water and help with its stability. A pack of water softening resin such as is used in domestic water softeners is a good resin to use before the Zeo Carb, the quantity dependent on the capacity of the demineraliser resin. Water-softener resin converts hard carbonate ions to soft sodium ions, the total dissolved solids remain unchanged. However, it takes a great load off the demineraliser resins. For reasons

I am unable to explain, water so prepared appears to be more stable and I feel this process should always be used.

The above resins are regenerated with common salt, the solution being approximately 1 lb. of salt per gallon of water. Flush 1 lb. of water softening resin with the salt solution for 45 minutes when exhausted and flush with clean water until there is no taste of salt, or better still, check periodically by flushing with demineralised water and measure the conductivity. It should read approximately the same at both inlet and outlet of that canister. Remember, however, that if you have flushed with hard water, the residual hard water remaining in the canister will change the reading of the demineralised water.

To check the capacity of this water-softening resin, the Scanco Water Hardness Test Kit is of great value. This kit, by my reckoning, is three to one out on total hardness tests and I have found that it does not measure sodium as a condition of hardness. Water containing 100 ppm carbonate hardness converted to sodium ions indicates zero hardness when tested with this kit; perhaps I was lucky or unlucky when I bought it. However, it is just the thing for checking such resins.

When water run through the above resin indicates hardness by testing with this kit (unless they have changed their product), it requires regenerating. Here is a band wagon for Scanco to jump on. Other band wagons are available. Perhaps some producer would like to manufacture suitable containers for these resins with appropriate fixtures for pipes and adjustments for flow.

As a matter of interest, Messrs. Permutit manufacture a test kit for sampling the rinse water from their resins at a cost of £14. Again, perhaps the clubs could help by purchasing and renting to members.

Once the rinse times are established, you are home and dry.

Again, if you care to become fanatical about this water problem, you can add a mixed bed canister after the anion canister; providing you never take more water than the regenerable resins can produce, it will last a great length of time. Of course, you cannot regenerate it and you will have to add tap-water to produce the desired hardness for Discus fish. However, you will produce the world's best water at about ·05 ppm.

Much has been said and much has to be done if we are to keep healthy our delightful Discus.

I hope this article will expose the water racketeers. Let them reduce their costs of demineralised water to over 100 per cent profit at 3 pence per gallon, and I will stop burning my fingers in caustic chemicals and take my water storage drums to the pet stores for filling.

The details given in this article relating to the purification of water were obtained by trial and error.

Tilapia mariae

by T. J. Green

THIS LITTLE-KNOWN FISH has been the subject of many questions recently, and the Tropical Queries expert seemed rather uncertain of his answers to a question in the June issue. Perhaps my experiences will help to shed a bit of light on the subject.

The basic body-colour of both sexes is a yellowy-green; there are seven darker bars passing vertically down the body, the foremost one passing through the centre of the eye to the corner of the mouth. The dorsal is tipped with red on the front half and with pale blue towards the rear. The tail of the male is edged with the same pale blue whilst the female's tail is edged with red, and the large lower lip is bluish. My female fish has a completely matt-black tail apart from its red edge. I am not at all sure that this has any significance as a sex characteristic but will be able to find out when the fry get larger.

When aroused by anger or sexual excitement, the area behind the gill-plate takes on a red coloration which seems to glow through the scales. It is a most attractive fish when in this mood.

A 3 ft. tank was set up for the spawning without gravel; a selection of rocks of various sizes was introduced. When the fish were put together the female was most aggressive and I had to separate them with a sheet of glass for a couple of days.

The male is 6½ in. long and the female 5 in., and the temperature was a constant 84°F. They selected a flat rock 6 in. × 4 in., blue in colour from an earlier immersion in methylene blue. Incidentally, this blue rock has been the choice on three previous occasions by severums wishing to spawn.

Spawning took about three hours to complete and well over 400 eggs were laid. In view of my previous experience with cichlids I removed the parents. Unused rockwork was removed and the flat rock, with the eggs attached, stood up against the back glass with an airstone about 4 in. in front to allow an updraught in order that any sediment should not settle on the eggs. Although no methylene blue was added, not one egg fungused and hatching started in exactly 45 hours which, in my limited experience, is quick for cichlids.

After a further three days, the fry were free-swimming and fed avidly on young *daphnia* and brine shrimp intermingled with micro-worms. At seven days the fry were about ⅜ in. and only about two or three had died.

They are now three weeks old and looking fine.

continued on page 200

OUR READERS WRITE

Trops in New Zealand

I will be grateful for any information concerning the state of the hobby "tropical" in New Zealand. I'm thinking of emigrating and would like to know what to expect.

If you do publish this letter I will be glad to hear from any other hobbyist on the above subject.

G. P. LAWLESS,
Warley, Worcs.

Who Fathered the Aquarium?

While glancing through a book titled "Merionethshire" (Cambridge County Geographies), which was published in 1913, I came across the following paragraph:

"Merionethshire may well be proud of Edward Edwards, the marine zoologist and inventor of aquaria for the preservation of fish. He was a native of Corwen, and in 1864 was led to study the habits of fish in their native element among the fissures and rocks of the Menai Straits; and step by step he perfected an invention for keeping fish in health in confinement. The principle of his tank has been adopted in all aquaria in our country as well as on the Continent and in America."

1864 seems rather late a date for the invention of the aquarium; is Edward Edwards really the "Father of the Modern Aquarium," or do other readers have another candidate?

R. H. BIRCHALL,
Llandudno.

Safe or Unsafe?

I wonder how many readers of the *Aquarist and Pondkeeper* have seen this month's issue of "Which?" magazine with special reference to the article on "Dichlorvos" fly killers? My parents bought one of these fly killing strips but I was worried about possible detrimental effects on my fish so it was not used until the advice of the manufacturers had been sought. The managing director replied very promptly stating that he himself had kept one of his fly killers in the same room as his fish tank for two years. However, shortly after receiving his reply to our letter, we read in the new "Which?" magazine of the possible bad effects of dichlorvos on vertebrates as well as on invertebrates. "Which?" strongly recommends that dichlorvos should not be used "in kitchens, rooms where food is prepared or served, or rooms where infants, ill or old people are confined." If this chemical will settle on food there is no reason why it shouldn't dissolve in fish tank water, gradually increasing in concentration until it poisons the fish and possibly the plants as well. I am not prepared to risk my fish despite the confidence of the managing director; I should be interested to hear other people's points of view on this subject.

J. O. S. WATSON,
Cobham, Surrey.

First to Keep Guppies

The recent articles on the history of the guppy, *Lebistes reticulatus*, prompts me to send along a photograph of an old friend, Captain John Alexander Maylin Vipan (1849-1939), who is said to have been the first person to keep the species in an aquarium.

Captain Vipan interbred at least three of the wild races of guppy in fish tanks in his kitchen garden at Stibbington Hall, near Peterborough, and some of these hybrids he sent in 1909 to Herr Arnold at Hamburg, who established the guppy as an aquarium fish.

The photograph was taken in 1877, shortly after the death of his father, John Maylin Vipan, hence the black arm-band.

JOHN L. GILBERT,
Kew, Surrey.

BREEDING GOLDFISH

by Arthur Boarder

THE first two or three weeks in the life of goldfish fry can be very important as to the way that they grow on and remain healthy. If only a few have been hatched then there is little trouble in rearing them. It is when the hatch is a large one and only limited space is available that losses can occur. When very tiny the fry do not appear to mind being crowded and it is usual for them to gradually grow on for a week or two. However if they are too crowded one feels that it is imperative to spread them out or many may die. Over many years I have used concrete tanks for hatching and rearing the fry. These tanks are 24 by 12 by 9 in., outside measurements. Being half an inch thick reduces the capacity somewhat. I can usually keep the young fish in these tanks, I have a dozen, until they are at least an inch in length and have coloured. I only breed red scaled fantails and so never have any other types to deal with.

Bunches of weed with eggs, are taken from the spawning pond and are hatched in the tanks. I use enough heat to hold up about 70°F., for most of the time and slight aeration is also used. Some bunches of weed give many fry whilst others only a few. Where the numbers are not excessive, no problems occur, but when over a thousand fry hatch out it can be realised that it is rather optimistic to expect to rear them all. When I see a very large number of fry in a tank I try to spread them out, but have found that the moving is not always a success. On many occasions I have moved fry only to find that after a day or two the moved ones have disappeared almost completely in the new tank. I have known times when I have counted out two hundred or more and then after a few days I have been unable to see more than a dozen or so in the fresh tank.

No dead ones are ever seen, but this is not unusual as they are so small that when dead they would almost fade away and be practically invisible. This season I tried a different method but so far it does not seem to work very well. In the past I have moved fry to freshly filled tanks, but have allowed the water to warm up slightly and lose any chloride before introducing any fry. This time I had filled several spare tanks with water and added aeration. The temperature was about the same as that of the hatching tanks. With a small saucepan I caught up some fry and very carefully emptied them into a fresh tank. I counted two hundred, and this was from just two dips into the hatching tank. Within two days I could only see a very few fry in the new tank, just about a dozen which appeared to be quite healthy and moving well. What had happened to the others I do not know, but I am sure that it is a very difficult task to move these youngsters when they are so small. It may be that the water varies from that from which they came, although there does not appear to be any difference. All I can think is that in the first two weeks or so of their lives the fry are very susceptible to changes of water.

My next experiment will be to try to remove some fry from the hatching tank with a fair amount of water and then to use this water only in the new tank. I shall then try adding a little fresh water very gradually so that the minimum alteration of water content is made. For many years I have found that it is possible to keep the fry in their hatching tank in quite crowded conditions for two or three weeks, and they do not appear to mind these conditions. On the other hand in tanks where the hatchings have been smaller the fry will grow quicker than those in crowded tanks.

The feeding of tiny fry is not easy when a large number are concerned. I use Liquifry for the first week or so and as the fry grow they are given very fine dried food. A good one is Tetra-min fry food. This is in powder form and floats on the surface for some time. Slight aeration helps to keep the food on the move which encourages the fry to take it. As the fry grow they are given other fine foods which I mash up with worm shreaders. Some white worms are shredded up as the fish become large enough to take such food, but it is always difficult to ensure that the food is sufficiently mashed up so that none is too large or coarse for the fry to eat. Once the fry can be seen to be eating well, one is sometimes tempted to give that little bit extra. This is a mistake as even one day of overfeeding can cause the water to become polluted and then the fry go off their food immediately. If the fry are not over-fed they may be seen working round the sides of the tank, picking off infusoria and soft Algae Whilst these signs are noticed there is little need to worry, as the fry will be thriving well.

Once the fry are three weeks or more old, it is

important to change some of the water at least once a week. Also if the fry appear to be off their food slightly, a change of water is imperative. If you do change some of the water, do not start to feed the fry at once but wait for a full day before doing so. This applies to tanks of young fish of an older age. Once fish go off their food, change a fair amount of water and wait for the fish to recover from the bad conditions before offering any food.

When the fry are young it is a good policy to examine the water from time to time to see if there are any tiny creatures in it such as forms of *infusoria*. I find that the use of Liquifry encourages the formation of *infusoria* and I have never had to resort to the rather messy and smelly process of cultivating any. What often happens when feeding fry with infusoria is that foul water is introduced into the tank to the detriment of the fry. If a temperature of about 70°F can be maintained for the first few weeks the fry will usually grow at a faster rate than if the water had been colder. It seems to me from my observations that at a temperature of 70°F, the fry will eat twice as much food as when the water was at 60°F.

I noticed that fry hatched in three and a half days at this higher temperature whilst it took a fortnight for some eggs to hatch in an outside, unheated tank, the temperature of which rarely rose above 55°F. As the fry become larger, and what could be called real fish, they can be sorted out if they are of one of the fancy varieties. It is possible to sort out at the age of five or six weeks, so that the better fish can have the best treatment as far as space, warmth and feeding are concerned. I find no trouble in moving young fish once they are about that age, and they do not appear to react against such a move as they might have done when a week or two old.

FIND THE REPTILES?

My first is in CREATURE but not in FISH
My second is in KETTLE but not in DISH.
My third is in HEATER but not in TANK
My fourth is in FRESH and also in RANK.
My fifth is in TROPICAL but not in HOT
My sixth is in APERTURE but not in SLOT.
My seventh is in CICHLID but not in EEL
My eighth is in LINE but not in REEL.
My ninth is in PURCHASED and also in SOLD,
My whole are freshwater, and don't like the cold.

ANSWER: TERRAPINS.

"MARINELAND," CÔTE D'AZUR

by L. Medd

The Count Roland de la Poype officially opened his "Marineland" on the Côte D'Azur on 22 June, 1971. The place is the only one of its kind in Europe. It has two of the biggest pools in the world. In one, four performing dolphins display for the public every day and in the other, a killer whale also gives a show. The dolphins give a show that equals, if not betters, some in America today. They leap out of the water, dance on their tails (tailwalk), do double and triple somersaults, play basketball, bowls (ten pin bowling), and have a sword-fight with the trainers. At the end of the show one of the trainers is overturned in his canoe by one of the dolphins who afterwards brings him a life-belt and carries his hat back to safety. This the children love, not to mention the grown-ups.

Afterwards everybody crowds round to see the killer whale go through his tricks and the big moment is when the trainers ride him, either standing or sitting on his back or doing a headstand at the back of his head.

Later, the children feed the seals and watch the sea-elephants being fed. It was ironic that the day after the opening at three-o-clock in the morning, Henri, one of the sea-elephants escaped onto the main national road and was making his way down to the sea. Everybody who had worked hard to get "Marineland" going had been celebrating and it was difficult to find somebody sober to capture Henri. Anybody passing along the road in his car, I'm sure, would have been more than just a little surprised to see a gigantic sea-elephant in the middle of the road.

After the sea-elephants, there is a sea-lion show and after that, you can walk round the aquariums at your leisure to see underwater fish and various animals, which have been caught round these parts.

The visitor, I'm sure, never goes away disappointed.

Why No Support?

We have now held three Open Shows all with disappointing numbers of entries, would someone please tell us why our open shows are not supported.

D. Jackson,
Chairman Dukeries A.S.,
24 Park Vale Drive,
Thrybergh, Rotherham,
Yorkshire.

From a Naturalist's Notebook

by Eric Hardy

A LANCASHIRE ANGLER, warned recently by the River authority for liberating in a local water a chub he had caught in Lakeland, was committing an offence as it is illegal here, and in many other areas, to introduce freshwater fish without permission, in case of spreading disease. Abroad, some of our fishes are positively not wanted, particularly the common carp. An 11 lb. specimen, caught in the Australian River Murray last year, was the species declared eight years ago by the fishery authority as a "noxious fish." They ask everyone who catches a European carp to notify them. The carp compete too successfully against other fish and made waters unsuitable for breeding native fish like the so-called Murray River "cod," and callop. Indeed, it is illegal in South Australia for people to have European carp in their possession.

After writing about the crocodile-reserve at Singapore the other month, I now have a report of a scheme by Canberra University biologists to introduce and farm in Northern Australia the dwindling *Crocodylus porosus*, the only salt-water crocodile. Green turtles are already being bred on two Torres Strait islands. They breed from Brazil to Ethiopia's Dahlak archipelago. The demand for crocodile skins still keeps their hunters too active in New Guinea's Sepik River, and in Papua's Fly River. Thailand already has a crocodile farm, where a pair produce 60-80 eggs a year and may live up to 150 years—if they get beyond their first year. The idea is to breed sufficient to sell their skins and thus avoid hunting wild ones to meet demands. Only the freshwater species is protected in Northern Australia.

Western Australia has protected its freshwater crocodiles since 1962 and in 1970 placed a ten years' ban on shooting salt-water crocodiles.

The African Journal of Tropical Hydrobiology and Fisheries, a new scientific journal planned for 1970 under the editorship of Dr. J. Okedi of Jinga, Uganda, with an impressive editorial board of scientists, has yet to appear; but a new prospectus I have received promises the first number by the beginning of next year.

We are losing many of our native water plants. Only one large plant of royal fern survives of Yorkshire's Askham Bog, where it once flourished. Heller Czech's new translation of Dr. Eva Bursche's German *Handbook of Waterplants* (126 pages, Warne, 65p) describes 57 emergent, 19 floating-leaved and 30 submerged plants, with excellent line-drawings and useful identification keys. It is a most useful book for pond-keepers and all who furnish aquaria with aquatics. Naturally, it cannot include everything within the limits of its size; but it doesn't have South African *Elodea crispa* (*Lagarosiphon major*) which grows in south-east Lancashire (Rochdale-Hollingsworth) canals, alien *Egeria densa*, *Vallisneria spiralis*, leafy *Potamogeton epidhydrus*, native *Ludwigia palustris* and floating water-plantain, to mention a few. It includes common skullcap, but not our lesser species. Nevertheless, the book is conveniently slim and pocket-size as I found when I tried it out with a party of students dipping for pondweed and aquatic larvae in the lake at Lancashire's Scarisbrick Hall, recently cleaned from its once choked-up acreage of reed-mace. It illustrated spiked, but not whorled, milfoil, though it describes both.

Conchologists range from the handful trying ambitiously to map the distribution of British snails, to collectors of rarities. In the latter's interest is only about the twentieth known shell of the rare brown spotted cowrie, *Zoila marginata*, to be found in South Australian waters, taken last year by an abalone-diver off Cape Jervis. Liverpool Museum has several Figian Golden Cowries, about 4 in. long, a collectors' item. We have one native, orange-coloured pink-shelled, slug-like cowrie.

In Japan, the Naiwan Fisheries Experimental Station has successfully induced artificial spawning of Japanese freshwater eel *Anguilla japonica*, using seven- or eight-year-old females, 75-85 cm. long and weighing 1,000-1,200 grammes. For about a year these had been injected with three hormones and with rainbow trout pituitary extract. Some of the eels died but others spawned up to 5,000,000 eggs.

The commonest causes of death in fishes in New York Aquarium have been overcrowding, sudden changes in temperature, wrong adjustment of light, range and degree of pH, density, amount of oxygen, chlorine and nitrogen in the water, metabolic and waste products and diet, too much handling and too frequent removal between tanks. We hear a lot about the social structure or hierarchy and "peck order" in animal-communities without always realising that in a wild colony of lizards, especially large iguanas, and among tortoises and frogs, there is similar territoriality, especially by the larger males, and hierarchical feeding orders, and territory defence.

Heusser in Germany has shown that spawn-eating by tadpoles possibly causes the short breeding times in European frogs. Cochran & Coleman's recent 665-page book on the Frogs of Colombia lists 212 species and sub-species. In America, Dalrymple has shown that caddis-fly larvae feed on the eggs of axolotls. I was interested in Hussein and Boulos's recent study of the heat-deaths of some desert reptiles in Egypt and the Gaza area of Israel. When I was secretary of the former Jerusalem Naturalists' Club, I had two 5-ft. Syrian black-snakes, *Coluber jugularis*, a melanistic variety, sent to me for transit to London Zoo. I was busy when they were delivered and their wooden box, with a mesh-wire top, was left in the morning sunshine outside my office. The sunshine was some 37 deg. C., but after awhile I heard such a noisy writhing of the reptiles moving about the box, from obvious discomfort that I went out to look at them. It was too late; they had turned on to their bellies and died from exposure to the heat. In the desert they are nocturnal, hiding in holes or beneath stones by day.

Did you know that newts and salamanders aren't found south of the Sahara? For this reason the 55 amphibians in Margaret Stewart's 163-page *Amphibians of Malawi* are only frogs, toads and the worm-like *Apoda*. While the handsome and very variable green toad of North Africa ranges through Asia into Europe, it failed to survive introductions into Britain. It is most active at 36·2°C., cannot survive over 40·7°C. and becomes torpid when the temperature falls to 4·1°C., whereas the introduced marsh-frog *ridibunda* keeps active down to 0·9°C. It is a desert toad, withdrawing to holes during rain and at night, and tolerates arid conditions even more so that our dwindling natterjack. It breeds earlier than the marsh-frog.

At the natterjack's last breeding haunt in Cheshire, the reedy saltmarsh pools between Hoylake golflinks and West Kirby shore at the mouth of the Dee, 17 were counted in early July, as well as 150 common toads. Two years ago 40 were counted there. Efforts are being made for a conservation order protecting this saltmarsh. Despite all the pronouncements from the London area, frogs are still far from extinct in the North.

Tuna, which normally swim straight and cover great distances in the oceans, are extremely difficult to rear in an aquarium-tank. In 1970, at Tokyo University's college of marine science, Prof. Motoo Inoue began rearing common bluefin tunny, skipjack tuna and dolphin fish (not the mammal) in a sea-water pen 10 metres long, 10 metres wide and 1·5 metres deep, and in a tank 3·5 metres by 3·5 metres by 1·5 metres. They also tried using a training pool 5 metres in diameter and 2·5 metres deep. Their longest record is rearing one bluefin tuna for two months. Several died, but some 200 tuna and dolphin survived and swim in groups and are feeding well. The aim is to rear them to maturity and spawn them artificially. The professor plans to fertilise yellowfin, bigeye and skipjack tuna eggs artificially aboard a vessel at sea, as well as to collect eggs in nets for laboratory hatching and catch young tuna with lights for further rearings. The Japanese are busy building a cylindrical underwater habitat study base, 30 metres deep off Ito in Shizuoka.

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A little fine dried food is being eaten but live food still makes up the largest part of their diet. They are fed about five times a day and the bottom of the tank is syphoned over each night.

I hope this article proves of some interest as I have found at recent open shows my *T. mariae* has been quite an attraction.

I would appreciate it if any reader can give me any definite information regarding size of this fish.

The male fish has been shown four times and has had a mixed reception from judges, being made sixth, third, fifth and, on one occasion, first and best in show.

One judge, who is well-known for his knowledge of cichlids and has written articles for *The Aquarist*, is reported to have remarked that this species grows very large and that he has seen specimens twice as big as mine. I have been unable to substantiate this and would like anyone with information to drop me a line at this address:

185 Station Road,
Kingswood, Bristol.

Crossword Solution

News from AQUARISTS' SOCIETIES

Monthly reports from Secretaries of aquarists' societies for inclusion on this page should reach the Editor by the 5th of the month preceding the month of publication.

RESULTS of **The Aquarist and Pondkeeper Fishkeeping Exhibition** were as follow:—Society Furnished Aquaria Tropical: 1, Finnamore Fish Fanciers; 2, Enfield A.S.; 3, Independent A.S.; 4, Walthamstow. Society Furnished Aquaria Coldwater: 1, Portsmouth A.S.; 2, Bracknell A.S. Individual Furnished Aquaria Tropical: 1, R. Forder; 2, M. Goss; 3, P. Cairs; 4, S. Mole. Individual Furnished Aquaria Coldwater: 1, A. Bolt; 2, D. Goodbody; 3, M. Goss. Junior Furnished Aquaria Coldwater or Tropical: 1, D. Whitby; 2, Hornsey A.S.; 3, A. Reich, R. Scarborough; 4, Allcock, Adams, Smith. Individual Aquascape: 1, L. Sandfield; 2, Mrs. Watts; 3, A. Kemp; 4, P. Cairs. A.V. Barb: 1, Master K. Wilkins; 2, D. J. Mackay; 3, Master S. Mason; 4, Mrs. S. Hedges. A.V. Characin: 1 and 4, S. Cowell; 2, G. Greenhalf; 3, J. Pollard. A.V. Angel: 1, D. M. Dare; 2, R. Bowes; 3, F. J. Morgan; 4, Mrs. M. Nethersell. A.V. Apistogramma, Palmatochromis and Nannacara: 1, M. Strange; 2, D. V. Larder; 3, Mr. Hine; 4, D. J. Mackay. A.O.S. Cichlid: 1, M. Strange; 2, A. Kinsey; 3, Mr. and Mrs. Hudson; 4, Mrs. M. Nethersell. Betta Splendens: 1, Mrs. I. Applin; 2, S. Applin; 3, R. Bowes; 4, E. Smith. A.O.S. Labyrinths: 1 and 2, S. Cowell; 3, D. King; 4, G. Greenhalf. A.V. Egglaying Toothcarps: 1, R. J. Johnston; 2, C. Withers; 3, J. Bellingham; 4, I. T. Mathieson. A.O.S. Tropical Catfish: 1 and 4, G. Greenhalf; 2, P. J. Brenchley; 3, K. Leggett. A.V. Corydoras and Brochis: 1, Mrs. M. Nethersell; 2, J. Pollard; 3, D. J. Mackay; 4, Mrs. Quennell. A.V. Rasbora: 1, Mrs. D. Mathieson; 2, Mrs. G. Carter; 3, D. J. Mackay; 4, R. Bowes. A.V. Danio and W.C.M.M.: 1, D. J. Mackay; 2, D. King; 3, G. Greenhalf; 4, R. Langley. A.V. Loach: 1, Mrs. M. Nethersell; 2, M. Carter; 3, D. W. Armour; 4, D. V. Larder. A.O.S. Egglayer: 1, Mrs. S. Hedges; 2, A. J. White; 3, D. N. Radford; 4, A. Kinsey. A.V. Guppy, Male: 1 and 2, E. G. Harvey; 3, L. D. Weller; 4, Mrs. M. Nethersell. A.V. Guppy, Female: 1 and 3, T. D. Smith; 2, R. Bowes; 4, E. Manning. A.V. Swordtail: 1, G. Greenhalf; 2, 3 and 4, Mrs. S. Mason. A.V. Platy: 1, K. Quennell; 2, S. Cowell; 3, A. Blake; 4, Mrs. Quennell. A.V. Molly: 1 and 2, G. Greenhalf; 3, D. King; 4, T. D. Smith. A.O.S. Livebearer: 1, G. Greenhalf; 2, Mrs. C. Bowes; 3, A. Kinsey; 4, A. Blake. A.V. Common Goldfish and Comet: 1, T. J. Summers; 2, Mrs. S. Hedges; 3, V. Thompson; 4, V. P. Voysey. A.V. London Shubunkin and Singletail (G.S.G.B. Shubunkin): 1, Master K. Hudson; 2, D. Nutt; 3, D. M. Dare; 4, Mrs. S. Hedges. A.V. Twintail Goldfish with Dorsals: 1, 2 and 4, D. Nutt; 3, T. J. Summers. A.V. Twintail Goldfish without Dorsals: 1 and 2, G. A. Fleming, 3, E. Binstead. A.V. Centrarchidae: 1 and 2, E. Binstead; 3, D. J. Mackay; 4, V. Voysey. A.O.S. Coldwater: 1, V. P. Voysey; 2, W. H. Nutt; 3, Mrs. S. Hedges; 4, D. Nutt. A.V. Rooted Plants: 1, M. J. Allen; 2 and 3, R. Forder; 4, I. T. Mathieson. A.V. Plant Cutting: 1, 2 and 3, M. J. Allen; 4, R. Forder. A.V. Floating Plants: 1, 2 and 3, R. Forder; 4, I. T. Mathieson. A.V. Barb Pairs: 1, A. Kinsey; 2, C. Withers; 3, J. Bellingham; 4, P. Wyle. A.V. Characin Pairs: 1, Master S. Mason; 2, J. Pollard; 3, A. Kinsey; 4, J. Hatton. A.V. Cichlid Pairs: 1, J. Batts; 2, R. Kerridge; 3, Mr. and Mrs. P. Tee; 4, R. Trippas. A.V. Labyrinth Pairs: 1, Mr. Bartlett; 2, D. J. Mackay; 3, Master K. Wilkins; 4, Mrs. G. Howe. A.V. Toothcarp Pairs: 1, R. Wright; 2, V. Thompson; 3, R. J. Johnston; 4, Mr. and Mrs. D. Lambourne. A.V. Catfish and Loach Pairs: 1, Mr. and Mrs. D. Lambourne; 2, J. Pollard; 3 and 4, Mr. and Mrs. P. Tee. A.V. Rasbora, Danio and W.C.M.M. Pairs: 1, R. Bowes; 2, J. Hatton; 3, R. Langley; 4, D. J. Mackay. A.O.S. Tropical Egglayer Pairs: 1, D. King; 2, R. Baker; 3, D. J. Mackay; 4, J. Bellingham. A.V. Guppy Pairs: 1, T. D. Smith; 2, E. Manning; 3, L. Weller; 4, E. G. Harvey. A.V. Swordtail and Platy Pairs: 1, Mr. and Mrs. Boulsom; 2 and 4, K. L. Brown; 3, A. Runnalls. A.V. Molly Pairs: 1, D. King; 2, T. D. Smith; 3, Master S. Mason; 4, J. Hatton. A.O.S. Livebearer Pairs: 1, A. Blake; 2, A. Kinsey; 3, J. E. M. Laing; 4, G. Greenhalf. Best Fish in Show: Mrs. S. Hedges—Snakehead (class M).

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THE **Stockton-on-Tees A.S.** Annual Open Show results are as follow: Furnished Aquaria: 1, Shanks and Hogg (Mt. Pleasant); 2, A. Stephens (Stockton); 3, L. Osman (Stockton); 4, K. Hornby (Stockton). Furnished Jars: 1, J. Turnbull (Edinburgh); 2, W. Hollis (Hetton); 3, Mrs. D. Hardman (Cleveland); 4, E. Hartley (Stockton). Fighters: 1, C. W. Buck (Stockton); 2, J. Turnbull (Edinburgh); 3, L. Collins (Stockton); 4, Mr. and Mrs. Clennett (Stockton). Labyrinths: 1, Mr. and Mrs. Clennett (Stockton); 2, G. Lee (Stockton); 3, W. Hollis (Hetton); 4, D. Keithley (Stockton). Cichlid (Large): 1, H. Peacock (Stockton); 2, J. Thompson (Edinburgh); 3, G. Lee (Stockton); 4, W. Worral (Peterlee). A.V. Barb: 1, Mr. and Mrs. Attwell (Independent); 2, 3 and 4, W. Worral (Peterlee). A.V. Characin: 1, R. A. Walker (Houghton); 2, L. Collins (Stockton); 3, W. Hollis (Hetton); 4, Mr. Cooke (Independent). A.V. Platy: 1, N. Flett (Stockton); 2, G. Roberts (Peterlee); 3, A. Bebbington (Peterlee); 4, F. Pulman (Stockton). A.V. Swordtail: 1, T. Scothern (Peterlee); 2, L. Collins (Stockton); 3, K. Hickford (Stockton); 4, N. Flett (Stockton). A.V. Mollie: 1, L. Collins (Stockton); 2, W. Worral (Peterlee); 3, A. Patterson (Independent); 4, B. Steele (Hartlepool). A.V. Scavenger: 1, W. Dixon (Priory); 2, Mr. and Mrs. K. Low (Cleveland); 3, R. Stewart (Peterlee); 4, W. Worral (Peterlee). A.V. Corydoras: 1 and 4, Mr. and Mrs. Attwell (Independent); 2, A. Bebbington (Peterlee); 3, F. Pulman (Stockton). A.V. Guppy: 1, A. Bebbington (Peterlee); 2, Mr. and Mrs. K. Low (Cleveland); 3, F. Pulman (Stockton); 4, R. Jones (Stockton). A.V. Cichlid (Small): 1, J. Gardner (Houghton); 2, N. Flett (Stockton); 3, E. Robinson (Cleveland); 4, R. Walker (Stockton). A.V. E.L.T.C.: 1, W. Hollis (Hetton); 2, Mr. and Mrs. Attwell (Independent); 3 and 4, J. Gardner (Houghton). A.V. Rasbora or Danio: 1 and 3, Mr. and Mrs. Attwell (Independent); 2, N. Watson (Hartlepool); 4, C. W. Buck (Stockton). A.O.V.: 1, Mr. and Mrs. K. Low (Cleveland); 2, J. Skillen (Hartlepool); 3, Mr. and Mrs. Enright (Houghton); 4, J. Gamesby (Stockton). Breeding Pairs (Egglayers): 1, C. Simpson (Independent); 2, A. Bebbington (Peterlee); 3, Mr. Milson (Hetton); 4, Mr. and Mrs. Attwell (Independent). Breeding Pairs (Livebearers): 1, N. Flett (Stockton); 2, C. Buck (Stockton); 3, K. Adams (Hartlepool); 4, B. Fawcett (Stockton). Egglayers): 1 and 2, N. Flett (Stockton); 3, G. Lee (Stockton); 4, T. Scothern (Peterlee). Livebearers: 1, T. Scothern (Peterlee); 2, N. Flett (Stockton); 3, J. Bennington (Stockton); 4, A. Steele (Hartlepool). A.V. Coldwater: 1 and 4, A. Young (Edinburgh); 2, J. Thompson (Edinburgh); 3, J. Hickford (Independent). Best Fish in Show: H. Peacock (Stockton). Best Livebearer in Show: N. Flett (Stockton). Junior Section: 1, N. Hogg (Mt. Pleasant); 2, R. Skillen (Hartlepool); 3, J. Hickford (Independent); 4, C. Benson (Priory).

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MORE than three hundred exhibits were entered at the **Skipton and District A.S.** annual Open Show. Results were as follow: Section 1: Guppies: 1, Mr. Hallett (Accrington); 2, Mr. Kilvington (Doncaster); 3, P. Reynolds, Snr. (Swillington). Swordtails: 1, N. R. Gibson (Huddersfield); 2, P. Reynolds (Swillington); 3, Master M. Hislop (Swillington). Mollies: 1, R. Hislop (Swillington); 2, Master R. Hislop (Swillington); 3, E. J. Brown (Bradford). A.O.V. Livebearers: 1 and 2, J. S. Hall (Aireborough); 3, L. Kaye (Top Ten). Section Winner: N. R. Gibson. Section 2: Barbs (Small): 1, 2 and 3, F. E. Gregory (Oldham). Barbs (Large): 1, N. R. Gibson (Huddersfield); 2, Mrs. D. Davies (Privateers); 3, Mr. and Mrs. Norris (Loyne). Section Winner: F. E. Gregory. Section 3: Characins: (Small): 1, R. Wilkinson (Halifax); 2, F. E. Gregory (Oldham); 3, D. and R. Standen (Loyne). Characins (Large): 1, D. Kennedy (Bradford); 2, Mr. and Mrs. Clarke (Morecambe Bay); 3, B. and B. Booker (Morecambe Bay). Section Winner: D. Kennedy. Section 4: Rasboras and Danios: 1, D. Kennedy (Bradford); 2, Mr. Hallett (Accrington); 3, B. and B. Booker (Morecambe Bay). Carps and Minnows: 1, Mr. and Mrs. Norris (Loyne); 2, Master Booth (Leeds). Sharks and Flying Foxes: 1, D. and R. Standen (Loyne); 2, Master G. Willey (Bradford); 3, K. Aubrey (Bradford). Section Winner: D. and R. Standen. Section 5: Fighters—True Col.: 1 and 2, Mrs. D. Davies (Privateers); 3, Mr. and Mrs. Jessop (Huddersfield). Anabantids (Small): 1, F. and M. Howarth (Morecambe Bay); 2, P. Batchelor (Loyne); 3, Mrs. D. Davies (Privateers). Anabantids (Large): 1, D. Strad (Swillington); 2, N. R. Gibson (Huddersfield); 3, P. Batchelor (Loyne). Section Winner: Mrs. D. Davies. Section 6: A.O.V. Tropicals: 1, D. Kennedy (Bradford); 2, P. Reynolds (Swillington); 3, D. and R. Standen (Loyne). Section 7: Toothcarps: 1, W. Batley (Dewsbury); 2, D. Truby (Nelson); 3, Mr. Mosley (Keighley). Section 8: Angel Fish: 1 and 2, H. and R. McKenna (Nelson); 3, R. Hislop (Swillington). Cichlids (Small): H. and R. McKenna (Nelson); 2, P. Reynolds (Swillington); 3, Mr. and Mrs. Liddimore (Keighley). Cichlids (Large): 1, Mr. and Mrs. Norris (Loyne); 2, B. Morrell (Privateers); 3, Mr. and Mrs. G. Shaw (Morecambe Bay). Section Winner: H. and R. McKenna. Section 9: Corydoras Cats: 1, Mr. Mosley (Keighley); 2, Master Booth (Leeds); 3, Mr. and Mrs. Cowaid (Loyne). Loaches and Botias: 1, D. and R. Standen (Loyne); 2, Mr. and Mrs. Cowaid (Loyne); 3, F. E. Gregory (Oldham). A.O.V. Cats: 1, Mr. Aubrey (Bradford); 2, B. and B. Booker (Morecambe Bay); 3, D. Berry (Morecambe Bay). Section Winners: D. and R. Standen. Section 10: Breeders (Livebearers): 1, R. Wilkinson (Halifax); 2 and 3, Mr. and Mrs. Yates (Dalton-in-Furness). Section 11: Breeders Egglayers: 1 and 3, J. Burton (Huddersfield); 2, N. R. Gibson (Huddersfield). Section 12: Pairs (Livebearers): 1, R. Hislop (Swillington); 2, Mr. Hart (Keighley); 3, J. S. Hall (Aireborough). Pairs (Egglayers): 1, Miss B. Kaye (Top Ten); 2, J. Burton (Huddersfield); 3, Mr. and Mrs. Jessop (Huddersfield). Section Winner: R. Hislop. Section 13: Common Goldfish: 1, Mr. Whitsey (Accrington); 2, Miss Danielson (Huddersfield); 3, Master Kaye (Top Ten). Fancy Goldfish: 1, Mr. Whitsey (Accrington); 2 and 3, S. Walsh (Accrington). Shubunkins: 1, S. Walsh (Accrington); 2 and 3, J. S. Hall (Aireborough). A.O.V. Coldwater: 1, 2 and 3, J. S. Hall (Aireborough). Section Winner: Mr. Whitsey. A.Y.A.S. Diploma for Best in Show: Awarded to D. Kennedy (Bradford).

THE **Houghton and District A.S.** entertained Hetton C.A.S. to an inter-society show recently when the results were as follow: Class 1: 1, R. Apperley; 2, A. Richardson, 3, J. A. Hellens. Class 2: 1, A. Richardson; 2, Mrs. A. Allinson. Class 3: 1, T. Wrightson; 2, A. Naisbitt; 3, G. Austin. Class 4: 1, Mrs. A. Allinson; 2, H. Leighton. Class 6: 1, 2 and 3, C. A. Enright. Class 7: 1, E. Bunk; 2, R. Allinson. Class 8: 1, T. Wrightson; 2, J. Waugh. Class 9: 1, J. A. Hellens; 2, I. Gardener; 3, H. Leighton. Class 10: 1, C. A. Enright; 2, C. Moist; 3, R. Apperley. Class 11: 1, R. Allinson, 2, F. Bailey; 3, C. A. Enright. Class 12: 1 and 2, H. Leighton. Class 13: 1, R. Apperley; 2, C. Moist; 3, C. A. Enright. Class 14: 1, J. A. Hellens; 2, J. Hall; 3, G. Austin. Class 15: 1 and 2, E. Bock; 3, J. Hall. Class 16: 1, I. Gardener; 2, C. A. Enright; 3, A. Naisbitt. Class 17: 1, C. A. Enright; 2, K. Wilkinson; 3, I. Gardener. Class 18: 1, R. Allinson; 2, J. A. Hellens; 3, J. Hall. Class 19: 1, C. A. Enright; 2, J. Hall; 3, H. Gardener. Class 20: 1 and 3, K. Wilkinson; 2, C. A. Enright. Class 21: 1, C. A. Enright; 2 and 3, C. Moist. Class 22: 1 and 3, G. Moore; 2, K. Wilkinson. Class 23: 1, I. Gardener; 2, K. Wilkinson; 3, C. A. Enright. Class 24: 1, 2 and 3, C. Moist. The Best Fish in the show was a Red Tailed Black Shark, exhibited by J. A. Hellens.

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THERE was a record number of entries at the **Bournemouth A.S.** annual open show. The Best Fish in the Show was a Blind Cave Fish, belonging to P. J. Sparshatt, and the Best Coldwater Fish was a Shubunkin, belonging to D. S. Langdon, of Yeovil. The results of the Show were as follow: Barbs: 1, D. Hargrave; 2, J. Merefield; 3, A. G. Cox; 4, D. Brooks. Characins: 1, P. Sparshatt; 2, C. Beets; 3, G. Carter; 4, J. V. Jeffery. Hemi, Hyphs and Chieodon: 1, C. Beets; 2, J. Merefield; 3, G. Carter; 4, O. Leslie. Cichlids: 1, D. Haines; 2, D. Hargrave; 3, C. Beets; 4, K. Clough. Angels: 1, A. G. Cox; 2, D. Haines; 3, E. Bull; 4, D. Forward. Labyrinth: 1, C. Fisher; 2 and 3, H. S. Pratt; 4, T. Mudge. Toothcarps: 1, 2 and 3, M. E. Cott; 4, K. Brooks. Tropical Catfish: 1, J. Turner; 2, K. Clough; 3, M. Alexander; 4, R. Leslie. Corydoras and Brochis: 1, G. P. Carter; 2, K. Etheridge; 3, T. Blanchard; 4, S. Fagan. Rasboras: 1, G. Orton; 2 and 4, I. Goddard; 3, M. Cocker; Danios and W.C.M.M.: 1, K. S. Pratt; 2 and 4, M. H. Medway; 3, J. V. Jeffery. Loach: 1, S. C. Webster; 2, N. Davis; 3, H. Armitage; 4, R. Leslie. A.O.S. Tropical Egglayer: 1, T. Jones; 2, D. Hargrave; 3, D. Brooks; 4, K. Clough. Pairs: 1, H. S. Pratt; 2, C. Beets; 3, K. Clough; 4, R. G. Redley. Guppies (Male): 1, S. Fagan; 2, D. A. Love; 3, K. Johnson; 4, K. G. Forder. Guppies (Female): 1, J. Scott-Morgan; 2, J. Turner; 3, S. F. Langdon; 4, H. Greenhalgh. Swordtails: 1, T. Mudge; 2, R. G. Redley; 3, N. P. Brown; 4, K. Brooks. Platys: 1, P. Caira; 2, G. P. Carter; 3, H. S. Pratt; 4, N. P. Brown. Mollies: 1 and 4, A. Loveday; 2, R. Cox; 3, T. Blanchard. Singletail Goldfish: 1 and 3, D. S. Langdon; 2, R. J. King; 4, B. Coombes. Common Goldfish: 1 and 2, J. V. Jeffery; 3, N. Collins; 4, B. Coombes. Twintail Goldfish: 1, V. Collins; 2, 3 and 4, R. J. King. A.O.S. Coldwater: 1, V. Collins; 2, V. B. Hunt; 3, E. Binstead; 4, A. J. Davidson. Breeders (Tropical Egglayers): 1, D. V. Jones; 2, S. Fagan; 3, R. Leslie; 4, R. M. Brewer. Breeders (Tropical Livebearers): 1, M. Manabridge; 2, R. Leslie; 3, J. Scott-Morgan; 4, W. J. Merefield. Breeders (Coldwater): 1 and 3, R. J. King; 2, V. Collins; 4, D. S. Langdon. Plants: 1, V. Collins; 2, B. Manabridge; 3, V. B. Hunt.

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RESULTS of **Swillington A.S.** sixth Annual Open Show were as follow: Furnished Jars: 1, B. Megson, 2, B. Stabler; 3, Mrs. Barry. A.V. Coldwater: 1, G. Thickbroom; 2, P. Booth; 3, C. Asquith. Livebearer (Pairs): 1, Mrs. Cohen; 2, B. Stabler; 3, G. Campbell. Egglayer (Pairs): 1, E. and S. Clowes; 2, D. Mosley; 3, J. A. Whiteley. Breeders (Livebearer): 1 and 2, Mr. and Mrs. Cohen; 3, Mr. and Mrs. Dearden. Breeders (Egglayer): 1, H. Kuhn; 2, D. Mosley; 3, J. Mosley. Small Barbs: 1, P. Carey; 2, A. Hudson; 3, S. and A. Thomas. Large Barbs: 1, P. Carey; 2, Mrs. Cohen; 3, J. A. Whiteley. Sharks and Foxes: 1, L. Longfellow; 2, Mr. Scarl; 3, A. Hudson. Small Characins: 1, I. and R. Heptinstall; 2, G. Thickbroom; 3, Mr. and Mrs. Gates. Large Characins: 1, Mr. Duncanson; 2, J. A. Whiteley; 3, Mr. Sullivan. Small Cichlids: 1, H. Kuhn; 2, A. Hudson; 3, I. and R. Heptinstall. Large Cichlids: 1, Miss J. Helm; 2, Mr. Sullivan; 3, K. Aubrey. Fighters: 1 and 2, Mr. and Mrs. Cohen; 3, Mrs. Davies. A.O.V. Anabantid: 1, H. Kuhn; 2, Mrs. Cohen; 3, Mr. Scarll. Corydoras and Brochis: 1, J. Mosley; 2, R. M. Clark; 3, I. and R. Heptinstall. A.O.V. Catfish or Loach: 1, P. Shipley; 2, Miss J. Helm; 3, L. Longfellow. Carps and Minnows: 1, E. and S. Clowes; 2, Mrs. Cohen; 3, T. Douglas. Toothcarps: 1, W. Batley; 2, I. Stephenson; 3, M. M. and A. Crowther. Guppies: 1 and 3, I. Stephenson; 2, Mr. Whitelam. Platies: 1, A. E. Heep; 2, P. Booth; 3, I. and R. Heptinstall. Mollies: 1, B. Stabler; 2, Miss D. Stephens; 3, Master M. Hislop. Swordtails: 1, Mrs. Cohen; 2, Mr. and Mrs. Lofthouse; 3, T. Douglas. A.O.V. Livebearer: 1, Mr. and Mrs. Hall; 2, J. S. Hall; 3, J. A. Whiteley. A.O.V. Tropical: 1, Mr. Sullivan; 2, I. and R. Heptinstall; 3, J. Dernie. Furnished Aquaria: 1 and 2, P. Reynolds; 3, Mrs. Binks. B. Megson received the Swillington A.S. Trophy for Furnished Jars. P. Carey received the Swillington A.S. Trophy for the Best Barb. Mr. Duncanson received the Swillington Trophy for the Best Characin, and I. Stephenson received the Swillington Trophy for the Best Livebearer. The Coral Reef Aquaria Trophy for the best Breeder's exhibit, and the C and D. Trophy for the Best Cichlid went to H. Kuhn and the Jessie Reynolds Trophy for the Best Pair of Fish went to Mrs. Cohen, who also received the Ladies' Trophy for the lady with the highest pointed exhibit. P. Reynolds received the Furnished Aquaria Trophy, G. Thickbroom received the Coral Reef Cup for the Best Coldwater Fish, Mr. Sullivan received the Robin Hood Trophy for the best A.O.V. Tropical, and P. Shipley received the Longfellow Trophy for the Best Catfish or Loach. The Best Exhibit in Show was a breeders team of Harlequins by H. Kuhn, who received the A.Y.A.S. Diploma, and the Best Fish in Show was a Pimelodella exhibited by P. Shipley, who received the Aquarist Gold Pin. The Duralife Trophy for the society team gaining most points went to Castleford, who gained 46 points. York came second with 16, and Swillington third with 13.

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THIS September starts off the third year of one of the most successful new tropical fish clubs in the Midlands, namely **Midland Tropical Aquarists,** with a membership of over eighty. The average attendance over two years is over fifty. The Society has a varied programme throughout the year, slides and films, lectures, visits, inter-society competitions, auctions, junior nights and quizzes. All are welcome to come along to the meetings on the second Wednesday in each month at 7.30 p.m., The Institute, Botterville Road, Acocks Green, Birmingham, or please contact the secretary, M. Harvey, 19 Woodthorpe Road, Kings Heath, Birmingham, B14 6EE. Tel. 444 1229.

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THE **Dagenham Town** Show results were as follow: Furnished Aquaria: 1, K. Appelyard (Thurrock); 2, H. G. Berger (Ilford); 3, D. L. Seaman (Ilford). Barbs: 1, Mrs. Murdock (Harlow); 2, K. J. Barker (London); 3, S. Hedges (Bethnal Green). Characins: 1, R. Kerridge (Harlow); 2, Mr. and Mrs. Burlton (Sladas); 3, S. Hedges (Bethnal Green). Cichlids: 1 and 3, P. Vicker (East London); 2, Mrs. S. Fordham (Thurrock). Labyrinths: 1 and 2, Mrs. M. Tucker; 3, R. Miller (Apex). Egg-laying Tooth Carps: 1, K. Appelyard (Thurrock); 2 and 3, R. C. Smith (Romford). T. Catfish: 1, B. L. Wight (Thurrock); 2, P. Moye (Apex); 3, R. Kerridge (Harlow). Rasboras: 1, P. Vicker (East London); 2, Mrs. M. Murdoch; 3, Mrs. Chambers (Harlow). Danios and WCMM: 1, Mrs. Murdoch; 2, K. Appelyard (Thurrock); 3, Sybil Hedges (Bethna Green). AOS. TE.: 1, S. Hedges (best Tropical) (Bethnal Green); 2, R. Kerridge (Harlow); 3, S. Hedges (Bethnal Green). Swords: 1, P. O'Bryan (Thurrock); 2, Mrs. S. Fordham; 3, D. L. Seaman (Ilford). Platies: 1, Mrs. Murdoch; 2 and 3, P. O'Bryan. Mollies: 1, P. O'Bryan (Thurrock); 2, R. Kerridge (Harlow); 3, Mrs. M. Tucker. AOS (Livebearers): 1, Mrs. M. Tucker; 2, R. Kerridge (Harlow); 3, N. Rowe (Ilford). Single Tail Goldfish: 1 and 2, H. G. Berger (Ilford); 3, Mr. and Mrs. Burlton (Sladas). Twin Tailed Gold Fish: 1 (best Cold Water), Mrs. R. Berger (Ilford). AOS Cold Water: 1 and 2, S. Hedges (Bethnal Green); 3, K. Appelyard (Thurrock). Breeders Livebearers: 1, B. Read; 2, P. O'Bryan (Thurrock); 3, K. H. Wrightson (East London). Plants: K. Appelyard (Thurrock); 2, P. O'Bryan (Thurrock); 3, R. Miller (Apex). Junior Tropical: 1, Jane and Martin Burlton (Sladas); 2 and 3, Trudy Hedges. Junior Cold Water: 1, Trudy Hedges; 2, Y. Wheal; 3, Roy and Paul Tucker. Inter-Club Cup: 1, Thurrock; 2, Harlow; 3, Ilford.

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AT the recent annual general meeting of the **King's Lynn A.S.,** the following officers were elected: Chairman, D. Hutcheson; secretary, B. Capper, 15 Marsh Lane, King's Lynn; treasurer, B. Sumner; committee members, G. Rothwell and A. Ford. Owing to the resignation of the show secretary, his work, for the time being, is being shared by the committee and all correspondence should be sent to the secretary, B. Capper. Following on from the Club's successful stand at the Exhibition of Voluntary Organisations in King's Lynn, they have been invited to put a stand in the Royal Show at Sandringham and are now able to include the "Coat of Arms" and "By Appointment" on their letterheads!

The date has been fixed for the Open Show on Saturday, 30th October, and schedules can be obtained from the secretary. Trade exhibitors are asked to contact A. Ford, 7 Stag Place, King's Lynn, for details. Forthcoming events: 7th September: Talk on Keeping Reptiles. Club Show—open to all classes. 5th October—Quiz. 31st October—Club Open Show.

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THE guest speaker of the month at the **Wednesbury and District A.S.'s** June meeting was A. Nicholson, who gave a lecture on Fish Photography. It was an excellent talk, and some very informative points were given on another branch of the hobby. The results of this month's Table Show are as follow: Danios, Rasboras, W.C.M.M.: 1 and 3, W. Tyson; 2, A. Wood. Danios, Rasboras, W.C.M.M., Class B: 1 and 3, Hickman-Ward; 2, R. Groves. Novice A.O.V. Class: 1, M. Smith; 2, Hickman-Ward; 3, A. Heeley. Best Fish in the Show went to Hickman-Ward's W.C.M.M., and the judge was W. Devisee.

The first Open Show was a great success, and the number of fish entered was 327. Results were as follow: Guppies: 1, L. Coston (Rubery Select); 2, J. Booth (N. Staffs.); 3, Mr. and Mrs. Carter (Bedworth); 4, A. Wright (G.K.N.). Platies: 1 and 2, Attwood & Williams (Rubery Select); 3, K. Laney (Stone); 4, J. Booth (N. Staffs.). Mollies: 1 and 2, V. Knowles (N. Staffs.); 3, A. Cashmore (S. Staffs.); 4, W. Brown (Market Drayton). Swordtails: 1, T. January (Wednesbury); 2, W. Brown (Market Drayton); 3, G. Brockhouse (Lower Gornal); 4, P. Lees (Stone). A.V. Anabantids: 1, J. Booth (N. Staffs.); 2, T. January (Wednesbury); 3, N. Furness (Rubery Select); 4, L. C. Ingram. Barbs (under 3in.): 1, A. Dawes (Wednesbury); 2, T. January (Wednesbury); 3 and 4, R. T.

Smith (Lucas). Barbs (over 3in.): 1, L. Passant (M.T.S.); 2, V. Yarnell (G.K.N.); 3, A. Cashmore (S. Staffs.); 4, W. Brown (Market Drayton). Cichlids (under 4in.): 1 and 4, A. Mawby (Wednesbury); 2, W. Brown (Market Drayton); 3, A. T. Lomas (Bedford). Cichlids (over 4in.): 1, A. Gregory (Haden); 2, Attwood & Williams (Rubery Select); 3, P. Clements (Stone); 4, K. Anker (N. Staffs.). Rasboras, Danios, W.C.M.M.: 1, Attwood and Williams (Rubery Select); 2 and 4, W. Brown (Market Drayton); 3, E. Hyde (Wednesbury). Killifish: 1, K. Laney (Stone); 2, B. Hughes (Stone); 3, D. Highfield (B.K.A.); 4, A. Cashmore (S. Staffs.). Characins (up to 3in.): 1, F. Matthews (Tipton); 2, G. Turner (Binks-Bullows); 3, B. Smith (Lucas); 4, A. Cashmore (S. Staffs.). Characins (over 3in.): 1 and 2, Attwood and Williams (Rubery Select); 3, T. January (Wednesbury); 4, W. Jones (Salop). Breeders (Egglayers): 1 2 and 3, Mr. and Mrs. Carter (Bedworth); 4, K. Linney (Wednesbury). Breeders (Livebearers): 1 and 2, Attwood and Williams (Rubery Select); 3, P. Clements (Stone). Pairs (Egglayers): 1, Attwood and Williams (Rubery Select); 2, A. Gregory (Haden); 3, D. Highfield (Wednesbury); 4, R. Marsden (S.A.S.S.). Pairs (Livebearers): 1, G. Brockhouse (Lower Gornal); 2, Attwood and Williams (Rubery Select); 3, B. Hughes (Stone); 4, B. Dew (M.T.S.). Labeos and Sharks: 1, J. Clayton (Lucas); 2, D. Highfield (Wednesbury); 3, P. Lees (Stone); 4, P. Whitfield (Rubery Select). Corydoras, Cats: 1 and 2, G. Turner (Binks-Bullows); 3, K. Ankers (N. Staffs.); 4, J. Booth (N. Staffs.). A.O.V. Cats: 1 and 3, Attwood and Williams (Rubery Select); 2, R. Cleaver (Rubery Select); 4, A. Dawes (Wednesbury). Loaches, Botia: 1, 2 and 3, A. Gregory (Haden); 4, G. Turner (Binks-Bullows). A.O.V. Tropical: 1, P. Whitfield (Rubery Select); 2, P. Lees (Stone); 3, M. Clarke (N. Staffs.); 4, T. January (Wednesbury). A.V. Tropical Marine: 1 and 2, I. Heeley (B.M.A.A.); 3, G. Wardle (B.M.A.A.); 4, D. Highfield (B.M.A.A.). Best Female in the Show: K. Anker (N. Staffs.); C. Severn. Best Male in the Show: A. Mawby (Wednesbury). Best Fish in Show: A. Mawby, P. Kribensis (Wednesbury). There were 327 entries and the fish were judged by M.A.A.S. Standards with the exception of the Marine Class. This was judged by L. Doubleday (B.M.A.S.) who, together with A. Carr (B.M.A.S.), travelled from Torbay, and displayed a stand of Native Marines. This was a great attraction and created immense interest to the visitors at the show; it was a credit to the tremendous effort put on by the Torbay members.

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THIRTY-FOUR Societies were represented in a very large entry at the **Basingstoke and District A.S.** annual show. The results were: Class Ak: 1, B. Bissoon (Basingstoke); 2, M. Carter (Bracknell); 3 and 4, Mrs. W. Veysey (Salisbury). Class Bs: 1, T. Jones (Weymouth); 2, T. D. Reilly (Anson); 3 and 4, A. Marshall (Basingstoke). A.V. Barb: L. S. Derrick (Croydon); 2 and 4, T. F. Butler (Anson); 3, Mrs. R. Howe (Anson). Class Ca: 1, C. Beets (Havant); 2, J. Batts (Ealing); 3, I. Stemp (Reigate and Redhill); 4, Mrs. J. Garrad (Runnymede). Class Cb: 1, B. Coombes (Bournemouth); 2, M. Carter (Bracknell); 3, L. Derrick (Croydon); 4, B. Bissoon (Basingstoke). A.V. Characin: 1, G. Greenhalf (Kingston); 2, T. Reilly (Anson); 3, A. Smith (Croydon); 4, G. Carter (Weymouth). A.V. Angel: 1, J. Batts (Ealing); 2, Mrs. M. Nethersell (Riverside); 3, J. Healey (Ealing); 4, M. Uden (Reigate and Redhill). Class Db: 1, M. Strange (Basingstoke); 2 and 3, S. King; 4, A. Blake (Basingstoke). A.O.S. Cichlid: 1, I. Strange (Basingstoke); 2, M. Nethersell (Riverside); 3, D. Haines (Gosport); 4, J. Healey (Ealing). Betta Splendens: 1, 2 and 4, S. Applin (Independent); 3, R. Cooper (Kingston). Class Eb: 1, Mrs. J. Pumford (Bath and Bristol); 2, R. Ilsley (Basingstoke); 3, K. Adams (Southend and Leigh); 4, J. Stamp (Freelance). A.O.S. Labyrinths: 1, D. King (Kingston); 2, Mrs. P. Lambourne (Rochampton); 3, R. Orford (Southend and Leigh); 4, J. Hughes (Roehampton). A.V. Egglaying Toothcarps: 1, P. Lambourne (Roehampton); 2, Mr. and Mrs. Fagin (Clapham); 3, D. Haines (Gosport); 4, D. Putt (Basingstoke). A.O.S. Tropical Catfish: 1, 2 and 3, G. Greenhalf (Kingston); 4, J. Batts (Ealing). A.V. Corydoras and Brochis: 1, Mrs. J. Pumford (Bath and Bristol); 2, P. Move (Apex); 3, Mrs. M. Nicell (Reigate and Redhill); 4, T. Reilly (Anson). A.V. Rasboras: 1, Mrs. G. Carter (Bracknell); 2, B. Bissoon (Basingstoke); 3, D. Haines (Gosport); 4, A. Blake (Basingstoke). A.V. Danio and W.C.M.M.: 1, B. Coombes (Bournemouth); 2, J. Wood (Reigate and Redhill); 3, A. Blake (Basingstoke); 4, D. Brooks (Hounslow). A.V. Loach: 1, S. King; 2, M. Gough (Basingstoke, Junior); 3, E. Leavey (Hemel Hempstead); 4, Mrs. P. Lambourne (Roehampton). Class Ma: 1, M. Uden (Reigate and Redhill); 2, D. Dare (Walthamstow); 3, T. Howe (Anson; 4, R. Cook (Basingstoke). A.O.S. Egglaying: 1, Best Fish in Show with a Polypterus Ornatepinnis: R. Ilsley (Basingstoke); 2, Mrs. P. Lambourne (Rochampton); 3 and 4, Mrs. J. Pumford (Bath and Bristol). A.V. Guppy (Male): 1, T. Butler (Anson; 2, M. Mansbridge (Southampton); 3, Mrs. M. Nethersell (Riverside); 4, K. Bissoon (Basingstoke, Junior). A.V. Guppy (Female): 1, D. Biggott; 2, C. Beets (Havant); 3, K. Dryden (Croydon); 4, J. Howe (Anson). A.V. Swordtail: 1, J. Healey (Ealing); 2, D. Wiltshire (Croydon); 3, D. Lyne (High Wycombe); 4, J. Batts (Ealing). A.V. Platy: 1, A. Blake (Basingstoke); 2, Mrs. D. Cruikshank (Kingston); 3, D. Schramm (High Wycombe); 4, L. Little (Bracknell). A.V. Molly: 1, R. Wannell; 2, G. Greenhalf (Kingston); 3, T. Reilly (Anson); 4, Mrs. M. Nethersell (Riverside). A.O.S. Livebearers: 1, C. Beets (Havant); 2, A. Blake (Basingstoke); 3, G. Greenhalf (Kingston); 4, B. Funnell (Uxbridge). Class Nb-m: 1, R. Wright (East Dulwich); 2, G. Carter (Weymouth); 3, Mr. and Mrs. Hudson (Roehampton); 4, A. Sheldon (Bracknell). Class No-t: 1, D. Felton (Croydon); 2, A. Blake (Basingstoke); 3, L. Little (Bracknell); 4, S. Mason (Roehampton, Junior). A.V. Common Goldfish and Comet: 1, M. Ridley (Basingstoke, Junior); 2, 3 and 4, V. Voysey (Salisbury). Class Ubc: 1 and 2, D. Letts (G.S.G.B.); 3, D. Dare (Walthamstow); 4, B. Coombes (Bournemouth). Class V: 1, D. Stokes (Havant); 2, K. Adams (Southend and Leigh); 3, B. Coombes (Bournemouth); 4, R. Drey (Roehampton). A.V. Centrarchidae: 1 and 4, V. Voysey (Salisbury); 2 and 3, E. Binstead (Portsmouth). A.O.S. Coldwater: 1 and 3, V. Voysey (Salisbury); 2, R. Ridley (Basingstoke); 4, E. Binstead (Portsmouth). Class Xb-m: 1, D. Haines (Gosport); 2, M. Gough (Basingstoke); 3, M. Strange (Basingstoke); 4, R. Ridley (Basingstoke). Class Xo-t: 1, P. Ginger (Uxbridge); 2, S. Mason (Roehampton, Junior); 3, R. Orford (Southend and Leigh); 4, R. Cox (High Wycombe). A.V. Rooted Plants: 1, K. Clough (Gosport); 2, T. Blanchard (Salisbury); 3, K. Bissoon (Basingstoke). A.V. Plant Cutting: 1, G. Greenhalf (Kingston); 2, V. Voysey (Salisbury); 3, K. Clough (Gosport). S. Mason of Roehampton won the Junior Trophy. Mrs. I. Strange won the Ladies Cup. Kingston Society won the Visnoes Cup with 31 points. Salisbury second, 29 points, Roehampton and Anson tied for third place with 22 points.

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THE **Llantwit Major A.S.** held their annual general meeting recently when the following members were elected: Chairman: S. Ireland. Vice-Chairman: D. Wiggs; Secretary and Treasurer: J. Thomson, 12 Yewtree Grove, St. Athan, Nr. Barry, Glam. Librarian: Mrs. Jones. Show Secretary: A. Ibberston, 84 St. Mary's Avenue, Barry, Glam. Asst. Show Secretary: S. Nelson. For the next six months a programme has been drawn up with quite a variety of entertainment such as slide shows and inter-club tableshows. Any new members wishing to join, can either write to the Secretary at the above address, contact any club member for information or come along to a club night. Club nights are held at 7.30 p.m. on the second Tuesday of every month at the Lessor Hall (in the main Town Hall) Llantwit Major.

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THE first Inter-Club Show of the **Castleford and District A.S.** was held recently when eight clubs competed and there were about 150 entries. Best society was Castleford 56 points, second being Swillington 17 points, and third Selby 14 points. Best fish in show was a Nigrippinis owned by L. Greenhall, of Tadcaster. Results were as follow: Guppies: B, and I. Heptinstall; 2, Mr. Carter; 3, W. Bastow. A.O.V. Livebearers: 1, Mr. Ellis; 2, W. Stevens; 3, Mr. Scarll. Barbs: 1, M. Keay; 2, D. Stevens; 3, Mr. Scarll. Characins: 1, G. & G. Thickbroom; 2, Mr. Sullivan; 3, B. and I. Heptinstall. Cichlids: 1, C. Rowther; 2, Mr. Scarll; 3, S. and A. Thomas. Catfish and Loach: 1, Mr. Shipley; 2, G. Thickbroom; 3, Mr. and Mrs. Gates. Carps and Minnows: 1, Mr. Scarll; 2, G. and G. Thickbroom; 3, E. and S. Clowes. Siamese Fighters: 1 and 3, Mr. and Mrs. Cohen; 2, M. Hartley. A.O.V. Anabantid: 1, Mr. and Mrs. Cohen; 2, Mr. Whitelock; 3, Mr. Scarll. Toothcarps: 1 and 3, Mr. Greenhall; 2, Mr. Crowther. Livebearers (Pairs): 1, Mr. and Mrs. Cohen; 2, Mr. Hunter; 3, Mr. Faircliffe. Egglayers (Pairs): 1, E. and S. Clowes; 2, P. Reynolds; 3, Mr. Shipley. Breeders (Egglayers): 1, Mr. Kirchen; 2, Mr. and Mrs. Cohen; 3, Mr. and Mrs. Gates. Breeders (Livebearers): 1, Mr. Shipley; 2, Mr. and Mrs. Cohen. A.O.V. Tropical: 1, Mr. Sullivan; 2, E. and S. Clowes; 3, B. and I. Heptinstall. Furnished Jars: 1 and 2, P. Reynolds; 3, Mrs. Asquith.

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THE **Basingstoke A.S.** gave a warm welcome to Mr. John Adams of Guildford A.S. who delivered a most illuminating and informative talk on the care of Marine Fishkeeping. He is an eloquent speaker and brought along some of his specimens as regards fishes and various corals and marine equipment which helped to enlighten the members and to make the evening a pleasant one. Results of the second monthly meeting: 1, B. Cook; 2 and 3, R. Peck. A.O.V.: 1, D. Putt; 2, R. Cook and J. Long; 3, D. Walls; 4 and 5, A. Strudwick.

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THE **Bristol A.S.** was represented at the Bath and West Show at Shepton Mallett. Their exhibit consisted of several competive classes and some furnished aquaria. Also on view were a seventy gallon all glass aquarium housing a small shoal of Piranhas and an "instant garden pool" complete with cascade, water lilies and Bristol Shubunkins. Best in Show and Best Tropical was shown by Eric Wilson and Stanley Lloyd benched the Best Coldwater.

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OFFICERS elected at the Annual General Meeting of the **Rhondda A.S.** to serve for 1971-72 were as follow: Chairman: G. Pinkham; Vice-Chairman: D. Hailey; Treasurer: D. Jones; Secretary: D. Richards; Min. Secretary: D. Embling; Show Secretary: M. Williams; Asst. Show Secretary: J. Pick. The Chairman expressed his thanks to the retiring chairman, Mr. C. Jones, for his unstinting efforts for the Club during his two years in office.

The Shield for highest number of points for the year was awarded for the second year in succession to M. Williams. At this meeting the Club pledged support to the newly formed "Cymru National Aquarists' Association".

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MEMBERS of the **Bournemouth A.S.** heard an interesting talk by Mr. S. Langdon from Yeovil entitled "The Shubunkin" at the July meeting held recently at Kinson Community Centre. He illustrated his talk with slides he had taken of his own fish and

ponds. The Table Show was judged by Mr. L. James, and the results were: Mollies (A.V.): 1, R. Cox; 2 and 3, Mr. Mansbridge. Labyrinths (except fighters): 1 and 3, Mr. Hillier; 2, R. Cox.

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RESULTS of the **Bristol Tropical Fish Club** three day Open Show were as follow: Fighters: 1 and 3, Mrs. C. King; 2, Mrs. W. Eager; 4, T. Brankin. Labyrinths: 1 and 3, G. Furber; 2, S. Green; 4, H. Horsey. Barbs: R. Watts; 2, S. Green; 3, G. Furber; 4, Mrs. W. Eager. Hemmi. and Hyph.: 1, R. Bennet; 2, N. Lavis; 3, Mrs. M. Butcher; 4, H. Horsey. A.O.V. Characin: 1, R. Chapman; 2, B. Dolling; 3, J. Edwards; 4, E. Newman. Angels: 1, A. Bull; 2, E. Newman; 3, J. Edwards; 4, R. Watts. Dwarf Cichlids: 1, Mrs. M. Butcher; 2 and 3, G. Furber; 4, R. Lawrence. A.O.V. Cichlids: 1 and 2, S. Green; 3, R. Watts; 4, D. Bennet. Corydoras: 1, L. Littleton; 2 and 4, R. Day; 3, G. Furber. A.O.V. Catfish: 1, S. Green; 2 and 4, B. Earnshaw; 3, R. Lawrence. A.O.V. Danios, Rasboras and Minnows: 1, B. Sweeney; 2, E. Newman; 3, G. Furber; 4, J. Cassey. A.V. Sharks and Loaches: 1 and 3, G. Furber; 2, B. Earnshaw; 4, R. Day. A.O.V. Tropical Fish: 1, R. Day; 2, B. Earnshaw; 3, G. Furber; 4, D. Bennet. Mollies: 1, S. Bethell; 2, B. Dalling; 3, K. Gale; 4, Mrs. B. Haskins. Swordtails: 1, C. Butcher; 2, T. Brankin; 3, R. Watts. Platies: 1, L. Littleton; 2, D. Carey; 3, M. Butcher; 4, R. Day. Breeders Egglayers: 1, Mrs. C. King; 2 and 4, E. Newman; 3, P. Lewis. Breeders Livebearers: 1, M. Samuels; 2, B. Earnshaw; 3, M. Powell; 4, M. Lerway. Guppies Longtail: 1, H. Horsey; 2, Mrs. B. Haskins; 3, L. Littleton; 4, I. Giles. Guppies Female: 1, L. Littleton; 2, N. Lavis; 3, H. Horsey; 4, J. Edwards. A.V. Sexed Pair: 1, M. Lerway; 2, R. Watts; 3, B. Earnshaw; 4, Mrs. W. Eager. Killifish: 1, J. Norris; 2, 3 and 4, R. Chapman. A.V. Egglayer (Juvenile): 1, M. Powell; 2, 3 and 4, T. Marks. A.V. Livebearers (Juvenile): 1, M. Powell; 2, T. Marks; 3, G. Haskins; 4, M. Eager. Furnished Aquaria: 1, R. Bennett; 2, Mrs. C. King; 3, S. Green; 4, G. Furber. Best Fish in the Show: R. Watts. Highest Points in the Show: G. Furber.

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A MOST interesting talk and demonstration on how to make a glass tank was given by John Henderson at the June meeting of the **Chelmsford A.S.** A slide show of the 1967 British Aquarist Festival was shown with commentary. The table show, of Fancy Guppies, judged by E. Gee, was won by J. Henderson, second and third being K. Turner. Meetings for the rest of the year will be in the Library Basement Room, Civic Centre, Duke Street, Chelmsford, Essex.

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OFFICERS elected at the **Hemel Hempstead A.S.** annual meeting were as follow: chairman, A. Tuffs; vice-chairman, A. Dibley; secretary, P. Trenwith; asst. secretary, Mrs. M. Trenwith; treasurer, C. Whitby; asst. treasurer and librarian, Mrs. M. Whitby; show secretary, P. Tucker; asst. show secretary, S. Collins; social secretary, A. Gowlett; press secretary and editor, Mrs. J. Collins; catering officer, Mrs. P. Fortune; junior secretary, Master G. Trenwith; auditors, T. Gray and R. Pierson. Roy Skipper has accepted the position of president of Hemel Hempstead, Herts.

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THE **Stroud and District A.S.** are holding a second annual convention on the 10th October at the Mid Glos. Technical College, Stratford Road, Stroud. The guest speaker will be Roy Skipper, and there will be other eminent speakers. The convention will start at 3 p.m.

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THE results of the **S.T.A.G.** inter-club show held on the 28th June, was a tie between E. Dulwich A.S. and Clapham A.S. (696½ pts.) for first place, third being Croydon with 667 pts. and fourth, Freelane A.S. 606½ pts.

THE annual open show of the **Alfreton and District A.S.** held in June attracted over 500 entries from 26 Societies and Independents. Results—Guppies (males): 1, 2 and 3, M. Whitlam (Dukeries). Guppies (females): 1, I. Stevenson (York); 2, Mr. and Mrs. Deakin (Nuneaton); 3, R. Holmes (Derby). Platies: 1, 2 and 3, M. Allsop (Alfreton). Swordtails: 1, B. Stabler (section winner); 2, Mr. Deardon (Grimsby); 3, Mrs. B. Cohen (Castleford). Mollies: 1, W. D. Gilding (Retford); 2, M. Allsop (Alfreton); 3, B. Stabler (Hull). A.O.V 1, Mr. and Mrs. Hall (Nuneaton); 2, Mr. Heptinstall (Castleford); 3, I. Stevenson (York). Barbs (small): 1, J. Dernie (Dukeries); 2, Mr. Thickbroom (Castleford); 3, J. Wright (Alfreton). Barbs (large): 1, Mrs. B. Cohen (Castleford) (section winner); 2, E. Smith, jnr. (Sheffield); 3, J. Dernie (Dukeries). Characin (small): 1, Mr. Heptinstall (Castleford); 2, Mr. Goodridge (Grantham); 3, Mr. Thickbroom (Castleford). Characins (large): 1 and 2, D. Sewell (Sherwood) (section winner); 3, Mr. Delaney (Loughborough). Killifish: 1 and 3, S. Hill (Alfreton); 2, Mr. and Mrs. Hardy (Scunthorpe). Minnows and Danios: 1, Mrs. B. Cohen (Castleford) (section winner); 2, E. & S. Clowes (Castleford); 3, D. Sewell (Sherwood). Sharks and Foxes: 1, R. Harlow (Derby); 2, Mr. Thickbroom (Castleford); 3, Mr. Delaney (Loughborough). Rasboras: 1, R. Clarke (Sherwood) (section winner); 2, E. Stanton (Sheffield); 3, Mrs. Huberts (Independent). Cichlids (dwarf): 1, Mr. Heptinstall (Castleford) (section winner); 2, Mr. Thickbroom (Castleford); 3, H. Kuhn (Lincoln). Cichlids (large): 1 and 3, Mrs. Huberts (Independent); 2, C. Huckle (Sherwood). Angels: 1, D. Sewell (Sherwood); 2, Mrs. Igoe (Sherwood); 3, E. Smith, jnr (Sheffield). Catfish: 1, D. S. Sewell (Sherwood); 2, Mr. Heptinstall (Castleford); 3, N. Jackson (Worksop). Loaches 1, Master M. Igoe (Sherwood) (section winner); 2, D. Sewell (Sherwood); 3, Mr. Thickbroom (Castleford). Siamese Fighters: 1, J. Rhodes (Scunthorpe); 2, A. Mawson (Worksop); 3, Mr. and Mrs. Cohen Castleford). A.O.V. Anabantids: 1, Mrs. B. Cohen (Castleford) (section winner); 2, John and Stella (Sheffield); 3, K. Frew (Castleford). Pairs Egglayers: 1, E. and S. Clowes (Castleford) (section winner); 2, R. Clarke (Sherwood); 3, Mr. Dearden (Grimsby). Pairs Livebearers 1, Mr. Heptinstall (Castlefoed); 2, Mrs. B. Cohen (Castlefoed); 3, B. Stabler (Hull). Junior Egglayers: 1, Master S. Clarke (Sherwood) (section winner); 2, Master J. Thickbroom Castlefoed); 3, Master M. Igoe (Sherwood). Junior Livebearers: 1, Master G. Whitlam (Dukeries) (section winner); 2 and 3, Master A. Bull (Derby). Goldfish and Comets: 1, Mr. Thickbroom (Castlefoed); 2, Mr. Toyne (Sheffield); 3, Mr. Commander (Tamworth). Shubunkins: 1 and 2, John and Stella (Sheffield) (section winner); 3, Mr. Thickbroom (Castlefoed). Fancy Goldfish: 1, R. Harrison (Independent); 2, Mr. and Mrs. Deakin (Nuneaton); 3, C. Hill (Nottingham). A.O.V. Coldwater: 1, C. Hill (Nottingham); 2, Mr. and Mrs. Hickinbottom (Sheffield); 3, C. Huckle (Sherwood). Breeders Egglayers: 1, D. Sewell (Sherwood) (section winner); 2, Mr. and Mrs. Cohen (Castlefoed); 3, S. Hill (Alfreton). Breeders Livebearers: 1, J. Igoe (Sherwood); 2, Mr. and Mrs. Cohen (Castlefoed); 3, Mr. Dearden (Grimsby). Novice: 1, Mr. Blundell (Thorne) (section winner); 2, J. Hickinbottom (Sheffield); 3, P. Heptinstall (Castlefoed). Best in Show went to Mrs. B. Cohen (Castlefoed) for a Dwarf Gourami, and she also received the Aquarist Gold Pin, the J. Armott Cup and the Ladies' prize. The society rose bowl also went to Castlefoed A.S.

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THE **Keighley A.S.** met on the lawn at Mr. Cordingley's home and held a very enjoyable meeting. The results for the evening were: Fish of the Month, Breeders: 1 and 2, Mrs. Gear; 3, Master D. Mosley. Any other variety: 1, J. Mosley; 2, Mrs. Taylor; 3, Mr. Hart.

AT the first annual open show of the **Port Talbot A.S.** 389 entries were benched and 500 people passed through the doors during the three hours the show was open to the public.

Results: Best Fish in show: R. Hoare with a Botia modesta from the Harlech A.S., Cardiff, also taking the Champion of Champions Gold Pin. Highest Aggregate Points: R. Hoare 768½ points. Member with Best Fish: Mr. and Mrs. W. Johnson, Killifish. Best Coldwater Fish in Show: B. A. Harding, Harlech A.S. Best Fish entered by a Junior: Miss Carol Rupert, P.T. & D.A.S. Most Unusual Fish in Show: Mrs. C. A. Wallis, Porthcawl A.S. Member with Highest Aggregate Points: Miss Carol Rupert, 666 points. Barbs (under 3 in.): 1, Dennis Jones (Rhondda A.S.); 2, Master Kevin Williams (Rhondda A.S.); 3, R. Hoare (Harlech A.S.); 4, John Rice (P.T. & D.A.S.). Barbs (over 3 in.): 1 and 2, Mrs. W. G. Eager (Bristol); 3, W. B. Rice (P.T. & D.A.S.); 4, John Rice (P.T. & D.A.S.). Hyphessobrycon, Hemmigrams, Cheirdon: 1 and 4, R. Hoare (Harlech A.S.); 2, S. Nelson (Llantwit Major A.S.); 3, C. Turner (Cardiff A.S.). A.O.V. Characins: 1, W. B. Rice (P.T. & D.A.S.); 2, Robert Eager (Bristol); 3, B. A. Harding (Harlech A.S.); 4, R. Hoare (Harlech A.S.). Apistogrammas, Nannacara, Pelmatochromis: 1, Mr. and Mrs. M. Williams (Rhondda A.S.); 2, R. Hoare (Harlech A.S.); 3, Ann Llewellyn (Porthcawl A.S.); 4, C. Turner (Cardiff A.S.). Angel Fish: 1, T. Hamshire (Bristol); 2, Mrs. M. M. Dugmore (P.T. & D.A.S.); 3, Ann Llewellyn (Porthcawl A.S.); 4, C. Turner (Cardiff A.S.). A.O.V. Cichlid: 1, D. R. Warmeant (Cardiff A.S.); 2, S. Green (Bristol); 3, Dick Richards (Rhondda A.S.); 4, A. M. Player (P.T. & D.A.S.). Corydoras and Brochis: 1, Mrs. R. Huzn (Rhondda A.S.); 2 and 3, Mr. and Mrs. M. Williams (Rhondda A.S.); 4, R. Hoare (Harlech A.S.). A.O.V. Catfish: 1, B. Snell (Bristol); 2, W. B. Rice (P.T. & D.A.S.); 3, S. Green (Bristol); 4, Mr. and Mrs. M. Williams (Rhondda A.S.). Botia Loaches and Eels: 1, R. Hoare (Harlech A.S.); 2, J. Cillia (Penarth A.S.); 3, Master Kevin Williams (Rhondda A.S.); 4, C. F. Box (Penarth A.S.). Rasbora, Danio, Minnows: 1 and 2, R. Hoare (Harlech A.S.); 3, Robert Eager (Bristol); 4, W. Lembrick (Harlech A.S.). Killifish: 1, Mr. and Mrs. W. Johnson (P.T. & D.A.S.); 2, Mrs. W. G. Eager (Bristol); 3, Mr. and Mrs. R. Newton (Harlech A.S.); 4, J. Cillia (Penarth A.S.). Siamese Fighters: 1, Mrs. W. G. Eager (Bristol); 2, M. K. Swennson (Penarth A.S.); 3, R. Hoare (Harlech A.S.); 4, J. Patterson (P.T. & D.A.S.). Guppies (male): 1 and 2, J. Cillia (Penarth A.S.); 3, Mr. and Mrs. R. Newton (Harlech A.S.); 4, C. F. Box (Penarth A.S.). Guppies (female): 1, J. Cillia (Penarth A.S.); 2 and 4, Mrs. W. G. Eager (Bristol); 3, A. M. Player (P.T. & D.A.S.). Anabantids: 1, D. D. Hayman (Velindre A.S.); 2, D. John (Velindre A.S.); 3, Mr. and Mrs. M. Williams (Rhondda A.S.); 4, R. Bishop (Bristol). Swordtails: 1, W. B. Rice (P.T. & D.A.S.); 2, J. Cillia (Penarth A.S.); 3, C. Pass (Bryncethin); 4, Mr. and Mrs. M. Williams (Rhondda A.S.). Platies: 1, Ann Williams (Porthcawl A.S.); 2, J. Thomson (Llantwit Major A.S.); 3, R. Hoare (Harlech A.S.); 4, J. Egan (P.T. & D.A.S.). Mollies: 1, Mrs. R. Lane (P.T. & D.A.S.); 2, J. Gribble (Penarth A.S.); 3, C. Pass (Bryncethin); 4, Malcolm John (P.T. & D.A.S.). A.O.V. Tropical Fish: 1 and 4, Mrs. C. A. Wallis (Porthcawl A.S.); 2, B. Snell (Bristol); 3, B. A. Harding (Harlech A.S.). Breeders Team Egglayers: 1, D. R. Warmeant (Cardiff A.S.); 2, R. Eager (Bristol); 3, S. Nelson (Llantwit Major A.S.); 4, D. Noble (Bristol). Breeders Team Livebearers: 1, R. Eager (Bristol); 2, R. Bishop (Bristol); 3

and 4, Mrs. Betty Lane (P.T. & D.A.S.). Junior Coldwater Fish: 1, 2, 3 and 4, Miss Carol Rupert (P.T. & D.A.S.). Junior Tropical Fish: 1, Kevin Williams (Rhondda A.S.); 2, C. Pass (Bryncethin); 3, Gillian Lane (P.T. & D.A.S.); 4, M. Esger (Bristol). Shubunkins: 1, 3 and 4, Mrs. E. Rupert (P.T. & D.A.S.); 2, A. M. Player (P.T. & D.A.S.). Goldfish: 1, 2 and 3, B. A. Harding (Harlech A.S.); 4, A. M. Player (P.T. & D.A.S.). Sex Pairs: 1 and 2, Mr. & Mrs. M. Williams (Rhondda A.S.); 3, Mr. and Mrs. Esger (Bristol); 4, D. S. Leonard (Velindre A.S.).

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THE **Portsmouth A.S.** inter-club show was very well supported by the Societies in the South, making the show a very enjoyable and successful event. The winning Society was Kingston and District A.S. with 25 points, second being Basingstoke and District A.S. with 22 points. Third was Gosport and District A.S. with 17 points, and fourth, Havant and District A.S. with 15 points.

The Societies attending the show were: Kingston, Basingstoke, Gosport, Havant, Bracknell, Brighton, New Forest, Southampton, Salisbury, Reigate and Redhill, Isle of Wight, Littlehampton and Bognor, and Mid-Sussex. The winners of the 12 classes were: Class B. Southampton; Class C. Havant; Class G.H. Gosport; Class D. Basingstoke; Class J.K. Kingston; Class F. Kingston; Class B. Kingston; Class O.T. Brighton; Class M. Basingstoke; Class U. Kingston; Class V. Basingstoke; Class W. Gosport.

During the show a key was found and has not yet been claimed.

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THE pools in the **Coventry Pool and Aquarium Society** recently held garden pools competition were of a very high standard although due to bad weather conditions at the time of judging, only two lillies were out. Results: 1, B. Bromfield; 2, F. Shipston; 3, J. Wyleman; 4, E. Wilkins. Results at the recent table show, a M.A.L. eliminator, were: Livebearer Broods: 1, B. and F. Hirst; A.V. Characins: 1, E. Sheehy; A. V. Coldwater: 1, D. Easingwood.

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AT the **Suffolk Aquarist and Pondkeepers Association** annual general meeting in May, the President W. Card gave the report on the past year, and this had shown an increase in membership and activities.

The treasurer W. Chapman announced that a profit had been made although considerable equipment had been purchased for the colour fish 70 show in October. The following Officers were then elected: Chairman, F. Fellingham; Secretary: F. Auffeet; Asst. Secretary: Mr. Hart; Treasurer: L. Jenny; Show Secretary: K. Cocker; Asst. Show Secretary: Mr. Richardson; Coldwater Fish Advisor: W. Clark; P.R.O.: Mrs. S. Farrow. The members then had a very interesting colour slide show of the Highlands Water Garden. Winner of the table show was Miss Auffeet, and Mr. Cocker was presented with a cup for having the highest points throughout the year in table shows.

Change of Secretary: New Secretary: Mr. F. Auffeet, 9 Prospect Street, Ipswich, Suffolk.

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RECENTLY the members of the **Mid Sussex A.S.** were shown a slide show and listened to a tape on Labyrinth Fish. This was made by one of the other Societies affiliated to the F.B.A.S. and proved to be very interesting. The "Labyrinths" show was followed by a selection of slides provided by the vice-chairman, Mr. Soper, some of which were of a number of different "Livebearer" species, particularly swordtails, and others were slides showing activities of the Society in recent months. These latter slides had been taken by Society members. There was a question time after the Show on related subjects. Mr. Robinson, the Chairman announced that the stall held at the local Goose Fair had been quite successful as their were a number of enquiries about the Society. The Chairman also announced that the family outing to Windsor Safari Park had been both popular and successful. The table show for Labyrinths, Danios, Minnows and Rasboras was judged by Mr. Tomkins (F.B.A.S.) who awarded the prizes as follows: Rasboras: 1, C. West; 2, B. Slade; 3, E. Johnson. Labyrinths: 1 and 2, D. Soper; 3, L. Edwards. Danios and Minnows: 1, J. Walker; 2, A. Kwaswiewski; 3, D. Soper.

Any one interested in attending will be made most welcome. Further information on the Society may be obtained from the Secretary J. Reeve, 36 Rumbolds Lane, HH 3702 evenings only.

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RESULTS of the **Stretford and District A.S.** were as follow: Guppies: 1, D. Harvey (Ind.); 2, G. Geand (Stretford); 3, Mr. and Mrs. Ormisher (Sandgrounders). Mollies: 1, Mr. and Mrs. Lewis (Merseyside); 2, Mr. Woods (Sunnybrow); 3, A. Stear (Stretford). Swordtails: 1, P. M. J. Lund (Merseyside); 2, G. Kilvington (Doncaster); 3, Mr. and Mrs. Wells (Doncaster). Platies: 1, Mr. and Mrs. Ross (Belle Vue); 2, Mr. and Mrs. Riseley (Ashton); 3, J. S. Hall (Aireborough). Dwarf Cichlids: 1, A. Gleave (Stretford); 2, Mr. and Mrs. Grimshaw (Sunnybrow); 3, G. W. and A. K. Jackson (Belle Vue). Medium Cichlids: 1, Master Ashton (Middleton); 2, Mr. Colrayne (Middleton); 3, B. and B. Bucker (Morecambe Bay). Large Cichlids: 1 and 3, Mr. and Mr. Wilkes (Middleton); 2, Mr. and Mrs. Ormisher (Sandgrounders). Angels: 1, G. W. and A. K. Jackson (Belle Vue); 2, Mr. and Mrs. Brearley (Belle Vue); 3, B. Catterall (Stretfoed). Eighters: 1, Mr. and Mrs. Cobb (Belle Vue); 2 and 3 P. Shackleton (Belle Vue). Gouramies: 1, Mr. and Mrs. Lomas (Merseyside); 2, E. Birchwood (Oldham); 3, B. Catterall (Stretford). A.O.V. Anabantids: H. Williams (Oldham); 2, Master I. Peck (Loyne). Small Barbs: 1, R. and A. Johnson (Ashton); 2, Miss B. Kaye (Top Ten); 3, H. Williams (Oldham). Large Barbs: 1, I. Rowbottom (Hyde); 2, R. Bowling (Sunnybrow). Small Characins: 1, Miss B. Kaye (Top Ten); 2 and 3, G. W. and A. K. Jackson (Belle Vue). Large Characins: 1, Mr. and Mrs. Lomas (Mersey); 2, Mr. Wilkie (Stretford); 3, B. and B. Bucker (Morecambe Bay). Carps and Minnows: 1, Mr. and Mrs. Ross (Belle Vue); 2, Mr. and Mrs. Ormisher (Sandgrounders); 3, Mr. and Mrs. Heap (Belle Vue); Corydoras Cats: 1, R. Davies (Belle Vue); 2, J. Mousley (Keighley); 3, Mr. and Mrs. Grimshaw (Sunnybrow). A.O.V. Cats: 1, R. Antonio (Northwich); 2, A. Gleave (Stretford); 3, T. Hunt (Stretford). Loaches and Eels: 1, Mr. and Mrs. Heap (Belle Vue); 2, B. and B. Bucker (Morecambe); 3, D. and R. Standard (Loyne). Sharks and Flying Foxes: 1, I. Rowbottom (Hyde); 2, Mr. and Mrs. Ashton (Middleton); 3, D. and R. Standard (Loyne). Goldfish: 1, J. S. Hall (Aireborough); 2, Mr. and Mrs. Brearley (Belle Vue); 3, Mr. and Mrs. Cobb (Belle Vue). Shubunkins: 1 and 2, J. S. Hall (Aireborough); 3, Master A. Kaye (Top Ten). Fancy Goldfish: 1, Mr. Walsh (Accrington); 2, Master I. Peck (Loyne); 3, J. S. Hall (Aireborough). A.O.V. Goldfish: 1, K. Prescott (Ind.); 2, J. S. Hall (Aireborough); 3, S. Miller (Belle Vue). Pairs (livebearers): 1, A. Swain (F.G.A.); 2, G. Stewart (Hyde); 3, A. Clarke (Ind.). Pairs (egglayers): 1, Miss B. Kaye (Top Ten); 2, Mr. Grand (Sandgrounders); 3, Mr. Goodman (Middleton). Breeders (live): 1, E. Grindley (Stretford); 2, Mr. and Mrs. Pearson (Sunnybrow); 3, P.M. J. Lund (Merseyside). Breeders (egg): 1, Mr. and Mrs. Wells (Doncaster); 2, Mr. and Mrs. Pearson (Sunnybeow); 3, J. Higgins (Oldham). A.O.V. (not listed): 1 and 2, D. and R. Standard (Loyne); 3, Mrs. I. Jones (Ind.). Junior Egglayers: 1, Master D. Stear (Stretford); 2, Master A. Kaye (Top Ten); 3, Miss A. Gregory (Nelson). Junior Livebearers: 1, Master A. Kaye (Top Ten); 2, J. Keatings (Heywood); 3, L. Corns (Heywood). A.V. Plants: 1 and 2, Mr. and Mrs. Brearley (Belle Vue); 3, G. Kilvington (Doncaster). Mini Furnished Aquaria: Mr. and Mrs. Cobb (Belle Vue); 2, E. Birchwood (Oldham). Best Fish in Show—Pengasius Catfish: R. Antonio (Northwich).

THE **Ilford and District Aquarist' and Pondkeepers' Society** July meeting was devoted mainly to the table show and results of the annual home pond competicion. Judges gave detailed accounts of each pond and pointed out where entrants had gained and lost points on specific aspects, ranging from position, construction, condition and achievement in design. The results were as follow: 1, Mr. Knott; 2, Mrs. Rowe; 3, Mr. Grounds.

The other half of the meeting was centred upon the entries in the monthly table show in which there were four separate classes.

The results were as follow: A.V. Barbs: 1, M. Perry; 2 and 4, D. Seaman; 3, J. Rendol. A.V. Mollie: 1, 2 and 4, W. Rowe; 3, J. Rendol. A.V. Catfish: 1, R. Ruth; 2, 3 and 4, W. Rowe. A.V. Single Tail Pondfish: 1, 2 and 3, W. Rowe. Best Fish in the Show: Cherry Barb—M. Perry.

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AT the last meeting of **Tonbridge and District A.S.**, F.B.A.S. judge Dick Armstrong gave a very interesting talk on live foods and feeding. He supported his talk with specimens of some of the preparations and apparatus he does including a drip feed device as used in hospitals. As he is also Species Controller of the B.K.A., one class in the Table Show was naturally Killifish, which was won by Tonbridge and B.K.A. member John Bellingham. The other class was F.B.A.S. class H, Corydoras and Brochis, and this was won by Iain Mathieson.

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THE **Telford A.S.** are holding regular Table Shows and other entertainments at the Scout Hall in Hadley. At the July meeting twenty-six members attended and were entertained by Ron Tench who gave an excellent talk on foods and feeding. The Table Show for the evening consisted of two classes: Barbs and Plants. The results were as follow: Barbs: 1 and 2, R. Rowley; 3, Ch. Sanders. Plants: 1, M. Thorneycroft; 2 and 3, D. C. Sanders. Anyone wishing further information about this Society should contact either R. Hughes, 105 Stonedale, Sutton Hill, Telford, Shropshire (club secretary) or M. Thorneycroft, "Marden," 23 Orchard Close, Ketley, Telford, Shropshire, TF1 4HA (publicity officer).

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RESULTS of the recent Table Show of **S.A.D.A.S.** were as follow: Guppy (male): 1 and 2, A. Allen; 3, L. De Souza. Guppy (female): 1, T. Honey; 2, R. Knight; 3, B. Withes. Swordtail: 1, G. Evans; 2, L. De Souza. Platy: 1, R. J. Miles; 2, L. De Souza; 3, G. Evans. Molly: 1, B. Withes; 2, V. Young; 3, A. Young. A.O.S.: 1, R. A. Miles. The next meeting will be 15 September 1971, when there will be a Table Show for the following classes: Barbs; Characins; Labyrinth; A.V. Catfish; A.V. Coldwater.

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SHOW CANCELLATION

THE Open Show of the **Warrington A.S.** scheduled for 12 September has been cancelled.

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SECRETARY CHANGES

OWING to ill health, Miss M. D. Smith has resigned her position as secretary, with the **Glossop A.S.** The new secretary is Mrs. M. Brearley, 9 Waterside, Hadfield, Hyde, Cheshire SK14 7BR.

Suffolk Aquarist and Pondkeepers Associations: F. Auffret, 9 Prospect Street, Ipswich, Suffolk.

Northampton and District A.S.: R. V. Taylor, 4 Mallory Walk, Parklands, Northampton.

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CHANGE OF ADDRESS

South Derbyshire and District A.S.: secretary—A. Hunt, 2 Bretlands Way, Burton-on-Trent, Staffs.

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CHANGE OF VENUE

THE **Northampton and District A.S.** now meets at: The Fish Inn, Fish Street, Northampton. The meetings are held on the first Tuesday in each month at 7.30 p.m.

AQUARIST CALENDAR 1971

4th September: Bethnal Green A.S. Open Show, Bethnal Green Institute, 229 Bethnal Green Rd., London, E.2. Schedules from S. G. Cowell, 26 Dunton Rd., Leyton, London, E10 7AF.

4th September: Rhondda A.S. Third Annual Open Show to be held at the Rhondda Transport Club, Porth. Please contact the show secretary, M. Williams, 122 Top Trebanog, Trebanog, Porth, Rhondda.

4th September: Yate and District A.S. Annual Open Show. Christ Church Hall, North Street, Downend, Bristol. Details from Show Secretary, C. E. Stickland, 20 Burgage Close, Chipping Sodbury, Bristol BS17 6EL.

4th-5th September: Mid-Herts A.S. International Open Show. Schedules from C. S. A. Withers, 15 Charmouth Road, St. Albans, Herts. Tel: St. Albans 58346. Major trophies for all classes.

5th September: Coventry P. and A.S. M.A.L. Show, Foleshill Road Community Centre (A444), Coventry. Open classes: Characins and Cichlids. Details from S. Wooldridge, 32 Ridgeway Avenue, Coventry.

5th September: Wellingborough and District A.S., Drill Hall, High St. Wellingborough. Schedules from Show Secretary, Mr. J. Phillips, 19 Barnwell Drive, Rushden, Northants.

5th September: Huddersfield Tropical Fish Society. Open Show at the Town Hall, Huddersfield.

5th September: Weymouth and District A.S. Open Show, Small Sydney Hall, Weymouth. Details from Mr. Hatton, 53, Brownlow Street, Weymouth.

5th September: Lucas Aquarium Pool Society First Open Show at J. Lucas Ltd., Gate No. 4, Spring Road, off Shaftmoor Lane, Hall Green, Birmingham, 28. Show Secretary, G. H. Roberts, 30 Charles Road, Solihull, Warks.

10th-11th September: Bristol A.S. Open Show, St. Michaels Parish Hall, Bishopston. Show Secretary, S. Lloyd, 4 Curlew Close, Frenchay Park, Bristol. Tel: 656532.

11th September: North Kent Open Show, Sweyne School, Swanscombe, Kent. Details from P. Robinson, 21 Westgate Road, Dartford, Kent.

11th September: Penarth A.S. Second Open Show, St. Augustine's Church Hall, Albert Road, Penarth, S. Wales. Schedules available from A. Trotman, show secretary, 56 Highview Road, Penarth, S. Wales.

11th September: Harwich and District A.S. Annual Exhibition of Tropical Fishes to be held at the Queens Hotel, Dovercourt, from 10 a.m. to 6 p.m.

12th September: B.S.A.S. Eighth Annual Open Show at the Marmion Centre, Marmion Road, Hove. Full details from Roy Browning, 34 Rowan Close, Portslade, Sussex.

12th September: British Killifish Collingham Group. Third Annual Open Killifish Show at the Collingham Memorial Hall, Collingham, Nr. Wetherby. Classes—Killifish only.

12th September: Nottingham and District A.S. Annual Show to be held at a new venue at The Parish Hall, 27-28 Mansfield Road, Selston, nr. Alfreton. Turn off the M1. Change of address of the show secretary to N. R. Kenney, Sherwood Aquatics, 486 Mansfield Road, Sherwood, Nottingham.

12th September: Peterlee and District A.S. Annual Open Show at Edenhill Community Centre, Peterlee, Co. Durham. Show schedules available from W. Worrall, 47 Yoden Road, Peterlee, Co. Durham.

12th September: Barnsley T.F.S. Open Show at the Mapplewell and Staincross Village Hall, Staincross, Barnsley.

18th September: Havant and District A.S. First Open Show at the Deverall Hall, London Road, Purbrooke, Hants. Details from Show Secretary, V. B. Hunt, "Caeglas," 120 London Road, Widley, Nr. Portsmouth.

19th September: Cleveland A.S. Fourth Open Show. Held in British Legion Hall, West Gate, Guisborough, Yorkshire. Show secretary, Mr. Todd, 24 Pendland Ave., Kirkleatham Est, Redcar, Teeside.

19th September: Stone A.S. Open Show, Walton Community Centre, Stone, Staffs. Schedules can be obtained from N. W. Plant, 18a High Street, Stone, Staffs.

20th September: Four Star A.S. Third Open Show, Hemsworth. Further details later.

25th September: Bracknell A.S. Open Show, Priestwood Community Centre, Bracknell, Berks. Schedules available from Les Jordon, 62 Fernbank Place, Ascot, Berks. Tel. Winkfield Row 3400.

25th September: Hounslow and District A.S. Open Show at Youth Centre, Cecil Road, Hounslow (awaiting confirmation).

26th September: Hucknall and Bulwell A.S. Open Show, Bulwell Youth Club, Coventry Road, Bulwell, Nottingham. Schedules obtainable from E. Smith, 111 Longmead Drive, Daybrook, Nottingham.

26th September: Selby and District A.S. first open show, at The Museum Hall, Park Street, Selby. Further information may be obtained from Show Secretary, W. A. Bunnage, 22 Heath Croft, Pulford, York.

26th September: Torbay A.S. Open Show, Town Hall, Torquay, Devon. Show secretary, Mr. J. Bragg, 26 Jordan Street, Buckfastleigh.

26th September: West Cumberland A.S. First Open Show, Civic Hall, Whitehaven, Cumberland. Secretary J. Parker, 2 Southey Avenue, Oregill, Egremont, Cumberland.

26th September: Northampton and District A.S. Open Show at the Drill Hall. Schedules from B. Edwards, 38 Dovecote Road, Northampton.

2nd October: 25th Annual Open Breeders Show, East London. Aquarist and P.A. Judges: C. A. T. Brown, B. Baker, F. Tomkins. Schedules available F. Vicker, 13 Irons Way, Romford, Essex.

3rd October: Ealing A.S. Open Show at Northfields Community Centre, Northcroft Road, London, W.13. Schedules are now available from the Show Secretary, R. Sellers 3a Lady Margaret Road, Southall, Middlesex.

3rd October: Hetton County A.S. annual Open Show at Sherburn Hill Community Centre, Sherburn Hill, nr. Durham City, Co. Durham. Details from Mrs. C. Wilkinson, c/o County Aquatics, Front Street, Hetton-le-Hole, Co. Durham.

5th October: North Kent A.S. Inter-Club Show at the Sweyne School, Swanscombe, Kent. Details from A. Cox, 35 Bridge Road, Slade Green.

9th-10th October: British Aquarists' Festival, Zoological Gardens, Belle Vue, Manchester.

17th October: Sherwood A.S. Second Open Show. Show Secretary, D. Birkbeck, 173 Peter Smith Drive, New Ollerton, Notts.

17th October: Sherwood A.S. Second Open Show. Venue—Thoresby Miners' Welfare Hall, Edwinstowe, Nr. Ollerton, Mansfield, Notts. Schedules available from Show Secretary, J. Igoe, 25 Marples Avenue, Mansfield Woodhouse, Notts.

16th October: Kingston and District A.S. and S.P.A.S.S. annual open show at Territorial Army Centre, Farringdon House, Stonecot Hill, Morden, Surrey. Schedules from G. Greenhalf, 39 Garth Close, Morden, Surrey.

23rd October: Catford Open Show. Schedules from show secretary, J. D. Wilson, 130 Parson Crescent, Lee, London, S.E.12.

24th October: Doncaster and District A.S. Second Open Show to be held at the T.A. Barracks, Sandford Rd., Balby.

31st October: Buxton and District A.S. first Open Show will be held at the St. Thomas Moore School, Palace Road, Buxton. Details from Secretary, J. A. Sneddon, "Rosedale," 29 Dale Road, Dove Holes, Buxton, Derbyshire.

31st October: Halifax A.S. Tenth Annual Open Show at Standeven House, Broomfield Avenue, Halifax. Show Secretary, J. Grundy, 19 Tower Gardens, Wakefield Grate, Halifax.

7th November: Mixenden Tropical Fish Societies Open Show will be held at the Mixenden Community Centre, Clough Lane, Mixenden, Halifax. All enquiries to S. Leedham, 74 Clough Lane, Mixenden, Halifax, Yorks.

14th November: Horsforth A.S. Third Open Show. Further details later.

20th November, 6 p.m.: Hendon and District A.S. Annual Congress at Whitefields School, Claremont Road, London, N.W.2. Speaker: Mr. A. Fraser-Brunner. Details and tickets from R. J. Deacon, 88 Cotswold Gardens, London, N.W.2.

21st November: Castleford and District A.S. Annual Open Show at Castleford Secondary Modern Boys' School, Castleford, Yorks. Details from Secretary, Mr. Eyre, 41 Leatham Crescent, Purston, Featherstone, Yorks.