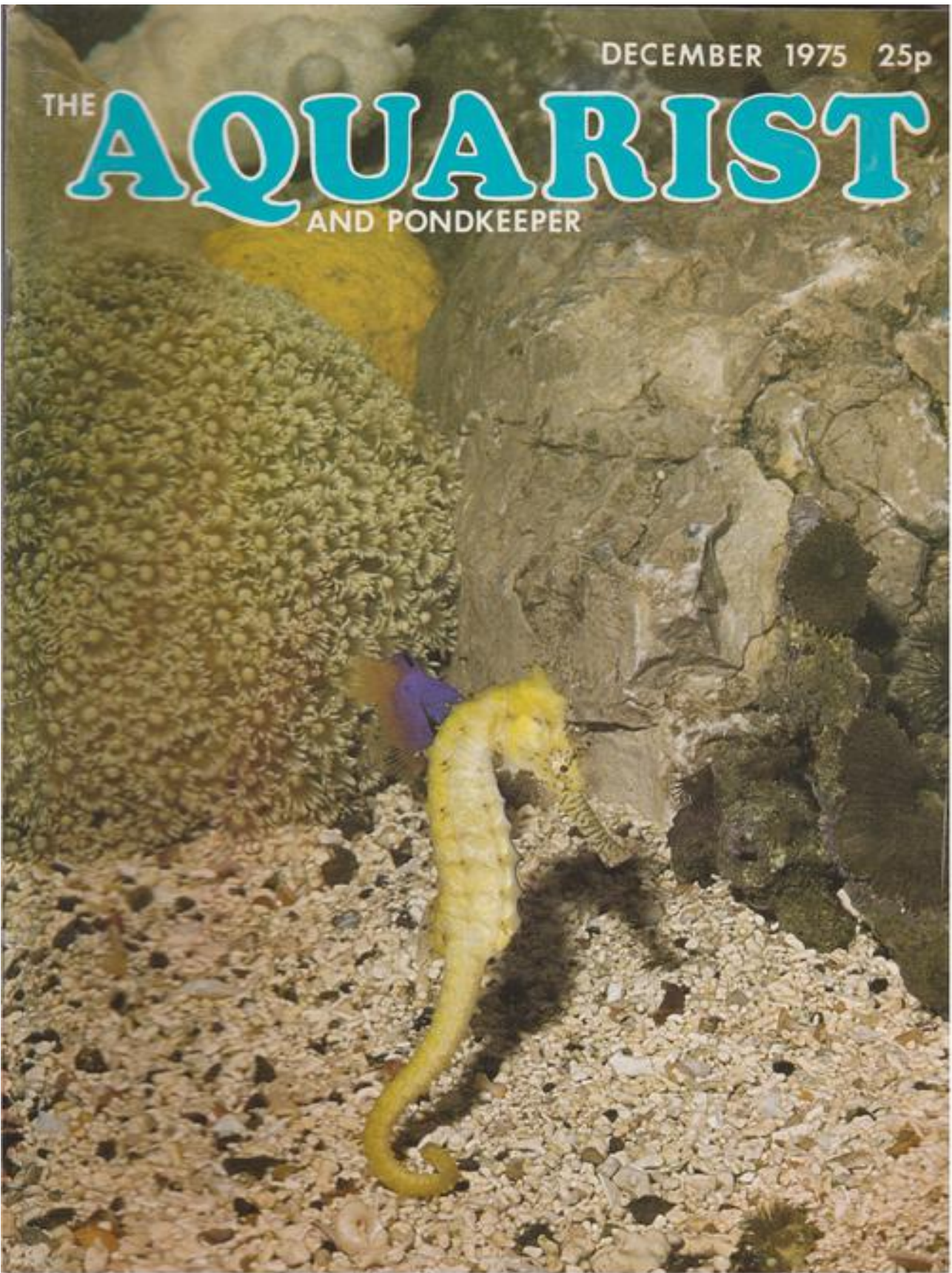


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THE **AQUARIST**
AND PONDKEEPER





THE AQUARIST AND PONDKEEPER

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Seahorse (*Hippocampus* spp)
against a background of stone-
work and living coral.

December, 1975

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The Editor accepts no responsibility for views expressed by Contributors.

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LAKE MALAWI CICHLIDS

SOME OBSERVATIONS

by Bob Purdy

THE MBUNA group of cichlids from Lake Malawi (formerly Lake Nyasa) have, for some time now, found a growing popularity with aquarists in this country. Because of their size and dowdy appearance the other main group of Malawi cichlids, namely the Utaka group, have very little appeal at all and for this reason I will concentrate on the Mbunas. This group of fish inhabits the shallow waters around the edges of the lake and thrives wherever there are algae-covered, rocky substrates.

Their striking colours are, without doubt, the main reason for their popularity and indeed, in some species, the gaudy colours displayed can rival those of marine fishes. Unfortunately, however, the behaviour of Mbunas leaves a lot to be desired; they are amongst the most vicious freshwater fishes found in aquariums today. Male Mbunas are very territorial and once they have staked out their own particular area they defend it against all comers with single-minded ferocity.

In the wild the defender has no need to kill his opponent because the trespassing fish can quickly vacate the area but in the restrictive environment of the aquarium these kinds of skirmishes usually end in death for the transgressor. This is all the more unusual because the trespasser can sometimes be much larger than the defending fish but the outcome is always the same, the defender is always victorious. This phenomenon is probably a mechanism that is built into most species of Mbuna to facilitate easier breeding in crowded conditions but as yet, to my knowledge, no real research has been made into it.

No doubt, in the wild, when a female who is not ready to breed invades a male's territory she is also chased away and can escape undamaged. In the aquarium, however, she usually suffers the same fate as that of a trespassing male, ending up dead or at least badly beaten. When attempting to breed Mbunas, two methods of overcoming this problem have been suggested, both with reported successes.

The first method is to isolate a pair in a small tank, one of about ten gallons will do, with a clear glass or plastic partition dividing it in two. It is then necessary to wait until the fish show signs of wanting to spawn and then remove the partition to allow them to get on with it. Although this method has worked for some aquarists it has only produced problems for me.

No ordinary person can spend all day watching a pair of fish and the urge to spawn inevitably hit my fish when I was absent. Because the fish could see each other through the partition they obviously ignored it and carried on as if it wasn't there. In the evening when the fish were inspected a tell-tale bulge had appeared under the female's chin and on three separate occasions she proved to be carrying a mouthful of useless and infertile eggs.

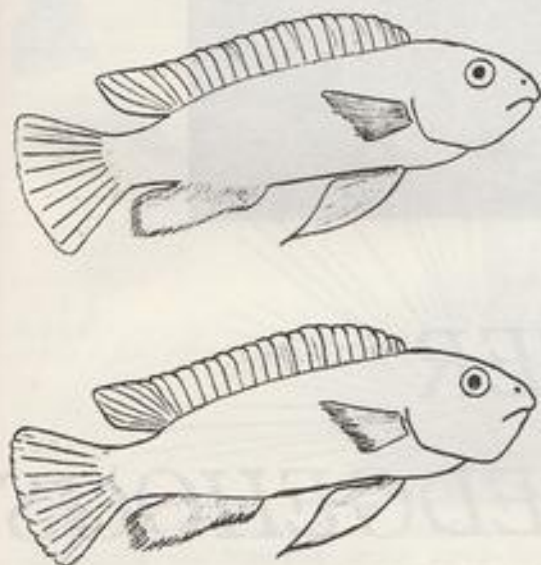
Being a novice at this time I mistakenly assumed, on more than one occasion, that my pair of fish were showing pre-mating signs and quickly removed the partition. On all these occasions the male promptly attacked the female with such ferocity that within less than two minutes she was at the surface, gasping for air, with dorsal and anal fins well and truly ripped to pieces. The fish I was attempting to spawn were a fine pair of *Pseudotropheus auratus* and owing to lack of tank space at the time, I was forced to part with them. These were the only Mbunas that I had so far attempted to breed and for a while I turned my attention to other fish.

Once hooked on Mbunas, however, it was not long before my thoughts turned back to the problem of their propagation and after a while I became acquainted with the second breeding method. Basically this method is much more orientated towards the natural way in which these fish multiply and entails the use of a relatively large tank of about forty gallons or more. An essential part of the system is to provide ample hiding places in the form of caves and rock crevasses and the whole of

the back of the tank should be honeycombed with them. It is also necessary to provide each male with enough room to acquire a territory so the fish should not be crowded in any way. I used seven pairs of Mbuna in a six foot tank (70 gals.) and this, I think, was very close to the maximum.

Mbunas are reasonably easy on plants and this is a big advantage because the tank can be made very attractive and natural looking by the inclusion of sturdy specimens. I avoided putting any other type of fish in the tank as they just don't seem to be able to cope with the speed and ferocity of Mbunas.

The final observation is the actual introduction of the Mbunas to the tank. Great importance is attached to the fact that they must all be placed into their new home at the same time. If only one pair is added at a time the male of the first pair will consider the whole tank as his own and kill any future males placed in it. The introduction of odd females can be a lot less hazardous and usually works out well.



Top: Female Mbuna (*L. trewavasae*) showing normal mouth-shape. Lower: Female Mbuna showing typical angular mouth-shape during brooding.

Once the fish are settled in it is only necessary to watch the females for any signs of eggs in the mouth. These signs are not always as evident as with other genera such as *Tilapia*, but the diagram should be of help to aquarists who have never seen a female Mbuna brooding eggs. When a female is spotted in this condition it is not necessary to net her out straight away, in fact it can be quite dangerous

because the longer a female keeps the eggs in her mouth the less likely she is to spit them out when disturbed. She should be removed to another tank after one or two days.

Most Mbunas brood eggs and offspring for between twenty-two and thirty days and in my own experience tend to start eating again after about the tenth day. How they manage this without swallowing any baby fish (as the eggs have become by this time), baffles me. I think, but can't be sure, that most of the food is used to feed the baby fish inside the mother's mouth; my reason for this belief is the comparatively enormous size of the young fish when they are eventually released. The mother continues to stand guard for two to three days after she has released them, taking the brood back into her mouth at the first sign of danger. In some cases I have witnessed, the mother has also chewed up food and spat a cloud of tiny particles at her young offspring for them to eat.

After two or three days the female ceases to take the brood back into her mouth and at this time can be removed to another tank to recuperate; this should take about two or three weeks after which, with due care, she can be placed back into the Mbuna community tank. The young fry will take just about any of the usual foods such as newly-hatched brine shrimp, chopped-tubifex, smaller particles of flake food and so on. It is not necessary to feed normal fry foods such as microworm because of the large, initial size of the brood members. Brood numbers vary, some species never producing more than six to eight young at a time, but the average is something between twenty and forty depending on size, species and fitness.

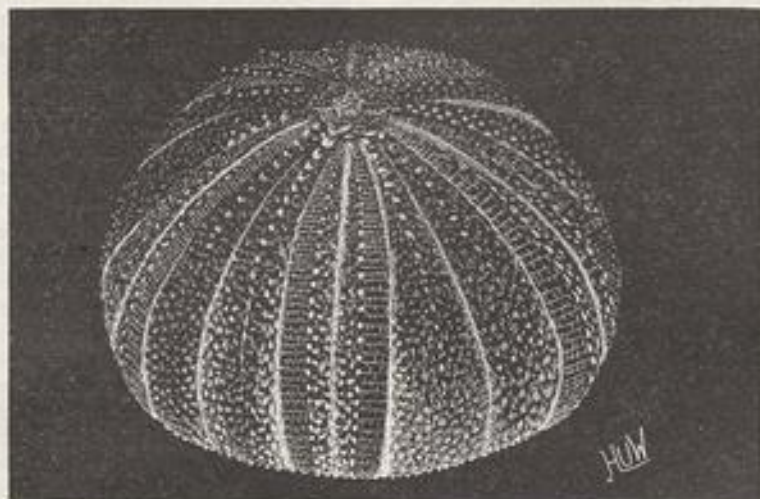
In the wild, Mbunas are used to hard alkaline waters and because my tapwater is very soft and acid I was concerned about the effects it might have. My anxiety, however, has proved to be totally groundless because Mbunas of very many different species have so far been bred under these conditions. Salts can be added to soft, acid water to make it hard and alkaline but the acidity always tends to revert to its original value unless continuous treatment is instituted; the practise of adding chemicals to aquariums should be kept to a minimum in my opinion.

Many species of Mbunas display a phenomenon known as polymorphism in up to four very distinctive forms; in the aquatic trade these are known as morphs. *Pseudotropheus zebra*, for example, can be found in the normal blue, black striped form (BB), the all blue form (B), the orange-blotched form (OB) and the white form (W). Morphs are spread throughout most populations in the wild and freely interbreed one with another and because of this it is not essential to obtain a pair of one particular kind of morph in order to breed it. So

long as one of the parents are of the desired morph a simple application of genetic laws will produce many more of the same kind.

Other characteristics, such as the red or orange dorsal found in *P. zebra* and *Labeotropheus trewavasae*, are not polymorphic in origin and importers, wholesalers and traders have no right to call them morphs. These kinds of mutations are, in fact, evidences of

various sub-species and as such should not be bred to fish suspected of belonging to a different sub-species. In their natural habitat, sub-species of Mbunas do not interbreed because they are geographically separated by up to as much as five hundred miles of open, deep waters and to attempt such matings in the aquarium could result in all sorts of genetic disorders.



UNDERWATER HEDGEHOGS

Written & Illustrated by Huw Collingbourne

HEDGEHOGS, in some country areas, are called urchins, so it is not surprising that some look-alike prickly underwater creatures of the sea have come to be known as sea-urchins.

There are eight hundred species of sea-urchin, ranging in size from just a couple of centimetres

across to half a metre or so from spine tip to spine tip.

Normally browsing on oceanic vegetation, sea-urchins possess a remarkable tooth structure known as "Aristotle's lantern" because of its resemblance to a lantern, first noted by Aristotle more than two thousand years ago.

While most of the familiar sea-urchins live on the sand and weed of the ocean floor, there are exceptions. The native sea-potato or heart urchin, *Echinocardium cordatum*, burrows beneath the sand. Sinking vertically downward, the urchin creates a shaft of some 20 cms. depth. This it lines with mucus and pushes some of its tubefeet upwards through the sand to breathe. Another shaft formed horizontally behind the animal conducts away excrement and the sea-urchin extends



some of its tubefeet in front of it to collect food.

Periodically this burrowing urchin moves itself forward beneath the sand and each time it does so, it constructs a new vertical shaft.

Certain tropical sea-urchins are able to burrow into rock and have even been known to eat their way through steel pier structures!

Armed with a frightening array of porcupine-like spines, sea-urchins, one would think, should be free of predators. But, in fact, that is not so. Even the huge, and sometimes poisonous, tropical sea-urchins have their enemies. Perhaps the most successful of their predators are the bizarre trigger fishes of the tropics. These parallelogram fishes are hard skinned with powerful jaws and eyes set far enough back on the

body to enable the fish to dive right amidst its victim's spines without receiving a debilitating poke in the eye.

But there is one predator more effective even than the trigger fish, and poses a far greater threat to the ocean's urchin population. That predator, sadly, is man.

While the gourmet palate may be insatiable, unfortunately the urchin population is not infinite and some types of sea-urchin are, year by year, becoming less and less common.

In France, the small purple *Paracentrotus lividus* has been a popular gourmet food for many years. Found in profusion in the Mediterranean until quite recently, it has been eaten for thousands of years, and began to become fashionable among Parisians in the nineteenth century. Then, at the turn of the century, the larger urchins found in the waters around Brittany began to gain in popularity.

Mass exploitation of these sea-urchins really began in 1930. Prior to that date, *P. lividus* could always be found in abundance on the shore, but by 1974, (when a survey was undertaken*) hardly any specimens could be found—the few that were discovered were found in the nooks and crannies of very deep salt-water pools protected from the urchin collectors by surrounding cliffs rising vertically from the sea. And even in these inaccessible regions, each kilometre of shoreline yielded just ten urchins.

In the 1960s the Breton urchin population had become so depleted that the French found it necessary to import specimens from the Irish coast, and, in the shops, canned Japanese urchin roe had begun to supplement the home-collected roes.

By 1972 the markets of Paris had to rely on fresh supplies of the smaller urchins from the Mediterranean once again.

Now, aside from the roe of the urchin, the only edible parts of the animal are its voluminous sex organs. These are located inside the test or shell of the animal which is protected by numerous hard spines.

It has been suggested recently that a U.K. sea-urchin fishery should start fishing for the common, large, red to purple urchin, *Echinus esculentus* found in profusion off the Cornish coast.

The brittle, pin-holed test of this creature is a familiar holiday souvenir and is frequently used as an ornamental novelty lampshade. The requirements of the tourist trade have so far proved to be not too demanding on the Cornish urchin population. But, bearing in mind the experience of the French, what effect could the gourmet food industry have upon the British sea-urchin population?

*"Endangered Urchins" . . . Dr. Alan Southward and Dr. Eve Southward. ("New Scientist", April 11th, 1975).

WHAT IS YOUR OPINION?

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

Photographs by the Author



I WISH to extend to all my readers my very best wishes for a pleasant and peaceful Christmas; and my warmest thanks to those of you who were kind enough to send me letters expressing opinions for inclusion in this feature in 1975. Despite soaring postage costs I hope you will continue to contribute in 1976. Readers are reminded that this feature is open to anyone who has an opinion he or she wishes to express—although I would again like to state that I accept no responsibility for the opinions expressed by contributors and that I do not necessarily agree with the views expressed. Opinions are, by their very nature, personal and subjective, and, hence, open to criticism.

The first of this month's letters reached me from the other side of the world. It comes from Mr. Heinz Bruegmann, who resides at 1 Massey Square, Apt. 2318, Toronto Canada, M4C 5L4. To retain the style and tone of Mr. Bruegmann's letter I have left his English as it was written. He states: "After reading for the first time an issue of *The Aquarist and Pondkeeper* I must congratulate you and everybody involved with this beautiful magazine. I know that this first issue in front of me, July 1975, is not the last one I read. In the end of your W.Y.O.? you requested readers to let you know about successful breedings of shark species. Well, I'm just starting to get my ruby sharks spawning and I will have to wait a little more until I can tell you my results or failures. However, I have a pair of red-tailed black sharks and a pair of ruby sharks. Something must have happened to my ruby shark as the colour is peeling out of its fins and instead of looking black he now looks light grey. I put some cure in my tank and hope that it will solve this problem; but nobody seems to know what sort of disease this is. Otherwise, the fish is alert and doesn't show any discomfort. Also, I find in all my books enough reading material about red-tailed black sharks but nothing whatsoever about ruby sharks. Maybe you can be of some assistance in this matter? Also, I want to mention that three years ago I gave a 30 gallon tank away to a friend; it contained several fish. The tri-coloured shark is still alive and he is now in the 15th year of life cycle, and the size of the fish is a full 8 in. Also, there is a 14 years old black tetra in that tank—which is an unusual age for a tetra.

However, the owner of this tank bought a ruby shark three years ago and this particular fish is 6½ in. long, which I think is a tremendous size for a shark that young.

"It was nice talking to you and I hope I'll be able to write again sometime. If there are any readers of your magazine willing to correspond with me about any subject I'll be only too pleased to answer the letters I may receive; and I remain with cordial regards and best wishes to you, the staff of *The Aquarist & Pondkeeper* and the readers. Thank you and good luck from Canada to Great Britain. P.S. I should mention that all my sharks are most peaceful, even with smaller fish in a community tank. I also enclose a year's subscription to *The Aquarist*." (Thank you for your kind remarks, Mr. Bruegmann. Please pass on our good wishes, from the U.K., to your hobbyist friends in Canada. We're always pleased to hear from readers in other countries. Perhaps some readers on this side of the world would like to drop a few lines directly to Mr. Bruegmann? I'm sure he'd be particularly pleased to hear from anyone who keeps ruby sharks).

The two letters that follow illustrate my opening point about subjective opinions: the letters contain opposite points of view about the same product. The first letter is from Mr. E. L. J. Stoddart, of 91 Ellerman Avenue, Twickenham, TW2 6AB. He writes: "Having read of the advantages of using a True-Lite tube I decided to purchase one. Within a week to ten days all the plants, rocks and even the front of the tank were covered in a thick film of algae. The colours of the fish looked very drab. Despite cleaning operations every three or four days I was unable to get rid of the problem. In desperation I returned to using my Gro-Lux and in less than two weeks the unsightly mess has almost completely disappeared. It would be interesting to hear if any of your readers—of an excellent column I hasten to add—have had any similar experiences since using True-Lite. Mine has been relegated to the bathroom. One can only speak as one finds, but I feel that at £4.50 I wasted my money."

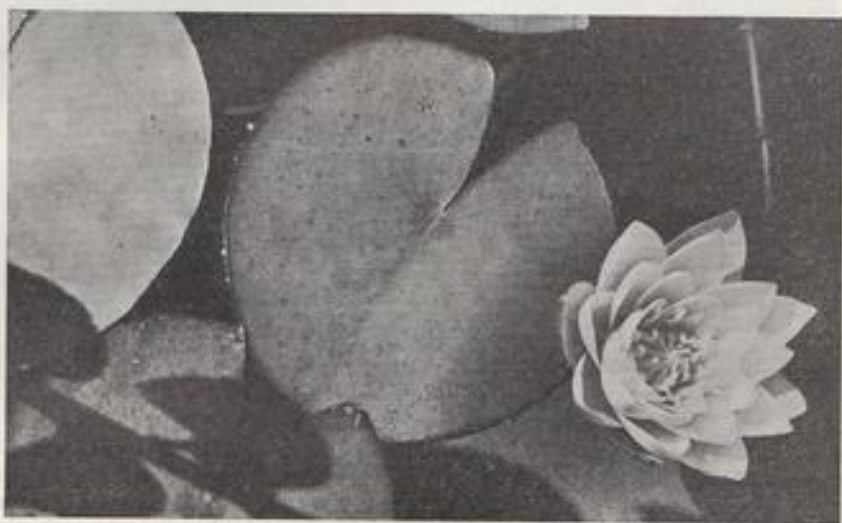
In sharp contrast come the opinions of Mrs. L. G. Harris, who lives at 54 Longley Road, Lower Penn, Wolverhampton. Mrs. Harris writes: "I have just

read a letter in the *Our Readers Write* section, written by Laurence Sandfield, regarding the price of True-Lite fluorescent tubes. He states that no tube is worth paying that price for—but I must strongly disagree. Admittedly it is a high price to pay initially, but in my experience it is well worth it. When they first came out in this country my husband decided to purchase one for his pride and joy, a clown triggerfish. This fish is the healthiest and easiest to look after of all our fish now and, what is more, two weeks ago it actually laid about three-hundred eggs on a piece of red organ pipe coral. It is the only fish in a 6ft. x 2 ft. x 18 in. tank, will eat anything, and is always lively and alert. However, our problem is that naturally we would love to have a breeding pair, but no one seems to know how to sex them; yet it seems such a shame to have a female willing to spawn, but no male.

"I am now thinking of buying a True-Lite for my discus tank. I have one large pair of brown discus

in her mouth and also houses the young there until they are too big to fit in. I now have to let the other fish eat them as I have no tank space for them—and some of the youngsters are now pairing off. We have several other tanks housing smaller fish, including the popular *P. kribensis*. I have also bred these and have an 18 in. x 10 in. x 10 in. tank containing about a dozen babies, all of which appear to be females. However, I have had problems with our 'kribs' as our females keep killing off the males after spawning. I have found it very hard to buy males on their own as most shops seem to sell only breeding pairs. If anyone could help with our problems I should be very pleased to hear from them."

Duddingston, South Queensferry, West Lothian, EH30 9SN, is the address from which Mr. W. J. Allison writes: "My favourite floating plant is the water hyacinth or devil's foot, *Eichhornia crassipes*. Unlike *Azolla* or duckweed it is not over-rampant

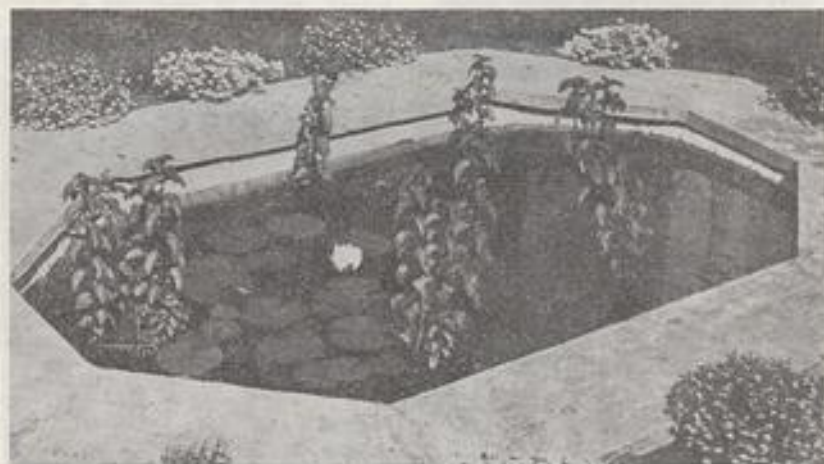


and two smaller males. The pair spawned three times earlier this year; but unfortunately the male ate the eggs each time. One time was just as they were about to hatch, so that was a great disappointment. We both like the big fish best and we have, at present, quite a selection—including a two-foot *Osporonemus gourami*, two breeding pairs of *Tilapia mossambica*, and a beautiful 9 in. female *T. mariae*. I would be very glad to hear from anyone who has a male oscar or *mariae* as both ours have killed their mates, but still keep spawning. I find, without doubt, that the easiest, large cichlid to spawn is *T. mossambica*; in fact, it is impossible to stop them. We are overrun with fish of varying sizes. They are housed in our cichlid tank, measuring 5 ft. x 2 ft. x 2 ft. They are fed on earthworms, bits of cooked meat, whitebait and dried food. They spawn and the female hatches the eggs

and does not stop a lot of light from entering the water. It is also of an unusual shape and much more interesting than the usual 'carpeting' types of floating aquatics—such as *Azolla* and duckweed. I am sure it has the best flowers of all the floating aquatics, and even though the flowers last only two days, and only appear occasionally, it is well worth keeping the plant for the flowers. Its only problem is the fact that I have to winter it indoors as I keep it in an outdoor pond. My water-lilies have done well this year even though I only put them in the pond this June. My *Marliacea albida*, from P. & A. Plant Supplies, has had three large blooms all flowering from August to September; and my *Caroliniana nivea* has also had three blooms. I bought it from Stapeley Water Gardens. May I recommend both these dealers. As a fertilizer I use one Lily-Gro sachet per lily and two tablespoons of slag powder,

both slow release phosphates. The lilies were planted in large, plastic crates lined with matting. However, I have had less luck with growing hornwort, which has died since I added it to my pond. Most plants have flourished in this year's hot summer although the pool needed frequent topping up, and the bog garden also needed watering more frequently. Indeed, some plants, especially my *Azolla caroliniana* and frogbit, have had to be removed from the pool due to excessive growth. Altogether this has been a good summer for pools: the plants have grown well and so have the fish, which were very active. I put a thermometer into my pool and on very hot days the water temperature was often over 70°F even though my pool is quite large. I am sure we will not get water temperatures so high again for some years. I would be pleased to hear from other pool owners what the average maximum pool temperature was during the summer as

theatre's late, lamented star, comedian James Young, the aquarium has also gone. I know of one hospital which has two display aquaria; and my dentist has one in his waiting room. In both of the latter cases the tanks were installed to "sooth" patients. I must admit that in neither case did they do me any good as my great desire was to get the lids off and carry out some planting operations; however, having observed the reactions of other waiting patients, particularly children, I can confirm that they did appear to hold the youngsters' attention. Please send me details of any aquaria of which you know on display in public places—including schools. Recently I was asked to write an article, about the educational uses of aquaria in schools, for the publication *Education*. Hopefully, despite the "freeze" on educational expenditure, we might see more and better looking tanks in a larger number of schools. If you have any spare fishes or



I have not had my pool for very long."

Photograph 1 shows an attractive water-lily flower in the pool of an aquarist friend, Mr. B. Crossan. My thanks to Bob for allowing me to take a series of photographs of his attractive little pool. I must admit that the photograph captures, for me, the essence of what was a beautiful summer—except for the week which I spent in London. The least attractive tank I saw there was in the foyer of the hotel in which I stayed. It housed a collection of not too attractive platies, and a host of Malayan sand snails the smaller ones of which had adapted themselves to floating on the water surface, held up by surface tension, to enable them to feed on the copious quantities of dried food that was obviously lashed into the tank. The tank contained no plants and certainly did nothing to add to the attractions of the hotel's foyer. I doubt if it attracted any new recruits to the hobby. The Group Theatre, Belfast, sadly no longer open, used to have a most attractive aquarium in its foyer. Like the

plants, perhaps you might consider donating them to your local school—if it has an aquarium. I've no doubt that schools would be very pleased to receive your surplus stock as money for such luxuries is in very short supply—and today's schools house tomorrow's adult aquarists. Quite a number of new aquarists have been recruited via their schools' aquaria.

While on the subject of education and aquaria I would like to mention the fact that Mr. J. A. Dawes, of 27 Maze Green Road, Bishop's Stortford, Hertfordshire, CM23 2PG, is currently carrying out a Ph.D. research project by reviewing the genus *Colisa*—to which gouramies such as the dwarf gourami, *C. lalia*, belong. After seeing my unidentified photograph of a *Colisa* hybrid in the August issue, Mr. Dawes wrote to me asking if I could let him see the original photographs. He suggested that the fish might be a hybrid between *C. lalia* and *C. labiosa*. I'm sure Mr. Dawes would be pleased to hear from you if you have any live or preserved specimens of unusual *Colisa* hybrids.

I find it most pleasing to know that at least one student is carrying out advanced research into a facet of our hobby. Such research could benefit many ordinary aquarists such as ourselves who are in the hobby purely for pleasure. I wish Mr. Dawes every success with his Ph.D. research project!

Mr. G. Carstairs writes in response to my comments, in the October issue, about my Scottish terrier's interest in my angels and discus. Appropriately, Mr. Carstairs' letter reached me from his home, at 83 West Torbain, Kirkcaldy, Fife, Scotland. He writes: "My angels used to be in the bottom tank on my stand—which was about the right height for my cocker spaniel who used to bark at the fish regularly. The tank now houses guppies and platies, and although he still sits and watches them he no longer barks. On the subject of postage on plants, I have never bought plants by post; but I buy most of my fish foods,

150 of the most popular tropical fish under scientific names and common names, as well as average size, temperature required and minimum tank size. Perhaps there is a similar booklet on plants? If not, perhaps someone will take up the idea. On your question about the ideal Christmas present: as many people who buy the present may not be too familiar with the hobby or the person's needs, I would suggest a voucher on the lines of the popular book or record tokens. Well, we've just had another increase in postage. Still, where would W.Y.O.? be without the Post Office? Or should I say, where would I be? They have employed me for the past eleven years!"

Photograph 2 shows a complete view of Mr. B. Crossan's garden pool at the height of the past summer. The tall plants are water mint, *Mentha aquatica*. I'd be pleased to hear of your experiences with the growing of this plant in your garden pool.



chemicals, etc., from a firm that advertises regularly in the magazine. Besides the goods being cheaper than those from dealers in this area, the postal firm pays the postage and packing. My last order reached me before the recent postal increases and the postage came to 42p." (I also buy fish foods, filters, treatments for diseases and similar items from what appears to be the same postal firm as Mr. Carstairs uses. I have always found the firm to give very prompt, efficient and courteous service at relatively reduced prices. On one occasion I ordered a replacement diaphragm for an air pump; and the firm, which happened to be out of appropriate spares on that occasion, was kind enough to supply me with one taken from a new pump. I can certainly recommend the firm). Mr. Carstairs continues his letter by saying: "The old problem of common or scientific names still keeps coming up. This led to the confusion in my first letter which you recently included in your column. Some time ago a local dealer handed me a copy of the Tetra booklet *The Successful Fish Hobbyist*. This lists

The subject of coldwater plants provides an appropriate lead into the next letter, which reached me from Mrs. J. Good, who lives at "Bell Green," 13 Heather Way, Brandon, Suffolk. She writes: "Recently I purchased a pair of bass. I put them into an 18 in. tank and they seemed to get along quite well, although the male would chase the female away from the food at meal times. Then one day I looked into the tank and found a big hole dug in the gravel at the front of the tank. Soon the female came out from the back of the tank and lay on her side and kept pushing the male. This lasted for a few minutes and then he chased her to the back of the tank again. A couple of days after this happened I noticed the female did not want to come out and stayed in one position behind the plants. I got her out and found that she had been bitten very badly; also, her eyes had a white film over them. I put her into one of my hospital tanks and treated her with salts and general tonic. Now she is okay. I would like to know if any other W.Y.O.? readers have had this happen to their fish. If so I

would like to hear of their experiences with this species."

In the October edition Mr. C. Atkinson made some comments about the correct lighting for his plants. His letter brought the following comments from Mr. G. Francis, of Flat 3, 62 Manville Road, Tooting, SW17. Mr. Francis writes: "I have tried all types of lighting given in the various books and found that since resuming the keeping of tropical fishes, after a lay off of three years, my 39 in. x 15 in. x 12 in. supports Amazon swords, *Elodea*, *Cryptocoryne* species, *Bacopa*, hornwort, which grows madly, *Hygrophila*, *Ludwigia* and other species. I use two 24 in. Gro-lux tubes on separate switches. One is put on first at approximately 1400 hrs. and the other at about 1700 hrs. Between these times any available bright sunlight also enters the tank as it is situated opposite the two large windows in my lounge. I then switch off one Gro-Lux tube at about 2230 hrs. and the other at about 2300 hrs. when my wife and I retire. The main reason for switching them on and off in this fashion is so that the occupants of my tank are not startled by a sudden, blinding light; and the converse in the evening. In the near future I intend to install a dimmer switch on one tube so that I can imitate a form of sunset. You asked about pumps recently. I have had a large Rena and a Miracle Twin; but two weeks ago my wife bought me a Japanese pump that looks like a transistor radio, with an on/off switch and pilot light, and incorporating a volume control knob for the amount of air needed. For me this is the best pump I have had to date; but admittedly its price is expensive at £8.45, although it is worth every penny. It comes with a T.F.H. guarantee. I buy *The Aquarist* and *T.F.H.* magazines every month as I find them very informative. Now, can you or any reader help me? I have been given to understand that there is a tropical fish club, situated at the Elephant and Castle area, by the name of Freelance; but I cannot find out any particulars about where or when it meets or how to contact any of its members. As I wish to start showing fish, can you help?" (I regret I cannot help, Mr. Francis, but I'm sure some readers could. If anyone knows of the club in question perhaps he or she would be kind enough to write directly to Mr. Francis with details).

The *Cryptocoryne affinis* plants in one of my tanks have just lost all their leaves in the not unusual way that *Cryptocoryne* species sometimes do i.e., sudden, and virtually complete disintegration of the lamina and petiole of every leaf. I know of no recent change in the tank that could have caused the leaf loss. Although I've posed the question before I have not yet received or read an explanation that convinces me of both the cause and the reason for leaf loss in *Cryptocoryne* species—other than the fact that it may be connected with their being bog plants in their natural habitat.

I'd be pleased to receive your opinions on this perennial problem. During the past summer my part of the country suffered from a fairly severe water shortage and water was turned off every night. The liquid which flowed from the taps during the day came out a milky white colour, resulting from millions of bubbles of gas. A glass of the substance, which passed as water, took about ten minutes to clear—and even then it smelt and tasted like a fairly strong solution of household bleach. When I had to top up any of my tanks I found it necessary to either heat the water and let it cool, let it stand in the open, in a bucket, for a day to let the chlorine disperse, or use one of the commercial preparations specially made to remove chlorine from tap water. Knowing what the liquid tasted like on its own, or when used to make tea or coffee, made me very careful about getting as much of the chlorine as possible out before I topped up my tanks. Fortunately the care I took resulted in no losses of fishes or plants; but I know of several youngsters, who appeared at my home with dead fishes in polythene bags of water, wanting to know what killed their stock. In each case it was obvious that "fresh" tap water was the cause of death. Did any readers suffer from similar problems?

"Not an issue has passed without me finding a useful tip in your feature—and I know of others who agree with me," begins Mr. P. G. Williams, of 27 Blacon Point Road, Blacon, Chester, Cheshire, CH1 5LD. Mr. Williams continues: "I am writing to tell you of my success at growing bog plants. I have experimented with *Acorus* and dwarf hairgrass. The *Acorus* rushes were planted in 6 in. diameter pots filled with clayish soil, and stood on a south facing window-sill. They were stood in a cereal bowl which was filled to the top with water, and topped up every day. Three months later the pots are crammed with rushes and each pot must contain nearly 40-50 combined rushes. That makes each pot worth around £10.00 at retail prices. The hairgrass was planted in a polystyrene fish and chip container; with an inch of leaf mould at the bottom covered with $\frac{1}{2}$ in. of coarse gravel. The original bunches died down, as they do in most aquaria, but within a week 4 or 5 green spikes appeared. Two weeks later there are some 200-300 stalks, many measuring the usual $2\frac{1}{2}$ in. Give them a few more weeks and I should have a nice lawn of hairgrass. I have also had great success with the growing of Amazon swords—one of the few aquatic plants I can grow." (Photograph 3 shows some young Amazon sword plants in one of my tanks. Note the large number of Malayan sand snails, *Thiara tuberculata*, climbing over glass and rocks. Normally these snails stay hidden in the gravel during periods when the tank is lit, but this photograph was taken seconds after the light was switched on—just before the snails had time to

retreat to the gravel. Of the usual snails kept in aquaria, *T. tuberculata* is the species I find does least damage to plants). Mr. Williams, continuing his comments about Amazon swords, states: "My best specimen has 42 leaves, many of which measure 13 in. long by 2 in. wide. This particular plant has just sent out a runner which has stopped growing at 4 ft. in length. It is now sprouting nine little sword plants. Another plant of the same species produced a runner some time ago and from it I now have seven 6 in. tall swords. I grew these plants with the same mixture I used with the rushes. I have bred several species of fish and always seem to end up with around fifty youngsters. My latest success has been with Egyptian mouth-brooders; I raised 62 from a spawning of 74. I lost the 12 when I moved the group to a new tank. The young are 1 in. in length to date and have just started spawning themselves. In the past four days I've discovered six females with eggs. I intend to separate the sexes so as not to stunt their growth. I have also bred *Pelmatochromis kribensis*—in acidic water of pH 6.8. I've ended up with 7 males and 49 females."

Our next letter comes from 42 Maes Hyfryd, Glan Conwy, Colwyn Bay, Clwyd, N. Wales, LL28 5WE, the home address of Mr. T. A. Davies. He says: "Having just read the September edition of *W.Y.O.*? I feel I must write in defence of malachite green. I have used it in a 0.75% solution, and dosed at 1 drop per gallon to cure white spot and velvet disease; and a friend has cured fin rot with it. This cure has been used in tanks containing guppies, platies, neon tetras, zebra danios, *Corydoras aeneus*, *C. paleatus*, black mollies, beacons and glowlight tetras. It has cured white spot within 48 hours at 75°F, with no fish losses whatsoever. Also, the plants have remained unharmed—and it does not stain, which gives it a great advantage over methylene blue which I, personally, consider outdated. If the capacity of the tank is carefully calculated and the correct dose administered—I usually use two drops fewer than full dose with most medications—I see no reason why malachite green should kill fish—unless they have been allowed to become weakened by disease beforehand. Filters containing activated charcoal should be switched off during treatment as this will absorb the malachite green before it has time to work. In answer to your other questions: I grow micro *Sagittaria* in soft, slightly alkaline water, with peat below the gravel, and using a 30 watt tungsten strip light for five hours per day, over a 24 in. × 12 in. × 12 in. tank. I use blue slate to decorate my tank as this rock is inert in water and is easily obtainable in this area. I use grindal worms for feeding fry in between microworm and white worm stages. I use grindal worm food and compost obtained from E. Arnold, and at the time of writing my culture is flourishing."

Peter Barker is 14 years old and lives at 66 Hall Lane, Hindley, Wigan, Lancs., WN2 2SA. His subject is the breeding of convict cichlids. Peter tells us: "My banded male and albino female have recently given me my first triumph at breeding egg layers. The water temperature was kept between 78°F and 81°F, and the pH was 6.8. I watched my pair spawning at around 6.00 p.m. on a Monday in August when I sat down to watch my fish and noticed the first few eggs being laid on the inside of a flowerpot, about half way up. The eggs were a translucent green in colour. Nearly all the egg tending was done by the female. Indeed, contrary to many books, she even chased the male away. Feeding was organised in shifts: never once were the eggs left alone. On Friday, after four days of this close attention, the eggs began to hatch; and the fry were taken to the rear of the flowerpot in the mouth of the female, who was still very selfish about the whole matter. Eventually tending the lively fry was too much for the female and the male began to get his fair share of the parental duties. On Saturday they moved the young to form a line along the bottom length of the flowerpot; and on Wednesday, after numerous trips in and out of the flowerpot, the young spent all day on the gravel. By 4.30 p.m. on Thursday the last fry had become free swimming. I then exchanged the filtration for aeration to avoid fry being sucked into the undergravel filter. The fry enjoyed eating the resulting sediment as well as any other food put in for them or their parents. They are growing well and the more numerous banded fry are, in some instances, much larger than the albino fry. I should like to exchange letters with anyone who keeps *C. nigrofasciatus* as the keeping and breeding of cichlids is a fascinating aspect of the hobby." (Anyone wishing to write to Peter should do so directly).

I was interested to receive a leaflet about the 1975 Coldwater Fish Show, organised by the Bristol Aquarists Society, and look forward to hearing how the show went. Some of the fishes listed in the show schedule, e.g., goldfish, Bristol shubunkins, veiltails, moors, lionheads, celestials, bubble-eyes, orandas, nymphs, comets and fantails, bring back fond memories of the days before I graduated—or regressed?—to tropicals. It's quite some time since I've seen some of the fishes mentioned above. Are coldwater fishes as popular as they used to be, say twenty years ago?

My comments, in the October edition, about my being pleased to see more "list" type advertisements appearing in *The Aquarist*; about the varying quality of aquarium plants ordered by post from different firms; and about the differing costs of postage and packing on postal plant orders, brought the following reply from Mr. John R. Chalmers, proprietor of Hobby-Fish, Hobby-Fish Farm, Towcester Road, Nr. Old Stratford, Milton Keynes, MK19 6BD.

Hobby-Fish supply a wide range of common and specialist aquarium plants—and charge only 20p for postage and packing. Mr. Chalmers writes: "It was nice to see your useful comments about more advertisers using 'list' type advertisements. Over the last few years we have always used this type of advertisement to enable aquarists to select plants from our vast selection. I agree that plants from mail order firms should be supplied free from duckweed and we take every reasonable precaution not to send out this floating plant with orders unless it is specifically ordered. I believe this plant is popular with cichlid enthusiasts. However, should the odd leaf of duckweed get into an aquarium it is easily removed with a small fish net." (I agree that a few plants could be removed easily; but duckweed plants produce the smallest flowers in the world and, hence, one or two plants could introduce seeds into an aquarium). Mr. Chalmers continues: "I believe Hobby-Fish were the pioneers in using expanded polystyrene food trays to send plants by post. These trays are extremely light and, hence, economical to send by post. Although reasonably strong they are not completely crush-proof; and if they were accidentally trodden upon while in the post the plants would be damaged. Over the course of a few years we have had only one or two packets returned damaged, and these were immediately replaced under our guarantee. We have always sent our plants by first-class post and I think it is scandalous that any aquarium plant firm should send these perishable items by second-class post. As for charges of 35p to 50p . . . Well!

"The current rate of postage on the 8 oz. packet you describe if sent by first-class post, is now 18p." (Actually, with the Post Office now having gone metric, it costs 18p to send a 7.1 oz. package by first-class letter post, and 21p for an 8.8 oz. package). Mr. Chalmers resumes: "When you consider the cost of advertising, £60.00 per page, the cost of packing materials, and the wages of our packing staff, I think you will agree that our flat rate postage and packing charge of 20p, including V.A.T., is most reasonable." (I do!). "To make every parcel economic we should really stipulate a minimum order of £1.50. We have not yet done this because experience shows that the smaller orders usually come from younger aquarists, probably still at school, and we would not like to exclude them from being able to purchase our specialist plants. If readers look through back numbers of *The Aquarist* they will probably see that many firms have advertised plants for a short period and then discontinued advertising. Some of these firms we know were unsatisfactory and did not have the facilities or the know-how to offer an adequate service to the aquarist; and many were not even proper firms but individuals advertising from a private address.

"When selecting a mail order firm for your aquarium

plants it is a good idea to use a well established specialist firm—of which there are several. Most of these firms have aquatic nurseries with thousands of square feet of tropical glasshouse to support their services. In making a choice, why not purchase sample parcels from several firms before placing a larger order with one of them. I think you will agree this is the most sensible method of purchasing plants by post. It is better still to make a journey yourself to inspect the premises of your proposed supplier, where you will get the personal attention of the expert staff. In our case we welcome visitors any day of the week between 10.00 a.m. and 6.00 p.m. We often receive orders by post accompanied by requests for advice on individual problems. As I cannot afford secretarial services this inevitably means a delay if both plants and a personal letter are required. We prefer customers to telephone us if they have any problems." (This is a useful point to make as it is now frequently cheaper to have a short telephone conversation than to send a letter, even by second-class post; and it's much quicker in the majority of cases). Mr. Chalmers makes the following comments: "Other factors which could delay a customer's parcel can be due to an illegible address—always PRINT your address; unsigned cheques, incorrect dates or alterations on cheques; or failure to remit the adequate amount to meet the cost of postage and packing. We never despatch any orders received later than first post on Wednesdays; these are held over to the following week so that the parcels are not held up in the post over the week-end. It is always a good idea to order in advance of your requirements to allow for any delays which may occur. It is inevitable that in maintaining a collection of over 80 varieties of aquarium plants, from time to time there may be some shortage of one or two varieties. It is always helpful, when ordering, to specify a second choice as this helps your supplier to despatch your parcel speedily rather than wait until every item on your list is available. I have made the above comments in the hope that they will enable the readers of *The Aquarist & Pondkeeper* to continue to order with confidence their aquarium plants from the several specialist suppliers." (Mr. Chalmers' comments should be useful to all of us who order plants by post. My thanks to him for writing. I'm always pleased to hear from those at the selling end of the hobby. It's kind of them to give of their valuable time to pass on to us some of the useful information they, as professionals, have gathered over the years).

I'm afraid that those are all the opinions for which we have space in this issue, and, indeed, in 1975. I look forward to receiving your opinions for the New Year issue. Please remember to PRINT your name and address on letters; don't make your letter too long

Continued on page 484

VIEWPOINT

by A. Jenno

DID ANYONE buy *Daphnia* at the Belle Vue Show? I have never before seen such rubbish offered for sale. No-one with any experience of these events expects the quality of any available aquatic live foods to be very great, but the current fashion whereby about half a teaspoonful of dead material is displayed and sold in a bright orange or red solution must be a new low. After enquiring at one of the stands concerned I was told that the colouring results from the use of a disinfectant "to kill the odd bit of white spot and so on," and that the dealer buys the portions pre-packed in this way from someone else. If this is the case one can imagine how long beforehand the bags might have been filled, and can speculate as to whether the colouring chemical is more likely some kind of preservative. If the traders who sell such shoddy material think the aquatic public are that gullible then one wonders what sort of dependence can be put upon their other goods. This kind of sharp practice is a good indication of current trends in some sections of the aquatic trade and it is up to the ordinary aquarist to stamp it out by withholding all of his custom from such dealers.

The whole atmosphere of the show this year, on my visit on the Sunday, was that of a glorified market. Last year I thought the trade stands were generally good, and said so in this column, but this year I was very disappointed. The selection and quality of the fish offered for sale was way down I thought, and except for the few nationally known well-established traders present other of the retailers seemed to be there for a quick kill and away. Some were even doing a Petticoat Lane "spiel." In other years traders were ancillary to the main purpose of the event which was the exhibition of privately-owned fishes. Now we find the traders in the most prominent positions and the exhibits relegated to the bottom end of the hall. If we are to have an annual aquatic market all well and good, but then it should be called that and the public should not have to pay admittance.

One advantage of such events as the B.A.F., of course, is that aquarists from various parts of the country can meet and discuss interesting topics. A problem I have experienced lately is that my usually constant supply of newly-hatched Brine Shrimp has become intermittent through the present egg crop giving a low yield. I took this matter up with Mr. Gordon Holmes who is the technical director of Keith Barraclough Aquarium Accessories. According to

Mr. Holmes, there have apparently been uncharacteristic climatic conditions in those areas of America where the eggs are harvested commercially, and this has resulted in a fast evaporation rate in the salt pans so that the eggs which are now coming into this country have become adapted to a much higher salt density than was previously usual. Mr. Holmes has sent samples to the Ministry of Agriculture and Fisheries for testing and has subsequently been informed that an average 82 per cent hatch should be achieved if artificial seawater with a density of 1.025 is used. At K.B.'s own premises eggs are hatched in ten gallon cone-shaped vessels using waste salt-water from marine environments. It would seem then that we must either start using more salt to obtain a higher density, and possibly marine salt at that, or consider alternative foods. The latter does not seem very feasible, but I intend to look into both options and report again at a later date. Perhaps an enterprising manufacturer could (or does?) produce a salt mix more tailored to Brine Shrimp hatching than the common salt usually used, yet without the expensive trace-element additions of marine mixes. Bulk packs would also be useful.

I have recently been going over my ideas on marine aquaria as I am about to set up a fifty gallon environment in my fish house. Its main purpose will be as a testing facility for items forwarded for the Product Review feature, but I see no reason why the exercise should not be interesting in other respects as well.

In any new environment the basic decision to be made at the start is to decide on the type of maintenance system which will be used. The usual convenient classifications are "natural," "biological" and "sterile." Sterile environments were commonly recommended in the past where fishes of extreme delicacy (sometimes supposed) were to be kept in hopefully bacteria and germ-free surroundings. Equipment complexity is high and the required values of the different variables tend to be critical. Natural systems usually support only small populations and can easily become unstable in unskilled hands. Both of these then are generally only used by the expert or by those with commercial justifications. In between we have the well-known biological system which will support a fair population and tolerate reasonable mishandling. All very well then, and naturally nine out of ten marine fish-keepers will nowadays choose to use biological methods.

Aquarists who wish to keep an invertebrate com-

munity, however, do not have such an easy choice. The difficulty lies in the cultivation of filter-feeders and algae. Both the sterile and the biological systems are designed to eliminate all traces of ammonia products without any assistance from the inhabitants of the environment. Natural systems try to simulate the wild habitat, and so require low populations and usually look rather empty and can need careful balancing if overstocked even marginally.

I would therefore propose an intermediate classification between the natural and biological methods which may be able to use the advantages of both. The crux of the matter may be the modified use of the biological filter. As is well-known, the orthodox under-gravel activated biological filter involves the use of a deep bed layer which gradually becomes thoroughly populated by nitrifying bacteria, and whose resulting effect is to cleanse the aquarium of ammonia products, given that outside influences such as food and light application are reasonably correct. In an environment containing filter feeders and algae, however, we want certain organic products to be available to the inhabitants as food, and in the case an efficient biological system would be too effective as suggested above. On the other hand, the under-gravel filter mechanism has other secondary functions. It circulates the water very efficiently to all levels in the container, to avoid stratification in the water and the fermentation of anaerobic areas in the base material. Used with natural coral sand the circulation should also encourage the buffering of the pH value and the addition of valuable materials contained in the coral sand. Foods given to filter feeders are usually in liquid form or very nearly so and thus a good means of dispersing this material evenly through the whole water volume is built in.

We thus need to nullify the nitrifying potential of the system to a large extent and yet still retain the physical abilities of a biological system. In existing systems this is often done by decreasing the flow rate of the filters by reducing the air to the lift mechanisms, but then there is a reducing nitrifying potential

which involves death and decay in the filter bed and sets up ideal conditions for an anaerobic situation. My proposal then, is that we should use instead an unusually shallow bed depth. This would develop a small nitrifying potential, but hopefully not enough to completely eliminate the materials required by filter feeders and algae, and yet should retain the physical properties of circulation through the bed and its consequent advantages mentioned above. A large-grained coral sand, or perhaps cockle shell, would be preferable and it might be instructive to start with a very thin layer, say half an inch, over the filter plate and then to increase this by additions if necessary until an optimum depth was found. In the event of the aquarist wishing to revert to a conventional fish environment with full biological filtration later, it would only need the addition of more bed material to give a greater depth and this should then be easily matured by the existing bacteria population.

One point concerning environments containing stationary organisms is that there probably needs to be a fair number of them present to achieve success. Mobility enables fishes and some invertebrates to seek out and clean up all, or at least enough, of the food given to avoid pollution but stationary creatures can obviously only take food passing through their own limited vicinity. Thus it would be nice to cover the majority of the food dispersal area with recipients. To do this in a large water volume may involve a considerable population and a good number at the start would seem advisable. The common practice of gradually accumulating a collection over a considerable period of time may not then be so good in this case.

Christmas is upon us again, so in conclusion this month I should like to take the opportunity to wish readers all the compliments of the season. This is also a good time to say thank-you to friends and acquaintances for their advice, conversation and criticism during the year and without which I could not write this column.



A DATE FOR YOUR DIARY
THE FEDERATION OF SCOTTISH AQUARIST SOCIETIES
present
THE 4th SCOTTISH AQUARISTS' FESTIVAL
at the CIVIC CENTRE, MOTHERWELL near GLASGOW
on
SATURDAY AND SUNDAY - 27th, 28th MARCH, 1976

*Full Details and Schedules from:- D. Fotheringham Esq.,
23 Royal Park Terrace, Edinburgh EH8.*



First award winning Tableau by Northwich and Dist. Aquarist Society.

B.A.F., 1975

IT CAME AS NO SURPRISE, considering that this aquarists' festival is held by many to be the best and brightest in Europe, if not in the world, to see the enormous Exhibition Hall at Belle Vue, Manchester packed with visitors on the 12th and 13th October.

The effort which goes annually into this fishkeepers' jamboree organised by the Federation of Northern Aquarium Societies in collaboration with *The Aquarist & Pondkeeper* is enormous. No wonder hobbyists never fail to arrive in their thousands from near and far to view the exhibits and buy tanks and fishes, books and plants, sea shells and sealants and, of course, the latest in apparatus from dealers who, every year, fill every inch of space available for the temporary accommodation of their purse-tempting stock. This year some thirty reputable firms represented the trade.

The *cognoscenti* were well in evidence weighing up the societies' tableaux and disagreeing or agreeing with the judges' decisions on these and other competitive entries.

Perhaps one of the greatest attractions, besides

the dealers' set ups, is the thrilling spectacle of seeing so many different fishes finning about in serried rows of tanks arranged under the massive notice bearing the words "Champion of Champions." The top award went to a lemon-finned barb. It is interesting to note, in passing that, according to two well-known aquarists whose experience in, and services to, the hobby extends back many years, the fish awarded the prize was a south-east Asian cyprinid known to science as *Barbus daruphani*. Another so-called lemon-finned barb, which closely resembles *B. daruphani* in shape and coloration, appears to have eluded formal identification. Second prizewinner among the champions was a splendid *Cichlasoma citrinellum*. What a pity such a handsomely garbed, knowing looking, tame, yet active fish is not suited (on account of its aggressive nature, the failing of so many handsome cichlids) to what our American friends call a happy family aquarium. The fish that won third prize was a well-grown brown discus.

Many well-known and little-known species claimed



Above: 2nd award, Castleford A.S.
 Below: 3rd award, Lanarkshire A.S.
 Right: 4th award, Osram A.S.



attention on this exciting stand. An interestingly marked snakehead bearing the formal name of *Ophiocephalus africanus* seemed to mesmerise a number of visitors and a jumbo-sized *Mylophus schultzei*—who has, if we remember rightly, won awards in previous shows—received plenty of attention. Fancy goldfish, Malawi cichlids, various catfish, oddities such as an electric eel, and so on, merited and received their bounty of admiration.

The award for the Best Fish in the Show went to Mr. L. Tompkinson, a member of Glossop Aquarists, for his *Osteochilus hasselti*. Hasselt's bony-lipped barb has some good qualities as an aquarium inmate. For one thing, it may be introduced without fear into a tank (large enough to accommodate it in comfort) housing fishes of about its own size; for it is neither snappy nor a bully. Of supreme importance, too, is the fact that it has been blessed with a stunning coloration. In brief, the ground colour is silver,



overlaid with a sort of straw-yellow. The largish scales are adorned with a dark brown to blackish spot. The fins are red.

The competitive stands—the tableaux—showed the usual evidence of skilful planning and hard work. All were well-constructed and arranged. Northwich & District Aquarist Society received a well-deserved first prize for a remarkable display of life-like treasure chests (tanks behind the cut-out fronts, of course), with the tops of the chests laden with golden goblets nestling or standing among beds of replica precious stones and other objects reminiscent of Ali Baba's fabulous cave. The tropical and coldwater fishes sporting in the artistically laid-out tanks were of high quality. An uncommon touch was provided by one unheated tank accommodating several charming bitterling, which skittered about among well-chosen stonework and a sensible variety of plants which included the rarely seen *Crasula* species once known as *Tillaea recurva*. An interesting thing about this plant is though it is native of down-under, it will grow like fury in our outdoor ponds. In the unheated aquarium it must be given a strong light.

Castleford A.S. took second prize with their finely executed space craft which, naturally enough, aroused considerable interest among the youngsters. Lanarkshire A.S. was awarded third prize for a model vacuum



Mr. George Cooke, president of the F.N.A.S., presenting left, the award for Best Fish in Show to Mr. R. Tompkinson, and right for Champion of Champions to Mr. V. Davison.



Champion of Champions, 1975, a Lemon-finned Barb.

cleaner about the size of a small garden shed. Fourth prize went to Osrām A.S. Osrām's entry was joyful in spirit and appearance: a breezy looking Santa Claus backed up by a monster package masked in a gay assortment of gift wrappings. Other societies showed no lack of originality and brilliant presentation.

We expected to see a large number of fine fishes on the societies' stands. We were not disappointed. Aireborough & District A.S. were awarded first prize for a lionhead goldfish. As a matter of fact, some very

superior goldfish were to be seen at this year's festival. The Northern Goldfish and Pondkeepers Society's entries were absolutely superb. You will see from the competition results that this society took several prizes. The 5 months' old shubunkins (breeders' class) showed outstanding coloration and growth. Heywood & District A.S. received a first for a marine exhibit: a beautifully proportioned and finned lionfish (*Pterois sp.*). While on the subject of the marine aquarium, it is worthy of mention that the symbiotic

relationship between some coral fishes and sea anemones has its less pleasant side. Belle Vue (Man.) A.S. took first prize for a furnished marine tank. It was a delight to behold. Nevertheless, on Friday night (11 October) we observed a clown fish looking strangely inert in the centre of a large sea anemone. Before the show opened on Saturday morning, the fish was still there but little of it was to be seen. By lunchtime (appropriately enough for the anemone) it had vanished. Bury & District A.S. gained a full quota of awards: Tropical Individual, Coldwater Individual, and so on. Basset Law Fishkeepers Society received a first for a magnificent pumpkinseed sunfish (*Lepomis gibbosus*). There was indeed, so much to catch and delight the eye as, for example, a particularly well-developed and brilliantly marked Texas cichlid (*Cichlasoma cyano-*

guttata), which we just had to pause and admire on our several perambulations about the hall. Then the couple of tench, one much darker than the other, but a pondkeepers' joy. Not far away a furnished tank filled with simply splendid guppies—the sort of exalted guppies that proclaim the dedicated breeder's art. In point of fact there were so many fishes wonderfully suited to the decorative aquarium, the specialist breeder's attention or just plain general interest that we couldn't, in the time available, take them all in. All in all it was a memorable exhibition. So once again the fishkeeping fraternity must thank Mr. George W. Cooke, President of the F.N.A.S. and Mr. C. Walker, Show Manager, and his willing and ever-helpful band of helpers who made the exhibition such a success. It is not too early to look forward to next year's festival.

WHAT IS YOUR OPINION?

continued from page 478

(I reserve the right to shorten letters, where necessary); number each consecutive page; and write on one side of the paper only. These minor points make my job easier—and increase the chance of your letter being used.

Enjoy the Christmas festivities—and drop me a few lines when the excitement dies down. The following are the subjects on which I would like to receive your opinions: (a) Please send me details of your experiences with any of the coldwater fishes mentioned above; and with the keeping and breeding of any of the following: the clown loach, *Botia macracantha*; the glass catfish,

Kryptopterus bicirrhis; the silver dollar, *Metynnus roosevelti*; the jewelfish, *Hemichromis bimaculatus*; the white cloud mountain minnow, *Tanichthys albonubes*; and the glowlight tetra, *Homigrammus erythrozonus*. (b) Have you found spinach does fishes any harm if fed as a regular green food? (c) What have you found to be the optimum conditions for the cultivation of any of the following plants: *Acorus* species; *Bacopa* species; *Cryptocoryne* species; *Cabomba* species; *Myriophyllum* species; and *Ceratophyllum* (hornwort) species? (d) What media do you use in your filters, and why? Good-bye until next year.

COLOURFUL AND EXPENSIVE HAND-LUGGAGE FROM SRI LANKA

Chesterfield aquarist, Don Robinson, has just returned from a fish-hunting trip to the Far East with a prize catch . . . five six-week-old Clown Trigger fish.

The Clown Trigger (*Balistoides conspicillum*) has been described as one of the most beautiful fish in the world—certainly the most expensive. It spawns in deep water and it is only as adults that they swim to the reefs where they are caught.

Don, who runs the Coral Reef Aquarium in Chesterfield, is believed to be the first aquarist to bring such young Clown Triggers to Britain. He put the rare babies above all the other 12,000 specimens he shipped and kept them in his hand luggage on the flight home.

He and his wife, Pat, spent two weeks in Sri Lanka and Singapore with his suppliers. As well as hunting for fish, Don took with him some undergravel filters for the catchers to improve the quarantining of

specimens and to provide tank acclimatisation before being transported.



Don Robinson with some of his Clown Trigger fish.

From a Naturalist's Notebook

by Eric Hardy

NEWSPAPER sub-editors tend to think in headlines and publish a good eye-catching "story" which is often based upon assumption. The Cardigan Bay (Barmouth) "monster" again hit the headlines in mid-August when it was reported to have been "solved" when a lobster-fisherman claimed to have seen a turtle surface near his boat off Harlech. Apart from not the slightest evidence that this was what the schoolgirls saw in March, or zoological proof that it was a sea-turtle he saw (though it may well be true, for turtles occasionally visit the bay) headline-hunters overlooked the fact that turtles are warm-water, sub-tropical reptiles. Live turtles, mostly leathery, have reached British waters only between late May and December. Only dead ones have drifted ashore from December to March. The "monster" the girls reported surprised on the beach was in March, when the Bay was too cold for turtles. Nor has any live turtle come ashore to bask here as they only land to breed. Only dead ones have been found ashore and some of these were smuggled on ships (e.g., to Liverpool) in the old turtle-soup days. Now only dried turtle meat is imported.

More sensible natural history will be heard at the London conference on 5-9 July next, on the handling and marketing of tropical fish, organised by the Ministry of Overseas Development's Tropical Products Institute.

Lecturing in another city kept me from using the kind invitation to the veteran Queckett Microscopical Club's exhibition and conversazione in the British Museum in October. It ranged through the 19th century evolution of the microscope-slide to a rotating stage to provide sequence viewing under the stereo microscope, a home-made, motor-driven ring-table and wax-embedding with home-made equipment. Dr. J. P. Harding showed improvements to the Harding Labgear Microdissector, as well as an electron flash arrangement for photomicrography. Not quite so old, but still going strong, the Postal Microscopical Society was among the guest exhibitors. On my bookshelf as I write this are the first four volumes of their journal, starting in 1882. The Queckett started in 1865 and began its journal the following year, 12 years before that of the Royal Microscopical Society. Liverpool's Microscopical Society started only three years after the Queckett, and still lingers with us.

I am afraid that the Formby-Ainsdale (Southport) natterjacks didn't have such a successful breeding season after all. After a good spawning season in the spring rain-pools, when bucketsful of spawn and tadpoles were transplanted from pools likely to dry out at Formby's Lifeboat Road and introduced to the scrapes, or artificial pools, on Ainsdale and Birkdale dunes, the dry weather in mid-May came too soon for most young toadlets to survive. This lack of summer water is one of the normal hazards in the evolution of the natterjack but, added to this, is the present campaign to turn its main breeding haunts north of Ainsdale Shore Road into a recreation centre for young people, which Southport (Sefton District) Corporation is considering at the time of writing.

I usually look into the aquarium and the reptile-house when attending meetings at the Zoological Society in Regents Park, and feel it is about time the label of the tank of bitterling ceased stating "Europe except Britain." Likewise the marsh-frog, introduced successfully if inadvertently to dykes in Romney Marsh in 1935, is still labelled only as of South-west Europe, N.W. Africa and W. Asia. As most visitors are Britons, the British side of the information is neglected, with common frog and European whip-snake both labelled just "Europe," the natterjack just "Western Europe" and the green lizard "Europe and Asia." It is interesting to see that spikey girdle-tailed lizard from a limited area of South-east Africa, Lord Derby's zonure, still exhibited at the Zoo. This is one of several species collected over a century ago by Burke, whose South African expeditions were sponsored by the 13th Earl of Derby for his private zoo and aquarium at Knowsley in Lancashire.

A feature of this group of lizards, which range from tropical Africa to Madagascar, is the fold of small scales along their sides, separating upper from lower skin. Their back-scales are underlain by simple bony plates, while the tail is protected by whorls of sharp scales. Yet, despite this protection, they frequently shed their tails with would-be captors.

The Zoo has a good specimen of the Palestine (or Levant) viper, *Vipera xanthina palestinae*, the commonest poison-snake in the Holy Land and almost certainly the Biblical viper of Job 20, 16. Whether it is the same snake to which Eve submitted in the Garden of Eden was a debated matter when I was secretary of the now defunct Jerusalem Naturalists' Club. This is

because the Biblical snakes are the translations of four different Hebrew words. The Rev. J. G. Wood's famous Victorian tome on *Bible Animals* curiously omits Psalm 58, 4's "deaf adder" which Hebrew University zoologists assumed to be the cobra, *Naja jae* of the southern Negev and Sinai deserts and Egyptian snake-charmers. It is derived from *acshub*, or spitter. The proverbial adder, or cockatrice of Isaiah, from *tsapha* or *tsiphoni*, is probably the Palestine viper, which the bible states could not be charmed, so it would not be a cobra. Palestine has 24 harmless snakes and five poisonous ones. One of the latter, *Echis carinatus*, of sandy desert, is still called the Efa or ephah, a Hebrew word which is translated as viper in Job and Isaiah. Unfortunately, Prof. Bodenheimer's book on *Animal Life in Palestine* refers misleadingly to the blind snake *Typhlops vermicularis* of Greece and Asia Minor as "the European blindworm."

A Liverpool angler's barbel of 8 lb. 1 oz., caught in the Severn, part of a haul of 120 lb. of these fish at Shrewsbury's Atcham in the autumn, a huge fish needing both hands to hold it, shows how successfully these eastern (North Sea rivers) fish have colonised this river since introduction in 1957. This fish is not in Lakeland or North-western rivers, where it doesn't naturally belong.

Immunising fish against the diseases which affect them in breeding ponds and aquaria makes steady progress. Twelve years ago, Ambrosius and Schaker immunised carp with swine serum and found that response increased with temperature. Various bacteria have been used to immunise rainbow trout (with *Aeromonas salmonicida*), but when used on salmon this did not show significant resistance to furunculosis fungus.

Watson, etc., immunised goldfish with two bacterial fish pathogens, *A. liquefaciens* and *Streptococcus* OX39, while Yu, Sarot, etc., neutralised infectious pancreatic necrosis in three weeks after injecting this virus in blue gouramis kept at 26-28 deg. C. Carp have been immunised with dinitrophenal (DNP)-BSA at 25 deg. C, producing maximum antibodies 50 days later. Goldfish have been immunised with human immunoglobulins. In dace, antibody production increased as temperature decreased. Now C. M. Heartwell has had some good response to immunisation experiments with channel catfish at the Kearneysville (Virginia) fish-disease labs. of the U.S. Fish and Wildlife Service. He inoculated the catfish with *Chondrococcus columnaris* antigen of a well-known British fish disease, and with channel catfish virus, and obtained maximum immunity response after 4-9 weeks. Australian catfish (*Tachysurus*) have been immunised by other workers using *Salmonella enteritidis* and bovine serum albumin. Modern fish-immunisation progress began in 1963 with G. Post's inoculation of American rainbow (steelhead) trout with *Aeromonas*

hydrophila bacteria in salt-solution, monthly for seven months. Work has continued with such fish as margates (*Haemulon*), black and brown bullheads (*Ictalurus*), large-mouthed bass, golden shiners (*Notemigonus*), gray snappers, sockeye and coho Pacific and Atlantic salmon, thornback-ray and mirror-carp. Despite the trouble in recent years from columnaris disease in British freshwater fish, inoculation has never been so popular with the authorities here as in the U.S.A., except for Mulcahy's work on ulcerative dermal necrosis in salmon and brown trout.

The serum components of carp and goldfish have been studied more than any other fish; but tench, silver carp, marinka, white amur and perch (with human immunoglobulin-G) have also been examined, showing how these components (immunoglobulins) move at different rates. Blue gourami, like rats, have four major serum-components. Rabbit anti-serums have also been prepared by inoculating young laboratory rabbits with catfish serum and antigen. However, too much blood-sampling sometimes causes anaemia in fish, from which a few died.

Warm-water fishes show a quicker immunity response than coldwater fishes, and more akin to that of mammals. As the original work was with the latter fish, their slow response probably accounted for the reluctance to make much practical application.

SOMETIMES THEY'RE DIFFERENT!

By Hilary Maynard

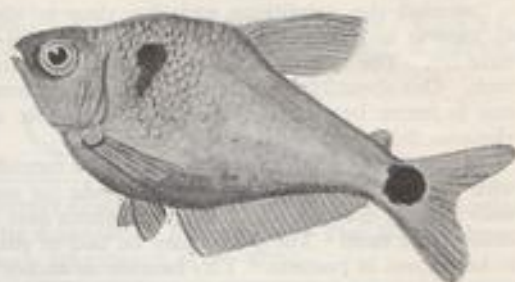
My 1st is in HEAT-RESISTANT but not in FLAME,
My 2nd is in VOLLEY-BALL but not in GAME.
My 3rd is in NUMERICAL and also in NOUGHT,
My 4th is in DISCOVERED but not in SOUGHT.
My 5th is in MATRIMONY and also in SPOUSE,
My 6th is in RESIDENCE but not in HOUSE.
My 7th is in FOUNTAIN but not in SPRAY,
My 8th is in PROBABLY but not in MAY.
My 9th is in TANGERINE but not in PEACH,
My 10th is in ARMSLENGTH but not in REACH.
My 11th is in MINIMUM but not in LEAST,
My 12th is in SURFEIT and also in FEAST.
My 13th is in BIRDSNEST and also in TREE,
My 14th is in MYSELF but not in ME.
These don't obey rules, they do as they wish,
They're most unexpected, these interesting fish!

Answer Below

NON-FORMWOLTS

THE AQUARIST

Ctenobrycon *spilurus*



Written & Illustrated by Jack Hems

ALTHOUGH this member of the *Characidae* from the coastal regions of Guyana and Venezuela shares with *Gymnotus carapo* (of another family altogether) the popular name of knife fish, it is more usually called the silver tetra, which is more in line with its general appearance; for whereas *G. carapo* is eel-like in shape and ranges in colour from pinkish ivory to brown, plain or with dark bars, and has some odd characteristics such as the entire absence of dorsal, caudal and ventral fins and an anal fin which extends from below and just behind the head to the tip of the pointed tail, *C. spilurus* has a diamond-shaped body, laterally compressed like that of an angel fish, with a silver tinsel glitter off the small scales (ctenoid = rough). Along the middle of the body a band of metallic green or greeny gold, with an upper margin of greyish or silvery white, comes and goes according to the way it catches the light. A bold black spot is present in the base of the bifurcated caudal fin. A short vertical smudge, or blotch, more brown or dark grey than black, adorns the shoulder. The fins are almost transparent though they do have a suspicion of yellow or red, even green, in the membranes. The long-based anal and small ventrals have a hint of red in them, also, overlaid with cream at their anterior margins. The female sometimes displays more red in her anal fin than the male. The sexes, however, are best distinguished by taking careful note of the contours of a number of well-grown fish. For a female is bulkier in the abdomen and body in general than a male of roughly the same height and length. Moreover the keel of her belly is more outwardly rounded (in outline) than that of the opposite sex.

The fish grows to at least 2½ in. Exceptionally to a little over 3 in.

Apart from some periods of inactivity in the upper or lower corners of the aquarium or behind rocks or plants, *C. spilurus* spends its days swimming to and fro in all parts of the aquarium. It has the habit of moving from one level to another in a flash. Indeed, when food rains down or sets up vibrations in the water, its movements are lightning fast. Feeding is no problem: it eats anything.

C. spilurus is quite suited to a community tank housing fishes too large or solidly sedate to be looked upon as fair game for a chase. Smaller and, more especially, lively species are usually ignored; in any case they usually move away at the silver tetra's approach. The fussy and laboured movements of some male guppies with voluminous fins will usually attract its attention. The result may be, most often is, a tattered appearance. However, this torn look comes to all fancy-finned male guppies in a community tank, that is unless their companions are chosen with great care.

It is as well to say at once that the silver tetra is not averse to taking an occasional nibble at tissue-thin or ribbon-leaved plants. Tougher leaved plants such as *Microsorium pteropus*, the so-called Java fern, and the more substantial growing species of *Cryptocoryne* are usually left alone. More *C. spilurus* will worry little about higher plant life if suitable substitutes for silky or mossy algae (a natural greenfood) are provided. Duckweed, and such things as scalded lettuce, cooked spinach, cooked turnip tops, young nettles or beet

leaves are taken. Greenfood should be offered in small amounts several times a week.

Provided the conditions and the time is right, *C. spilurus* is a ready producer of eggs and easy-to-raise fry. The first essential, of course, is a suitable tank. One about 3 ft. long is recommended. A longer one is better because the male is an excitable and vigorous driver.

The tank set aside for breeding should be furnished with bunches of *Myriophyllum* or *Cabomba* (or some such feathery-leaved plant). Place the plants near the ends of the tank. The plants may be tied to stones to keep them in position. This because an anchoring thickness of compost is not necessary: a thin carpet of sand or grit on the floor is sufficient to prevent reflections off the glass bottom worrying the fish. Now, if the two fish are about ripe for spawning, the female swollen in the sides—a condition which denotes the presence of eggs—and the male displaying signs of excitement, then they should be transferred to the tank made ready for the nuptial rites. It is a good plan to place the fish in the tank at night.

If they have been used to a day-to-day temperature of about 75°F (24°C) then see that the water in the tank is of the same temperature. Do not fail, however, to alter the setting of the thermostat so that the temperature will rise to the upper seventies or low eighties over the next twelve hours. For it is usually in a rising or raised temperature that spawning will take place.

The couple engage in a wild chase. Every so often their spirited dashes through clear water or in and out of the plants are punctuated by short pauses. Among the greenery, then, they jerk their tails, tremble violently and, in a moment or two the female, the male at her side, ejects eggs. She does not release

all her eggs at once but at irregular intervals spread over an hour or so. Hundreds of eggs may be laid. As soon as egg-laying is over, it is important that the couple (avid egg-eaters) should be removed from the tank. The eggs incubate within two days. The fry cling to the vegetation for about four days before they become free-swimming.

For the first few days of their free-swimming lives it is best that infusorians should be fed. (Drip-feeding is advised). Failing a goodly supply of microscopic water life, then a proprietary brand of fry food should be used. Alternatively, it is possible to get by with crumbs of hard-boiled yolk of egg stirred up in about a tablespoonful of water. Introduce four or five drops of this preparation into the tank some four or five times a day. Make up more of this egg-infusion if the supply runs out. Cupfuls of rich green water may be given too. Cared for as outlined above, the fry should make sufficient growth before a fortnight is out to take large food such as brine shrimps, micro worms, micro eels and powdered dried food. Thenceforward the food given must be varied and of swallowable size. It does not seem necessary to say that a tank of baby silver tetras is a pleasing sight.

C. spilurus has been known to tropical fishkeepers for more than sixty years. Before the Second World War it was both common and popular. It appears to be making a comeback. And about time, too. For one thing, it can be kept quite comfortably at a temperature of about 70°F (21°C). For another thing it will stand a temporary drop to the middle sixties (°F) without ill effect. Finally, it has a life-span, on average, of seven years or more. Few other characins have so much in their favour: that is in the way of looks, hardiness and ease of propagation.

THREE RIVERS CHAMPIONSHIP

The Tyne Tees Area Association of the F.B.A.S. propose to hold a Championship Show, sponsored by a local firm, within the year 1976, and annually thereafter.

As a general guide, pertinent points and proposals are listed below, and interested Club Secretaries are asked to write to the address annotated below for further details.

1. The show shall be called the "Three Rivers Championship".
2. Any Club in North East may compete.
3. Classes eligible for the Championship will be designated by the T.T.A.A., but will generally be the 30 accepted open show classes.
4. The names of the winner of each class, together with the number of points gained, shall be forwarded to the organisers, at the conclusion of each open show.

5. At the end of the season, and approximately four weeks prior to the Championship Show, the four highest pointed fish in each class from the entire year's total of Open Shows, shall be invited to enter their fish in the "Three Rivers Championship".
6. This would result in an Open Show type of Championship with 30 classes each containing four fish only.
7. Judging shall be to F.B.A.S. rules.
8. Each entrant will receive a scroll recording his or her achievement and the Best Fish in Show will be awarded the "Three Rivers Championship Trophy".

Club Secretaries, for further details contact: G. Liddle, 2 Cromel Avenue, Low Fell, Gateshead NE9 6UJ, Tyne & Wear. Tel: 877156.

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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, TW8 8BN.

TROPICAL QUERIES

by Jack Hems

I should very much like to know the scientific name of a fish sold to me as an apollo shark. Furthermore, I would be grateful if you could supply me with some information regarding the apollo shark's country of origin, its maximum length, its behaviour and general requirements in the aquarium?

For quite a time the formal name of the apollo shark remained shrouded in mystery. Now, however, we know that the fish is known to science as *Luciosoma sotigerum*, a cyprinid from Thailand. It attains a length of 8 in. and above and may be kept with other fishes of about its own size. It is a frequenter of the upper levels of the water and is fond of eating flies, moths, gnats, gnat larvae, flake food and small worms which are snatched up as they are dropped into the water. The usual range of temperature (for a heated tank) suits it well.

I have some pink cave fish and I would be interested to learn whether they might spawn in captivity? How does one tell the sexes apart?

I suppose the fish you have is *Anoptichthys jordani* from certain underground freshwaters in Mexico. This species will breed in the aquarium if it is given very clean and clear water over a layer of spotless slates or pebbles. In well-grown fish, the female is the heavier-bodied of the two. Spawning takes place at a temperature in the upper sixties to low seventies (°F).

What is the life-span of the fish *Barbus puckelli*?

In my experience, this fish will live for upwards of six or more years. It tends to lose some of its fiery coloration as it increases in age and size. Nevertheless, it is never anything but a lively, handsome and alert lower-level swimmer.

Why do ichthyologists use a mixture of Latin and Greek words to label fish?

Sometimes a mixture of Latin and Greek is the most sensible way to pinpoint an anatomical difference or distinctive variation in colour. Once the derivations

of the words are looked up in a Latin or Greek dictionary, the meaning is quite clear to the intelligent or imaginative aquarist. However, not a few of the formal names bestowed upon fishes are misnomers. The name *Callichthys* is from the Greek meaning beauty-fish, or pretty-fish. Yet there is nothing beautiful or pretty about this armour-plated catfish.

I have bought a young *Synodontis clarias*. At the present time it is the colour of grey ash or ashy soot. Please give me some idea of its adult coloration, size and suitability as a community fish.

S. clarias from the lower Nile and river systems thereabouts is a greyish-violet to grey-blue (roughly) fish, with darker spots or blotches on the sides and sooty fins. As this fish grows to more than 8 in. in length it is hardly a fish for the ordinary community tank. For one thing, it is boisterous in its movements and will uproot plants. For another thing, smaller fishes may vanish overnight.

I am considering buying a tank 53½ in. by 15½ in. by 12 in. and would like to know how many heaters (and their wattage) I would require to maintain the right temperature for tropical freshwater fish. Also, what in the way of an air pump would I require?

I recommend a heater rated at 150 to 200 watts. You could use two 100-watt heaters spaced some distance apart and wired to one good thermostat. Then if one heater failed, the other heater would carry on and so preclude a rapid loss of heat through the glass sides of the aquarium. As for an air pump, any reputable dealer in tropical fishes will have a pump suited to your needs. Generally speaking, there is no need to go in for anything very expensive provided you learn something about the maintenance of the aquarium. A good book will give you the necessary information.

Can you tell me what length an albino *clarias*

catfish will attain, and what foods are best to promote maximum growth in the shortest possible time?

In a spacious aquarium (very important) the albino clarias is likely to reach a length of about 2 ft. This species will flourish well on a diet of raw red meat, strips of uncooked white fish such as cod or fresh haddock, and pondfish pellets.

I have just acquired eight gold severum but cannot find anything about this lovely cichlid in my several aquarium books. Kindly supply me with the scientific name of this fish and its general requirements.

As the gold severum is merely a colour variety of *Cichlasoma severum*, it has no descriptive scientific name. It should be described as *C. severum* var. gold. Its needs and habits are the same as the ordinary *C. severum*.

I have two fair-sized oscars and one of them has developed the strange habit of turning over on one side or right over on its back every now and again. The other day I noticed what looked like a pale worm hanging from its vent. Can you tell me what is wrong?

It seems to me that one or both of your oscars are about ready for spawning. The worm-like object you have noticed is, in all probability, the ovipositor. The strange posturings are usually a part of the courtship display. Keep a close watch on the fish and see how they go on. Provide a large stone or two for a spawning surface and, if possible, increase the temperature a degree or two (°F).

Please give me some information, that is advice, on the keeping and breeding of *Dermogenys pusillus*.

Shallow water with a good surface area, and a small amount of pure salt or sea salt added, is recommended. Also, a temperature in the upper seventies (°F). Live food that can be snatched at or approaches very near

the surface is essential. Gnat larvae, *Daphnia*, aphids, fruit flies, small spiders, and so forth, jump to mind. White worms or Grindal worms dispensed through a perforated worm feeder (so that the worms drop into the water) make a useful addition. If worms are fed, however, see that those that reach the bottom are removed before they die and decay. *D. pusillus* is not exactly an easy livebearer to breed. The parent fish are cannibalistic (a not uncommon trait among fishes), and many of the uneaten fry die for no apparent reason a few days after birth, some that linger on have twisted spines, the fortunate ones that look all right and stay alive require the smallest of live food to keep them going.

Can you give me any ideas for growing on brine shrimps?

Gradually increase the salinity and temperature of the water. Keep the water artificially aerated. Feed the shrimps on frequent spoonfuls or cupfuls of free-floating algae. In short, keep the water foggy with greenwater.

I should appreciate some advice on the care of the black-banded sunfish?

It is of supreme importance to give this charming little fish a tank to itself. Fill its tank with peaty acid water. Maintain a range of temperature from about the middle sixties to the low seventies (°F). Provide a diet of various swallowable worms, small crustaceans, gnat larvae, baby guppies, and so on.

What size (wattage) fluorescent lamp should I install over my 36 in. by 12 in. by 12 in. tank stocked with true submerged plants and popular community fishes?

A 30-watt lamp will suffice. See that it almost touches the glass cover and has a hood made of shiny aluminium or aluminium cooking foil stuck to a hard-board or plywood rectangular box. Keep the light switched on for at least 10 hours a day.

GOLDWATER QUERIES

I have noticed that when some of my pond fish swallow their food, usually pellets, a lot of bubbles come from their gills and sometimes from their mouths. Is this normal?

When fish take their food they do so with a sucking motion and if the food is on the surface they are likely to take in air. This is then expelled either through the gills or mouth. It may be that the pellets are rather large for the size of the mouths of the fish and this would increase the intake of air. Crush the pellets or soak them and you may find that bubbles cease to be made. There is no harm likely to be done

by Arthur Boarder

to the fish.

What fish could I keep in a pool in the garden and how many, as the pool is 3 ft. x 2 ft. x 1 ft.?

You can consider that your pool is a tank of the same dimensions and treat it accordingly. No more than six goldfish should be kept in it and these should be no more than three inches long overall. Do not over-feed and remember that as the water temperature decreases with the onset of winter, the appetites of the fish will lessen considerably until when the weather is very cold the fish will not eat at all. In such a small

pool there may be no need to feed at all from November to March. Your chief trouble may come if the weather becomes very severe and the pool freezes over. A small hole should be made in the ice each day and this is best done by standing a watercan of boiling water on the ice for a time. The smaller the pool the sooner will it freeze over and although the cold will not harm the fish, if the water is not pure there will certainly be trouble if the ice gets thick and lasts for a few days. Should any snow lie on the ice, it should be cleared as soon as possible and water under thick ice and snow soon becomes foul and would need changing to prevent severe pollution.

I have found a couple of goldfish and a Koi in my pond with wounds on their bodies about the size of a 5p piece. The fish appear otherwise healthy. What can have caused the wounds? I have a couple of catfish in with the fishes.

It is not possible to say with certainty what has caused the wounds. The catfish could be the culprits about which one must have doubts. These fish are carnivorous and when hungry they could take a bite from a larger fish or swallow a smaller one. Damage can be caused to a fish by certain creatures or their larvae, such as water-boatmen, water-beetles and their larvae or those of the dragon fly. A bird could have pecked the fish, but this would usually result in a double wound. If no predator is suspected then the fish may have ulcers. The size of the wounds suggest that this may be the trouble. A weak fish may contract this disease and lack of certain vitamins in the diet may be a primary cause. Such wounds can be treated with T.C.P. and this is best done by holding the fish in a wet cloth and after carefully wiping away any surplus moisture, the wound can be painted with the cure. Do not return the fish to the water at once but leave out for a short time to allow the chemical to take effect.

I have recently acquired a pair of young calico broadtail veiltails and would like to breed from them. Are there any snags and where could I purchase any fresh stock of good quality if I want to increase my stock with fresh blood?

These veiltails breed in a similar manner to ordinary goldfish. However, I think that they will benefit from a slightly warmer water than goldfish. The flowing finnage is rather prone to attacks of fin-rot and fin congestion, especially when the fish are kept in a water temperature below about 62°F. There is no need to get more fish at the moment and I suggest that you gain some experience with breeding those you have before branching out with more stock. The art of breeding a good stock of fancy goldfish lies in the ultimate sorting of the fry. Learn all you can about the necessary qualities of good veiltails and then when

the fry are about a month old, start to cull them so that only the best are kept for growing on so that they may have plenty of space and food to enable them to grow at a good rate. The single-tailed fry can be spotted when only just over a week old. When viewed from above, such fry will have a tail which is thin and pointed whereas the double-tailed ones will show a small spade shape. I am including the address of a dealer who can supply good-quality fish but they may be rather expensive as they are by no means common.

I have come across a problem. When dividing a batch of calico fantails, I put half a dozen into a white bath. They had good colours when introduced but within a short space of time they lost their colours. Why was this?

This is the usual result of placing coloured goldfish into a white or very pale-coloured receptacle. This is a form of natural protection. Many very well-coloured fishes when placed in an exhibition tank at a show, will very quickly lose most of their colour. I have known well-coloured fishes, including tench, to lose much of their colour when placed in a clear-sided tank. I have often been told by exhibitors that their fish which were of an excellent colour have faded badly when put in the exhibition tank. This has been noticeable especially when fish have been caught from a garden pond and brought to the show. To prevent this happening the tank could be shaded from the light except from the front. Your fish will probably get their colour back when removed to a tank which is well shaded from the light.

I cannot keep the water clear in my pond. It is 8 ft. x 5 ft. and 2 ft. deep. I have in it two tench, 10 golden orfe, 12 goldfish and two Koi, also many snails. I have been told to let nature take its course and the water will clear in time. Is this so?

I think that if you leave it to nature you may be in for a disappointment. In a few years the pond could silt up and instead of being a pond would be just a swamp. It is surprising how much silt can form in a pond in just one year. As for nature taking its course, what are you doing to help it? Your pond appears to me to be very over-stocked with fishes. This stocking is hardly natural as if you could take a sample amount of water from half a dozen reservoirs or lakes so that the amount of water taken out was similar to the capacity of your pond, I doubt if the average number of fishes in that quantity would be more than one, and perhaps not that. Reduce the number of fishes and have plenty of water plants and the water should clear. Also it should be cleaned out every late autumn or early winter.

I would like to set up a tank in a junior class room and would prefer to keep minnows, sticklebacks and newts. Would this be a good idea?

You could keep the minnows and sticklebacks but they would be better in separate tanks. I suggest that you get a male and three female sticklebacks and if there are plenty of water plants in the tank, a nest might be made and the rearing of fry could be watched. Newts are not totally aquatic but are amphibians, only resorting to the water to breed and leaving soon after this is finished. If some strap-leaved plants, such as *Vallisneria spiralis*, are in the tank, the newts will lay their eggs in a fold of a leaf and as they are considerably larger than the eggs of goldfish, it is easy to watch the development of the embryo inside the egg. As a very small boy I spent many hours doing just that.

I have a pond in my garden with many fishes in it and I want to put a liner in it as the concrete is partly perished. When would be the best time to do this?

It is well to do this whilst the cold weather continues as the fishes are more sluggish then and less likely to be upset by a move. Also the plants will have died down a lot so making it easier to remove them. When carrying out the insertion, start emptying the pond in the early morning and catch the fishes when some of the water has been removed so that they are seen more easily. You can complete the task in one day and so the fishes can be kept in the bath whilst the liner is being put in. Water can be run in at once and as there is no likelihood of any harmful matter coming from the liner, the fishes can be returned that same night. Do not try to keep the fishes in buckets or small containers as, if they are fairly large ones, they could soon be in trouble in a small area.

THE MYSTERY

Haplochromis

by Richard A. Dunleavy

MY REASON for calling this article by the above title will become obvious as you read on. I purchased this pair of beauties some five months ago from a friend who is a local dealer specialising in Rift Valley Cichlids. He received them from his wholesaler under the name of Botswana Cichlids. We searched all the books available to us but were unable to find any information on these fish at all; apparently it is the old story of so many new fish being discovered and coming onto the market, that the people who write the books have no chance to keep up-to-date. I am of the opinion that the importers could do a lot to alleviate this situation if they so wished. Surely

they owe it to the public to provide as much information as they possibly can on any new fish they receive? I am quite sure the exporters would be only too pleased to inform their customers (i.e., the importers in this country) of the geographical location where the fish were caught, the conditions in which they live (i.e., lake or river, temperature, etc.). I realise that this could mean a bit more effort on the part of the exporter and importer but it would be to their advantage in the long run by virtue of a larger turnover, as most aquarists are very wary of buying fish which they have never seen or even heard of before, but if their local dealer was able to give them

some information on these fish they would be encouraged to buy them. Is this asking too much? Are the dealers too caught up in the rush to make money that they cannot or will not take the time and effort to provide this information which I feel is essential to enable the serious aquarist to try to recreate the fishes' natural environment and thus be able to breed them in fairly large numbers? As we all know, the day may not be too far off when many species of fish may only be saved from becoming extinct by the efforts of serious aquarists all over the world, but we cannot do it alone; we must have the co-operation of the dealers.

When I purchased my so-called Botswana Cichlids the male was one inch long and the female three-quarters of an inch. My friend received them from his wholesaler in separate bags marked male and female, but whoever sexed them must have gone by the difference in size, or by inspired guesswork as there was no noticeable difference in colour or shape at this time.

The fish were placed in a two foot tank in my fish house. The tank receives direct sunlight most of the day and has a heavy coating of algae on the back and side glass. Furnishings consisted of an inverted clay flower pot with a vee-shaped notch in the side, a number of small Amazon sword plants, and a clump of *cabomba* which had grown to roughly four feet, and had almost covered the entire surface of the tank. The pair settled down quickly and began feeding right away on bloodworm. Their diet over the next few weeks consisted of bloodworm, flake food, beef heart, *daphnia*, chopped earth worm and trout food. They grew quickly on this diet and attained what I think is their full size. The male was two inches in length and the female one and a half inches, and as I write this article they are still exactly the same size. When purchased they were a light pink in colour, not unlike the albino *corydoras* catfish, but this gradually changed to a sort of yellow-brown with approximately six dark bars which appear and disappear. In the male these are overlaid with greeny-blue diagonal lines and there is a diagonal black bar running from the corner of the mouth through the eye which is dark. The bottom lip is blue, the pectoral fins are pale yellow, the caudal fin is yellow with a pattern of red and blue speckles. This also applies to the anal fin. The dorsal is clear to yellow with blue speckles and there is also a thin red line topped by a black edge which runs the entire length of the dorsal. There is a dark green spot on the gill-covers. The female is rather drab in comparison with the male. My first spawning of this pair occurred during a very warm sunny spell of weather which we had in July, during which the temperature in my fish house reached 100°F. The temperature in the tank at the time of spawning

was 88°F. The water was slightly hard with a pH of 8. I did not observe this spawning or any of the subsequent ones so I am unable to say exactly how the spawning takes place. The first one occurred on the 10th July sometime between the hours of 6 p.m. and 10.30 p.m. I had no indication that a spawning was imminent when I fed the fish at 6 p.m. on my return from work. Observation of these fish is very difficult as they are extremely shy and at the least movement they dart away to their favourite hiding places. The male in the flower pot and the female into the *cabomba*, only coming out when they make a sudden dash to the surface to grab a little food and quickly disappear again. When I returned to the fish house to give the fish their last feed of the day I notice that the female did not appear at all, and on investigating I discovered her mouth was bulging with eggs. I immediately partitioned the tank with a piece of clear PVC, giving the female the larger section.

One week after the spawning I began putting dried plankton into the water to promote a good culture of *infusoria* in the water ready for the release of the fry. This occurred on the 25th July and as I had expected judging by the size of the female, they were pretty small, smaller than a new born guppy. There were approximately 40 fry and they progressed well for the next ten days until on the 4th August I was away all day and was unable to feed the fish until the following day and when I entered the fish house I discovered that the female had eaten the fry. I was so disappointed that without thinking of what the consequences could be, I removed the partition separating the pair, but luckily enough the food and fry she had eaten in the past ten days had got her into pretty good condition and she was not harmed in any way.

14 days later the pair spawned again and I decided the female would not get the chance to eat them again, so I followed the same procedure as for the previous spawning except that three days after the fry were released I removed the female to another tank for conditioning. As I write this article I have just had to remove the female again as she had started to eat the fry which she released only three days ago, so it seems I will have to keep my eye on her every time she spawns. The last two spawnings have been at temperatures of 78°F and 82°F, so temperature does not seem to play an important part in spawning this species.

I personally think that these fish are *Haplochromis kirawira*, a fish which I spawned some two years ago, when I lost both parents and fry due to a 28-hour power failure. Unfortunately I did not have these fish long enough to make a record of their colour, etc., and I cannot state with complete certainty that they are *Haplochromis kirawira*.

PRODUCT REVIEW

Aquarian Flake Foods

Spend a year touring the world visiting public aquaria, zoos, universities, fish-farms, etc. Talk to leading professional and amateur aquarists. Obtain and test a great many commercially-prepared fish foods. Then spend another year constructing and running an aquatic laboratory designed solely for experiments on fish nutrition. Finally, produce a food which is demonstrably superior to, and cheaper than, other recognised leading brand names. That is the story of Aquarian and its creator, Dr. David Ford.

Dr. Ford is a highly-experienced food scientist who in the past has been responsible for the development of many of Pedigree Petfood's innovations in the animal food market. He is now supervising the introduction and further development of the Aquarian flake food range and its accompanying selection of Aquarian aquatic water treatments. Pedigree Petfoods Ltd. is a subsidiary of the giant Mars combine, so that the Aquarian experimental programme has had the full benefit of that organisation's facilities and experience.

Aquarian is a new food. The flake configuration is made directly from fresh ingredients, whereas other foods are usually compounded from dried materials from silo storage. Thus the raw food is only heated up once during the manufacturing process so that much more of the natural goodness of the component materials is retained. Packaging is by means of hermetically sealed aluminium cans with ring-pull tops and plastic re-sealing lids which ensure freshness after the initial opening. The flakes are soft to touch and of good size. Their vitamin content has been made high deliberately, in line with the latest research findings, and this important feature should be maintained right to the bottom of the container if the re-sealing lid is properly used. Shelf life with the ring-pull top undisturbed should be practically indefinite and of course the container is waterproof. The range of foods marketed includes tropical, coldwater and marine general mixtures and also vegetable, carnivore, and colour diets, and fry foods.

I was able to visit Dr. Ford at his aqua-lab. at Melton Mowbray and spent a very enjoyable afternoon in his company. The comparison methods used in the laboratory were most interesting. Groups of test fishes, mainly Angels (*Pterophyllum scalare*), are installed in a number of thirty-inch aquaria, which all have identical environmental maintenance systems. Batches of fishes can therefore be fairly and easily compared with others whose artificial

habitats are similar. The aquaria have measuring scales on the front glasses and the fishes are then photographed when alongside these scales to provide a record of development. Other aquaria house more specimens, both freshwater and marine, also undergoing food trials. One interesting exhibit contained various invertebrates, including anemones, tubeworms and a starfish, whose sole nourishment is flake food. There is also a magnificent Clown Trigger (*Balistoides conspicillum*) which lives entirely on Aquarian marine diet. Future developments include a specialised invertebrate food in tablet form, and a goldfish food, for use in small containers, which will not encourage copious wastes.

As to the Aquarian flake food itself, I have found it to be a really good and satisfactory diet for general use. The various available mixtures are made up from nine basic flake types to suit the relevant requirement. The types are coded in that each is a definite distinct colour, and can therefore be selected from a mixed container if desired. My fishes took all of the different types eagerly and a test sample which have been fed only Aquarian for some time are doing very well. I was most impressed by the containers. Most fish-houses and tank-top storage places are ideal locations for the spoiling of newly-opened fish foods because of high temperatures and humidities, so these metal cans and their re-sealing lids are a welcome introduction. Guaranteed analysis is given on the containers but is liable to variation due to Pedigree Petfoods' policy of continual development and improvement.

Finally, I should perhaps mention to those who have been criticising our aquatic trade lately for its lack of invention and initiative that Aquarian products are British products, made in England, and thus deserve to be encouraged as an example of our national expertise and technological ability.

Prices (at time of writing):

Tropical Fish Flakes—100 c.c. 22½p, 200 c.c. 40p, 300 c.c. 57p, 8 oz. £2.75.

Goldfish Food—100 c.c. 17½p, 200 c.c. 26p, 300 c.c. 38p.

Marine Food and Vegetable Diet—200 c.c. 49p.

Carnivore, Growth and Colour Foods—200 c.c. 55p.

Fry Foods (Egglayer and Livebearer)—100 c.c. 32p.

Aquarian remedies—80 c.c. 55p.

Distributed to the trade by Pedigree Petfoods Ltd., Melton Mowbray, Leicestershire. Telephone: Melton Mowbray 4141. Leaflets and an advisory service are available to the general public. Samples available to aquatic societies.

Suhada Products

Suhada Aquaria Export (U.K.) Ltd., is a small progressive company which imports into this country natural materials from Sri Lanka (formerly Ceylon). This results in the availability of a specialised range of items which are of interest to the serious aquarist. The U.K. end of the operation is handled by Mr. W. V. De Thabrew, who is a native Sri Lankan and a qualified botanist. The four main items dealt with at present are:

Coral

A selection from up to sixteen different kinds of dead coral skeletons is usually available, varying from large complete "heads" to quantities of smaller broken-off pieces. All Suhada coral is cleaned naturally, i.e., without bleach or other chemical treatment, by a programme of exposure to the tropical sun, boiling, rinsing, and then soaking in clean sea-water. The pieces I saw needed only a quick wash to be ready for installation into aquaria, and were very attractive configurations. I was particularly interested by one very flat specimen with a smooth back (or underneath) which should be ideal for covering aquarium walls without great weight, if it can be obtained in large enough pieces.

Coral Sand

Two size grades are distributed—coarse and medium. The coarse grade is almost as large as aquarium gravel and contains a certain amount of small sea-shell pieces. The advantage of this larger size I would think would be in its application to use in biological filter beds. One of my worries concerning marine aquaria has always been that the usual grades of coral sands seem to be far too fine for really efficient usage. This coarse Suhada coral sand should then be a really welcome introduction. The sand is not treated in any way and so should contain a reasonable population of beneficial bacteria and some salt-water constituents. Its appearance is very natural, due to the content of broken shell and other coloured particles.

Bulb packs

These contain a selection of bulbs of *Aponogeton crispus*, *Aponogeton undulatus*, and *Nymphaea stellata* packed dry in a fibrous medium. In the sample packs all the bulbs were hard to the touch, which is usually an indication of quality, and of good size. They were planted in various aquaria, and some were given to friends, and many fine plants resulted. The *Nymphaea stellata* are particularly impressive, having large, pink, heart-shaped leaves which will grow in mid-water if the plant's attempts to throw aerial leaves is thwarted by the aquarist breaking off

the growing stems well below the water surface.

Fibre Planting Medium

A finely textured peaty material containing a proportion of larger, fibrous matter. This mixture is apparently the medium in which many aquatic plants grow in their natural habitats in Sri Lanka, and it is collected there and sun-dried before shipment. Suhada recommend that it be sandwiched between gravel layers to provide a rooting stratum, and especially suggest its use with the *Cryptocorynes*.

Besides supplying the above products, Mr. De Thabrew proposes to initiate an advisory facility, to be known as the Aquatic Plant Information Service (APIS). It will be a non-profit making venture which will be open to all aquarists on payment of a nominal annual subscription of £2.00. Subscribers would then receive a monthly bulletin dealing with aquatic plants and their growth and propagation, periodic news of new developments in this field, and individual advice whenever required. The service is to be administered by qualified botanists who have intimate knowledge of the natural habitats of many of our aquarium plants, and it is also thought that sources of information not normally available to the hobbyist could be explored by this means. It sounds like a good idea. I shall have a go myself and may then be able to give an opinion at a later date.

Prices (at time of writing):

Coral—65p—£1.30 per lb., depending upon type and quality.

Coral Sand—14p per lb.

Fibre Planting Medium—50p per lb.

Bulb Packs—9 for 90p; 12 for £1.10.

All including V.A.T.

Distributed by Suhada Aquaria Export (U.K.) Ltd., 4 Somerset Road, Cindesford, Gloucestershire GL14 2EY. Telephone: Cindesford 22704.

A. JENNO.

Liquifry Marine

Marine aquarists should welcome the introduction of this new formulation of Liquifry, which has been especially designed for use with those invertebrates which obtain their nourishment directly from the surrounding water by filter-feeding.

For many years Green Liquifry, intended for livebearer fry, has been used as a convenient food for these creatures with reasonable success. Research has shown, however, that the average particle size was rather large for this purpose, and that the balance of ingredients could be improved for this specific purpose. These changes have now been made and the result is Liquifry Marine. It has also been

Continued on page 499

Junior Aquarist

BOAS & PYTHONS IN CAPTIVITY (I)

by John Coborn

DURING the past few years, the hobby of keeping reptiles and amphibians in the home has gained great popularity, and lately I have been receiving ever increasing queries on the subject. Many over enthusiastic beginners buy a reptile, and then realise that they know little about keeping it. It is with this in mind, that I am writing a short series of articles on the subject of keeping and rearing pythons and boas, which are possibly the most popular exotic species on the market.

Young boas and pythons of various species are usually readily available, but unfortunately, mainly due to the ignorance of the purchaser, many of these survive no longer than a few weeks. However, it is no difficult matter to care for these splendid reptiles, as long as a few basic rules are followed; but first, a brief note on classification.

The family Boidae, which contains about 100 species, includes all of the so-called "giant" serpents, although there are also many lesser species, some of which barely reach 2 feet in length. They are rather primitive snakes and still possess a pelvic girdle. There are even vestiges of hind limbs, which show as a hard claw on either side of the vent. This suggests late evolution from some kind of primitive lizard. The family is divided into two sub-families: the Boinae and the Pythoninae. The majority of the Boinae, or true boas, are found in the new world, although a few of the burrowing species occur in North Africa, Madagascar, India and some of the Pacific islands. The Pythoninae occur in Africa, Asia and Australia. Differences between the two sub-families are few, the Boinae producing living young and the Pythoninae being egg layers. There are also differences in the skull structure.



ROYAL PYTHON (*Python regius*)

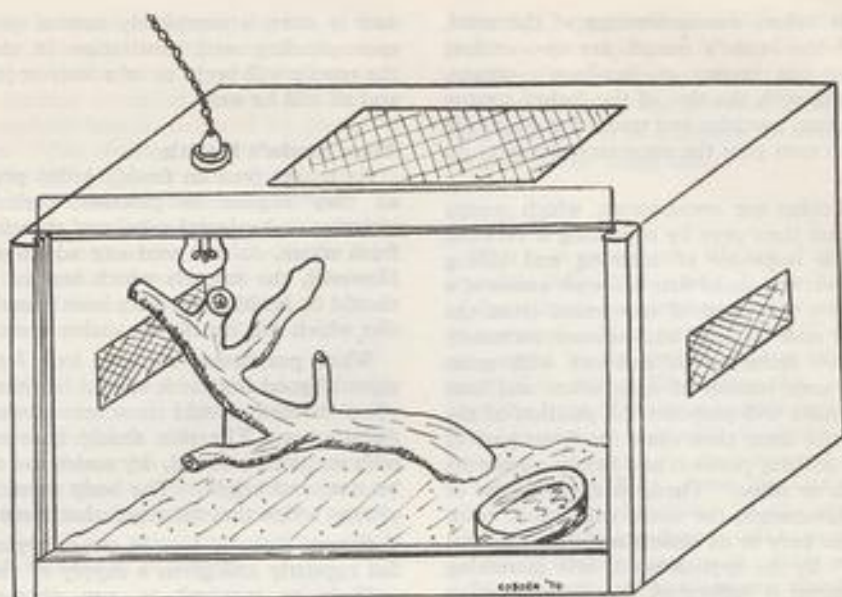
Housing

Various terrariums are available on the market, but are often rather expensive. The handyman, however, should be able to knock up a suitable cage quite cheaply, or an old leaking fish-tank with a tight fitting lid may be used. Most of the snakes available are young, often newly born or hatched, and rarely more than 3 feet in length, so a cage 30 inches long by 18 inches high by 12 inches would be quite suitable. This may be constructed from $\frac{1}{2}$ in. thick ply. Ventilation holes 3 inches by 2 inches are made in the ends about half way up and a larger one approximately 9 inches by 3 inches in the roof. These are covered with fine mesh or perforated zinc. Two pieces of grooved batten are fixed to the front of the sides into which a sheet of glass may be slid. Another 2 in. batten should be fixed along the front base of the cage to retain the floor covering. Both inside and out may be painted with first an undercoat, and then one or two coats of good gloss paint.

As most of the Boidae are tropical, it is necessary to provide some form of heating. The simplest method is to fit a bulb socket on the inside of the roof and into which is placed a 60 to 100 watt bulb. The wire can pass through the roof of the cage via a small hole, and for convenience be attached to a wall plug. The best daytime temperature for most species is 85°F, and if a thermometer is placed inside the cage, the correct heat can be attained by experimentation with bulbs of various wattage. If a thermostat is fitted to the system, this will ensure that the inside of the cage does not become too hot. Temperatures of 95°F over a protracted period can be fatal. At night time it is important that the heat should drop and it is normally safe to turn the light off completely as long as room temperature is not likely to drop below 65°F.

Furnishing

For the sake of good hygiene, the floor of the cage may be covered with a folded newspaper which is



changed every time it becomes soiled. Quarter inch gauge gravel is more attractive but must be changed regularly or it will harbour germs and parasites. A dish of fresh water, large enough for the snake to bathe in as well as drink from, should be available at all times. A heavy earthenware "dog" dish is suitable for the young of most species. Most of the family love to climb in the branches of trees and so a heavy twig should be provided. This will also assist the snake in its periodic slough, or skin shedding, as it requires a rough surface on which to loosen the skin around the lips. Most of the tropical rain forest species will benefit if sprayed gently with lukewarm water about three times a week. The use of living plants in a python cage is not recommended as the snakes would soon flatten them. A large flat rock, propped up by two smaller ones, will be appreciated by the snakes as a hiding place. Even snakes like a little security.

As your snake grows, it will require a larger cage, some species reaching a length of eight feet in 2-3 years. Contrary to popular belief, snakes do not require a massive vivarium, in fact, most species remain much healthier in a small one, as long as a branch is provided for exercise and it is kept clean. As a general rule, allow about one and a half square feet of floor space per foot of snake. With a little imagination, the enthusiast can construct a really attractive vivarium, complete with artificial cliff faces and even a waterfall.

Management and Feeding

As all of the Boidae can give quite a nasty bite,

especially as they grow larger, it is imperative that they become accustomed to regular handling. The best way to do this is to pick them up daily in the hands and allow them to crawl up the arms, taking care not to grip them too tightly or make any sudden movements. When lifting any snake it is important to give the body plenty of support so use both hands and do not allow any part of the snake to drop as this could damage the spinal column. On warm summer days, the snake can be taken outside and allowed to crawl about on the lawn, but keep an eye on it or it will rapidly disappear and possibly give some neighbour a nervous breakdown later on.

All snakes are carnivorous, and in the wild they catch and kill living animals before swallowing them whole. As is well known, the jaws of a snake are extremely elastic, thus enabling the reptile to swallow objects many times larger than its own head. Most of the Boidae feed upon warm blooded prey; that is mammals and birds, although some of the more aquatic species will take the occasional fish or reptile. Snakes are primarily attracted to their prey by movement, followed by heat reception and scent. Most of the pythons and boas are provided with a number of curious devices on the upper and lower lips known as heat receptors. They take the form of rows of small pits, usually five or six on the upper jaw on each side, and just below the nostrils and a similar number on either side of the lower jaw. These pits contain heat sensitive membranes which enable the reptile to recognise warm-blooded prey, even in the dark.

The forked tongue of all snakes plays an important role in food recognition, the prey being thoroughly

tested with this before commencement of the meal. In the roof of the snake's mouth are two orifices containing what are known as Jacobson's organs. These correspond with the tips of the forked tongue which pick up scent particles and transfer them to the organs, which in turn pass the necessary messages on to the brain.

All of the Boidae are constrictors, which means that they suffocate their prey by squeezing it between their coils. The sequence of catching and killing prey, is as follows: the snake first becomes aware of a potential meal by the sight of movement from the animal. It will raise its head and become extremely alert, the tongue flickering in and out with great rapidity. By a combination of sight, scent and heat reception, the snake will pinpoint the position of the animal, and at the same time draw the front part of its body into a striking position and firmly anchor its tail to a branch or stone. Then, in a succession of simultaneous movements, the snake will launch itself forward, grab the prey in its mouth and throw several coils around it. By the application of ever increasing pressure, the animal is suffocated, this usually taking about one minute. Before commencing to swallow, the reptile will first taste the animal all over with its tongue. Swallowing usually starts at the head end of the victim, the whole process taking from one to several minutes, depending on the size of the meal.

In captivity, it is possible to train most of the Boidae to take dead food although the author personally takes the view that the snake probably makes a better job of killing an animal than the snake's owner would! In fact, in most cases, the snake kills much more humanely. The young of the larger species and all of the smaller types can be started off on small mice, these being usually easy to obtain. The enthusiast can easily breed enough mice for his own use. For the first few months, a baby snake will eat three or four mice per week. As it grows, other items can be brought onto the menu, the easiest obtainable being chicks and rats. Most of the larger species, after reaching about eight feet in length, will thrive on a large chicken or guinea pig about once per week. Before feeding exotic species, ensure that the vivarium temperature is at least 85°F; a warm snake is more likely to feed well than a cold one. Just before the periodic slough, heralded by a milky mistiness of the eyes, a snake will not feed. As most of the boids are nocturnal, it is preferable to feed them in the evening. If anything is still uneaten the following morning, it must be removed immediately as live food will damage and soil the interior of the cage and dead food will soon begin to putrefy if not removed. If a snake is unwell and off its food, it is even possible that a live rat or mouse will start to eat the snake. Pythons and boas occasionally go on "hunger strike," for periods of several weeks. This is usually no cause for alarm

and is often a completely natural process, possibly corresponding with aestivation in the wild. Soon the reptile will begin to take interest in its food again and all will be well.

Your Snake's Health

As snakes feed on freshly killed prey they receive all they require in proteins, carbohydrates, fats, vitamins and mineral salts, and therefore, apart from fresh water, do not need any additional supplement. However, the animals which are fed to the snakes, should be healthy and have been raised on a balanced diet which will benefit the snakes accordingly.

When purchasing a snake, look for the following signs of good health: it should be lithe and alert and when touched, should show immediate interest in the disturbance. The skin should be smooth and clean with no patches of old, dry scales and the eyes should be clear and bright. The body should be reasonably plump, a sign that the reptile has recently fed.

If your snake is kept in clean, hygienic conditions, fed regularly and given a supply of clean water, it is unlikely to succumb to any disease. There are, however, a few ailments which occasionally crop up, and it is advisable to know what to do should any occur.

Difficulty in Sloughing

When a healthy snake sloughs, the complete skin should peel off from nose to tail in one piece, including the brill or eye shield. If the skin comes off in dry patches it is a sign that the snake is ailing. It should be placed in a container of lukewarm water (ensuring that it has a secure, ventilated lid), and left for two or three hours, after which the old skin may easily be peeled off. The eye brills will often be more difficult to remove, but this may be carefully done with a pair of forceps. The health of a snake which has been treated in this manner, will often improve tremendously, in fact it often saves the reptile's life.

Snake Mite

Snake mites are external parasites of the Arachnid genus *Ophionyssus*. They can cause much distress to a snake, as they burrow behind the scales and suck the reptile's blood. Large quantities of them can cause intense irritation, anaemia and the transmission of communicable diseases from reptile to reptile. The adult mites may be seen as tiny globular red or black creatures, moving rapidly over the surface of the scales. The first signs of mite infestation are usually difficulty in sloughing and the appearance of minute, white spots (mite droppings) on the skin surface.

The infested snake should again be placed in lukewarm water but a gentle swabbing of the skin with cotton wool will help to remove the mite. This should be done several times, and each time the water

is changed. The snake should finally be left to soak for two or three hours. In the meantime the cage should be stripped down, twigs, gravel, etc., thrown out, and the interior scrubbed out with a strong solution of household bleach, followed by plenty of soap and water. After swilling out with clean water, the cage should be allowed to dry thoroughly, preferably in the fresh air, before the snake is returned. To prevent reinfestation a tiny portion of insecticidal strip (Mafu, Vapona, etc.) can be fixed inside the cage, ensuring that the snake cannot touch it. (Cover it with a small piece of wire gauze).

Ticks

Various species of tick are often found on freshly captured snakes, usually found with their heads firmly lodged between the reptile's scales. They are much larger than mites and may be up to six millimetres in length. In order to remove them it is first necessary to dab them with a little methylated spirit or turpentine to relax the tick's mouthparts before gently pulling them off with a pair of forceps.

Nematodes

All snakes are subject to various internal worm

infections, symptoms of which are stunted growth, leanness, etc., in spite of regular feeding. Various proprietary worming solutions can be given to snakes by first injecting the required amount into a dead food animal. It is advisable to consult a veterinary surgeon before doing this.

Mouth Rot

This is an unfortunate ailment of captive snakes and is rather difficult to treat. It is a bacterial infection of the mucous membranes, usually starting at the site of a wound. Most wounds around a snake's mouth are caused by the reptile striking wildly at the glass front of its cage. To prevent this, it is advisable to keep the front of the new snake's cage covered for the first few days, at least until the snake is used to being handled. If mouth rot does occur, the first symptom is usually a swelling of the lips and the mouth will often hang partly open. If the mouth is gently opened, a grey slimy deposit will be seen. This should be gently swabbed away with cotton wool soaked in a mild antiseptic. The treatment should be continued daily until all traces of inflammation have disappeared. The snake is not likely to feed until a cure is effected.

PRODUCT REVIEW *contd. from p. 495*

found to be more suitable for feeding newly-hatched Brine Shrimps. Those lucky enough to have marine fish fry available might like to try it with them.

The makers state that "as a rough guide in a normal arrangement" a reasonable initial feeding rate would be one drop per gallon given every other day, which can then be modified as the aquarist finds necessary and, of course, as results from his routine nitrite testing dictates. The container is a plastic dropper bottle holding 110 ccs.

Price (at time of writing)—75p including V.A.T.

Distributed by Interpet, Curtis Road, Dorking, Surrey RH4 1EJ. Telephone: Dorking 3202.

A. JENNO.

The Interpet Giant Air Pump

A large double-diaphragm pumping mechanism with four individually adjustable air outlets. A common energising coil activates two vibrating arms, each of which is connected to a large diaphragm of one-and-a-half inches diameter. Each diaphragm supplies two of the air outlets and has its own valve chamber. Output adjustment is quite novel in that each outlet pipe has a circumferential rubber collar which operates a regulator when rotated. Unused outlets can be completely shut off.

The pump is housed in an attractive heavy plastic

case which has a screwed-on base plate whose removal gives access to the internal components. Rubber feet and an inlet air filter are fitted, and the mains cable is lead in through a reinforced gland. The cable is about one metre long.

In use the pump is, for all practical purposes, silent. I found the output adjustments to be a little finicky, but once set they do seem to maintain a constant flow. For testing, one large aquarium with under-gravel filters was run off each of the outlets for several weeks. No complaints at all. The pump could probably supply more tanks than this with more sparing regulation of the air supplies by the aquarist, especially, of course, where very fast turnover rates are not required, i.e., as in planted environments.

Externally the unit measures approximately 4½ inches by 7 inches by 4 inches high, so it can be seen that it is a substantial item. It is solidly made and the internal mechanism is simple and robust. Brass air output fittings are standard. It is manufactured in Japan but I assume that Interpet will ensure that a good supply of spare parts is available. Directions are printed on the box in English. Electrical consumption, by my measurement, is about eight watts.

Price (at time of writing)—£11.00 including V.A.T.

Distributed by Interpet, Curtis Road, Dorking, Surrey RH4 1EJ. Telephone: Dorking 3202.

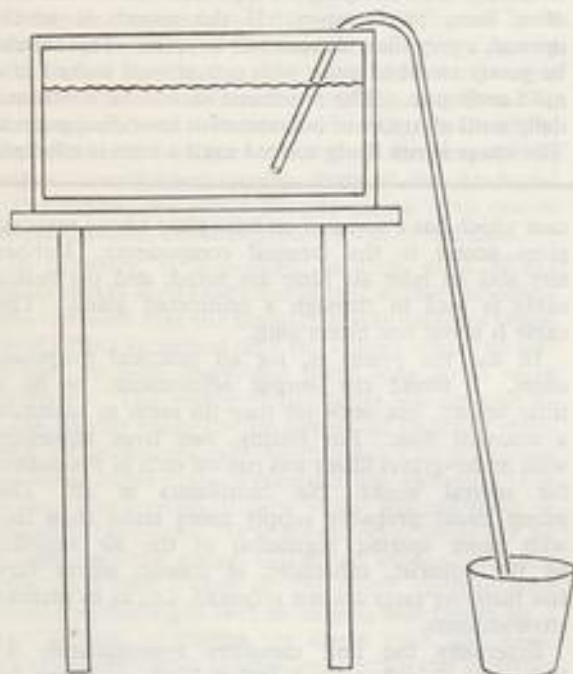
A. JENNO.

BEGINNERS' CORNER

(3) WATER MANAGEMENT

by Bill Simms

AN EXPERT I was talking to said, "I don't mind losing a fish or two, but I hate to lose good water," and I knew just what he meant. The water in a well-balanced and healthy tank is worth lots more than all the fish in it, for without that good water the fish would not thrive. When water plants are thriving, absorbing carbon dioxide and nutrients and discharging



SYPHONING

oxygen, while the fish are exhaling carbon dioxide (to feed the plants) and excreting wastes (to feed the plants), all should be going well. Too few plants to an excess of fishes can spoil this balance; and even worse is too much food for the fish to clear away at once, for this causes an excess of harmful bacteria to develop. The way to approach the art of aquarium keeping is to adopt a new viewpoint. You should not be thinking of a fish tank with a few plants in it to make it look nice, but a water garden, thickly

planted, with a few fish in it to provide manure for the plants.

This is a most important point of view, and one the beginner must adopt to ensure a reasonable success. Once the principle is grasped the rest falls into place. Tropical fish are usually small, and so a number of them are easily balanced by a few dozen plants. Cold water fish—goldfish, etc.—are bigger, so that one 2-inch fish is equal in bulk to twenty tropicals, and, therefore, to put more than one such fish with about five dozen plants would upset the balance badly, causing some of the water to be changed regularly. This would be in order to remove excess nutrients and minerals from the fishes that the plants would not be able to remove—there would not be sufficient room in the average aquarium to plant enough plants to do this. A 24-inch tank, thickly planted with good water plants, would balance well with one 2-inch goldfish, without changing the water. If more fish were added the water would become overcharged with minerals, and some of it would need to be changed regularly.

When water does need changing it should be syphoned out taking only about half the water at any one time. To syphon water a tube is needed that reaches well into the lower half of the aquarium, and extends over the rim to a point well below the water in the tank—to the floor, for example. A good suck at the lower end while the upper end is in the water will start it flowing, and then it will continue.

This needs practice, and so you should try it with a bucket of clean water first, so that any you get in your mouth will not be unpleasant. It is easy to learn the correct degree of "suck" to start it without getting a mouthful of water. Always bend down to make the suck from well below the water in the tank to be drained.

Another method is to immerse the whole tube in the tank to fill it full of water, and then, while keeping one end in the water, put your finger over the other end while pulling that end out and lowering it to the bucket to drain it into. There the finger is removed from the tube end and the water will flow—if you have done it correctly. With a well-planted tank, however, this method can disturb or uproot plants, because of the tube's bulk in the water.

OUR READERS WRITE

North East Successes

On behalf of the Tyne Tees Area Association of F.B.A.S., I would like to congratulate Mr. V. Davison on winning the Champion of Champions, also Mr. Fleet on attaining 3rd place. Also our thanks to Hartlepool and Northumbrian Aquarists on keeping the North East flag flying at Belle Vue, 1974 and 1975.

GEORGE T. LIDDLE,
P.R.O., T.T.A.A.

Product news for clubs

Our Club has started a scheme primarily for the benefit of beginners in the hobby. In this we have discussions and illustrations where possible on the starting up of fish-keeping. We thought it would be a good idea if we could have either literature (e.g. advertising material and technical details of the products of various companies) to assist the beginner in starting the hobby. We have so far had great difficulty in obtaining this information as we find that either the shops do not use and, therefore, dispose of this material, or that the companies do not put out sufficient.

We think it may be an idea that the Companies, instead of sending the literature to the shops, distribute it to the Clubs, the Clubs would then generate the demand necessary for that particular product in that area by going to the shops and asking for a particular product that they have the information on. This idea does work in the case of the medical profession in that the Doctors receive samples and pamphlets and, therefore, they can create the demand.

This would not be so hard, to do as all it would require is an up-to-date list of the Secretaries' names and addresses which can be obtained from the Confederation of United Kingdom Aquarists and Federations of British Aquarists. These two bodies although they do not have the information on hand, would be able to acquire it without difficulty from Member Associations and can keep the Companies supplied with an up-to-date list.

MRS. S. WOODLIFFE,
(Secretary),
Lincoln & District A.S.,
36, Richmond Road,
Lincoln, LN1 1LR.

Ping-Pong-Ball-Cock

This concerns my marine set-up. All my friends had fish dying, some getting eaten and some always sick. These things didn't happen to me. My 6 inch Picasso trigger would play with a 2 inch damsel; my butterfly spent more time with the anemone than the clown; the regal tang and the spotted grunt were the best of pals. It was heaven until one morning I was brought down to earth or should I say water. My tank had burst during the night and left me with 10 gallons of water all over the front room and my little world lying dead. I turned to my wife and said "my poor fish." She turned to me and said "my poor carpet." Fortunately my Picasso survived and while I was nursing it back to health my wife looked at the now unfitted carpet and said: "never again." It wasn't to be, though, because my now very healthy trigger was melting her heart.

My new tank was made of wood, painted with fibre glass resin. Inside this I used $\frac{1}{2}$ inch plate for back, sides and base, $\frac{3}{4}$ inch plate up front reinforced with angle iron, but I thought it could leak or the glass could break again so I built an alarm into it. I aqua-sealed a ping-pong ball onto a strip of perspex to make a miniature ball-cock with a micro switch at the other end. Finally a very large alarm in the bedroom. I could now go to sleep and not worry, for if as little as $\frac{1}{4}$ gallon leaked, down would go the float and off would go the alarm.

In the days that followed, Percy the Picasso played with the ping-pong ball which would set off the alarm, so I cured that by only switching it on at night when he had gone to bed. For three nights all was well until 3 a.m. one morning my alarm went off. I shot down stairs with my wife close on my heels and opened the living room door to find not 10 gallons of water around my feet but my Hermit crab hanging from the ping-pong ball. Needless to say he now lives in the dog-house or rather the quarantine tank.

But having said all that I'd go through it all again when I can look in my tank and see the result of a little care and attention.

P. KOLOSINE,
22, Preston Court,
Lumbertubs,
Northampton.

Y.K.S.

I should like to draw the attention of Readers to the newly formed Yorkshire Koi Society. The Society meets monthly at venues throughout Yorkshire and the North East and issues a monthly newsletter called "Koi." On joining every member receives the newsletter each month, a set of rules, a programme for the year and a copy of the book "Koi-keeping for Beginners."

Anybody is welcome to join, whether expert or novice, and full details can be obtained from The Secretary, J. W. Mawson, 78 Gledhow Wood Avenue, Roundhay, Leeds.

Yours faithfully,
F. J. AYRES, Chairman.

Dear Sirs,

My first reactions on reading Mr. Whiteside's and Mr. Sandfield's comments in the November *Aquarist* were ones of despair and amazement. Despair because they had obviously not read my previous letter properly, making my task an almost impossible one; amazement because I could not believe such irresponsible nonsense could actually appear in print. I had no intention of replying originally, as it is quite clear that Mr. Sandfield has nothing sensible to add on the subject and doubtful if Mr. Whiteside is really au fait with the British aquatic scene. However, in retrospect, one more letter can do no harm and so I will attempt an intelligent, logical and thoroughly professional objectivity that both gentlemen seem to deprecate.

I cannot see what International Socialist dogma has to do with my plea for a better hobby and therefore will not dwell on Mr. Sandfield's letter; suffice it to say that he seems easily satisfied as I know of at least one premises within the area he states that has, almost constantly on display, dead or diseased fish and is staffed by unhelpful scruffs. I maintain excellence; most premises seem to have difficulty achieving mediocrity.

Mr. Whiteside is a more noble adversary to cross pens with however, as he has at least gone to the trouble to list data that can be assimilated and debated. Firstly: what about those Gussie pumps. They are a fine example of British expertise and cunning aren't they Mr. Whiteside? They are, in fact, made in Japan; so please do your homework before indulging in such blatant inaccuracies. I have personally returned to Barry M. Austin & Co. (my suppliers) many faulty automatic heaters of the type mentioned in W.Y.O.? and I know I am not alone as Queens-

borough Fisheries contacted me with the same problem. They had been told that they were the only people to have complained. We both found we had gone to a lot of trouble and expense, replacing boiled fish and visiting customers' homes, with no feeling of remorse on the manufacturers behalf.

It was Dr. Carrington of InterPet Ltd. who informed me of his company's reluctance to invest in tooling for a British power filter after I questioned his plan to import yet another continental power filter of questionable quality. Mr. Whiteside asks for a better filter than an Airstream, then let him try Eheim. (Perhaps I am cheating a bit here as Eheim, although the "Rolls Royce" of filters, is a good deal more expensive).

My first letter was written before Aquarian foods were marketed but if Mr. Whiteside would care to read the *Aquarist* more carefully, he would see that in a small way, I did in fact help Dr. Ford to develop this marvellous product.

There are some excellent British products; I could list many examples of equipment and aquariums of superb quality and design available on the continent though. If you want to see how it should be done I strongly recommend a visit to the INTERZOO exhibition, Wiesbaden, in May, 1976. You will come away ashamed of the poor state of the British market.

As for the cost of the hobby in Britain; it is reasonable, it is a cheaper hobby than virtually any you care to mention, with the possible exception of welly throwing. We have at our disposal an inexpensive and immensely enjoyable hobby that cannot afford to be further cheapened by aquarists who resent paying a fair price for quality and knowledge. I do not wish anybody to "pay through the nose" for anything but please let's stop constantly harping on about cost when service and quality must surely be more important. Because of this country's almost pathological craving for second best we are fast being left behind by nations willing to work harder, longer and more conscientiously than we are. I do my bit by ensuring that my staff and I do just that.

B. ADAMS,
The Ark Aquatic Centre Ltd.

*A Merry Christmas and Happy New Year
to all our readers throughout the World*

News

from AQUARISTS' SOCIETIES

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

ENTRIES for the Bishop Cleeve A.S. open show totalled 356. Best fish in the show was a whiptail catfish entered by C. Turner. Results were: Guppy Male: 1, J. Ferguson; 2, D. W. Parry; 3, D. Curtis; 4, P. J. Greenwood. Guppy Female: 1, G. V. Ludlow; 2, D. & R. Clark; 3, D. Curtis; 4, P. J. Greenwood. Platies: 1, C. Turner; 2, Mrs. K. Martin; 3, D. Curtis; 4, F. Timmins. Swordtails: 1 and 2, P. J. Greenwood; 3, G. W. Roan; 4, A. & M. Smith. Mollies (Velifera and Lattipina): 1, J. Douglas; 2, J. Ferguson; 3, B. Holder; 4, Mrs. K. Martin. Mollies (A.O.V.): 1, Mrs. J. Hawkins; 2, C. Jackson; 3, T. Taylor. Barbs (under 3-in.): 1 and 3, Mr. and Mrs. K. Hodges; 2 and 4, F. Timmins. Barbs (over 3-in.): 1, D. Wing; 2, M. Bibb; 3, J. F. Edwards; 4, B. R. Goll. Danos, Minnows: 1, M. Strange; 2, C. Turner; 3, H. Davis; 4, J. J. Edwards. Rasboras: 1, C. Turner; 2 and 3, D. & R. Clark; 4, A. & M. Smith. Botia, Loaches, Sharks, Flying Fox: 1, F. Timmins; 2, D. Parry; 3, H. Chick; 4, K. Owen. Hyphestrichodon, Hemigrammus, Cheiridon: 1, H. Chick; 2, C. Turner; 3, J. Douglas; 4, Mr. and Mrs. K. Hodges. Nannostomus and Poeciliabrycon: 1, Mrs. Strange; 2, T. Taylor; 3, B. R. Goll; 4, Mr. Lawrence. A.O.V. Characins: 1, D. & R. Clark; 2 and 3, C. Turner; 4, J. F. Edwards. Dwarf Cichlids, Agostogramma, Nanaos, Pelmatochromis: 1, F. Timmins; 2, R. Towler; 3, P. J. Greenwood. Large Cichlids A.O.V.: 1 and 4, J. W. F. Hughes; 2, J. V. Walton; 3, P. Tanner. Angels: 1, J. Taylor; 2, M. Rodgers; 3, M. Durbin; 4, J. J. Edwards. Siamese Fighters: 1, B. Toose; 2, J. Shapcott; 3, D. Curtis. Anabantus A.O.V.: 1, F. Timmins; 2, D. & R. Clark; 3 and 4, Mark Freshney. Corydoras and Bionchis: 1 and 3, P. J. Greenwood; 2, T. Taylor; 4, G. V. Ludlow. Catfish A.O.V.: 1 and 2, C. Turner; 3, K. R. Baker; 4, Mr. Whitaker. A.O.V. Livebearers: 1, Mr. and Mrs. K. Hodges; 2, N. Wing; 3, M. Bishop; 4, A. & M. Smith. A.O.V. Egglayer: 1, Mr. Lawrence; 2, J. Ferguson; 3, J. Douglas; 4, F. Timmins. Killifish: 1, F. Timmins; 2 and 4, B. Toose; 3, R. A. Poots. Sexed Pairs (Livebearers): 1, R. A. Poots; 2, Mr. Whitaker; 3, D. F. C. Kenwood; 4, F. Timmins. Sexed Pairs (Egglayers): 1, R. A. Poots; 2, S. Jones; 3, Mrs. Timmins; 4, J. W. F. Hughes. Breeders (Livebearers): team of four: 1 and 4, M. Bishop; 2, C. Turner; 3, Mr. Lawrence. Breeders (Egglayers): team of four: 1, C. Turner; 2, B. Toose; 3, M. Strange; 4, R. A. Poots. Junior A.V. Fish: 1, Master S. Owen; 2, Mark Freshney; 3, O. Small; 4, P. Atwood. Shubunkins: 1, M. Bishop; 2, C. Giller. Single and Twin-tailed Goldfish: 1, M. Rogers; 2, M. Bishop; 3, B. R. Goll; 4, P. Roml. A.O.V. Pond or River Fish: 1, Mr. Lawrence; 2, B. R. Goll; 3 and 4, M. Bishop. A.V. Marine: 1, 2 and 3, W. Martin.

THE Killingworth Aquarist Association held its third Annual General Meeting in October and the new committee was formed as follows:—President: D. Renton, Chairman: D. B. Hickman. Secretary: W. Kidd, 75, Hartlands, Bedlington, Northumberland. Show Secretaries: B. Davison and T. Wynn. Trophy Secretary: H. Sparham. Librarian: Mrs. J. Wynn. T.T.A.A. representative: Mr. Chadband. Breeders Book and Junior Representative: Miss W. Davison.

FINAL Show of the year for the **Midland Aquarist League**, took place in October and the show was well supported with 222 entries, but despite a strong challenge by the Leamington Society, they were unable to take the overall lead away from the Coventry Society. Although the league finished financially even for the year, plans are being formed to revise the shows for next year, in an attempt to combat rising costs. Best-in-Show was awarded to Mr. and Mrs. Chamberlain (Leamington) for a Fire Eel, 80 pts. League points for the year (three shows):—Coventry Pool & A.S. 98 pts; Leamington D.A.S. 75 pts; Hinckley D.A.S. 67 pts; Bedworth A. & P.S. 50 pts; Loughborough D.A.S. 36 pts; Rugby Fishkeepers 19 pts; Goodyers End A.S. 15 pts. Individuals gaining the most points for the year were:—Mr. and Mrs. Short of the Hickley Society with 58 pts, and they were awarded the R. and R. Tedds Trophy. Special thanks were expressed to the M.A.A.S. Judges for their services during the year.

RESULTS of the Haslemere and District A.S. Open Show were as follows:—Ag: 1, G. M. Rushbrooke (Reading); 2, R. J. Hard (Haslemere); 3, R. Paine (Haslemere); 4, Mr. and Mrs. W. Beattie (Godalming). Ak: 1, M. Bellingham (T.D.A.S.); 2, A. Talm (Godalming); 3, L. P. Budgen (Godalming); 4, Mr. and Mrs. W. Beattie (Godalming). B: 1, T. Burvill (Basingstoke); 2, M. Carter (Southampton); 3, M. Dore (Reading); 4, R. Paine (Haslemere). Ca: 1, Mrs. P. Newbury (Gosport); 2, R. Onslow (Kingsclere); 3, T. Burvill (Basingstoke); 4, B. Sayers (Brighton). Cr: 1, P. Rushbrooke (Reading); 2, B. Sayers (Brighton); 3, R. and T. Tester (Mid Sussex); 4, C. and J. Richards (Sudbury). Da: 1, R. J. Canning (Newbury); 2, R. Onslow (Kingsclere); 3, Mr. Usher (Doncaster); 4, Mrs. P. Newbury (Gosport). Db: 1, Mrs. R. Houghton (Brighton); 2, M. Carter (Southampton); 3, Mrs. P. Newbury (Gosport); 4, K. Groves (Horsham). Dz: 1 and 4, Mrs. R. Houghton (Brighton); 2, K. R. Connelly (Gosport); 3, A. S. Gibson (Reading). Ea: 1, Mr. Carter (Southampton); 2 and 4, O. Sandford (Reigate and Redhill); 3, C. Richards (Sudbury). E: 1, P. Brown (Southampton); 2, D. Langford (Haslemere); 3, A. Chaplin (Basingstoke); 4, R. J. Hard (Haslemere). F: 1, P. Brown (Southampton); 2, R. J. Canning (Newbury); 3, C. and J. Richards (Sudbury); 4, D. Reilly (Runnymede). G: 1, D. Reilly (Runnymede); 2, R. J. Canning (Newbury); 3, R. J. Shankland (Brighton); 4, A. Chaplin (Basingstoke). H: 1 and 2, K. E. Taylor (Havant); 3, A. Chaplin (Basingstoke); 4, T. Watson (Haslemere). J: 1, A. I. Feast (Tonbridge); 2, Mrs. P. Newbury (Gosport); 3, A. Chaplin (Basingstoke); 4, T. Burvill (Basingstoke). K: 1, R. Onslow (Kingsclere); 2, Mrs. P. Newbury (Gosport); 3, S. Bartlett (Sudbury); 4, L. P. Budgen (Godalming). L: 1 and 2, K. Groves (Horsham); 3, A. E. Noronha (Orpington); 4, K. A. Hillier (Newbury). M: 1, K. B. Connolly (Gosport); 2, R. Onslow (Kingsclere); 3, D. Reilly (Runnymede); 4, Mrs. M. Shirley (Haslemere). Nb-m: 1, Mr. Foxlee-Brown (Roehampton); 2, K. B. Connolly (Gosport); 3, C. J. Richards (Sudbury); 4, Mrs. P. Newbury (Gosport). No-t: 1, 2 and 3, Mr. Usher (Doncaster); 4, T. LeGurist (Roehampton). O: 1, C. and J. Richards (Sudbury); 2, H. J. Foxlee-Brown (Roehampton); 3, L. Rossi

(Horsham); 4, B. Manning (Roehampton). P: 1, H. J. Foxlee-Brown (Roehampton); 2, C. and J. Richards (Sudbury); 3, R. J. Hard (Haslemere); 4, J. Randall (Haslemere). Q: 1, P. Brown (Southampton); 2 and 4, T. LeGurist (Roehampton); 3, B. Manning (Roehampton). R: 1, Mr. Noronha (Orpington); 2 and 3, T. Meulton (Godalming); 4, R. J. Hard (Haslemere). S: 1, D. Langford (Haslemere); 2, T. LeGurist (Roehampton); 3, E. and T. Tester (Mid Sussex); 4, M. Carter (Southampton). T: 1 and 2, Mr. Usher (Doncaster); 3, T. Burvill (Basingstoke); 4, J. Randall (Haslemere). U: 1 and 2, J. Randall (Haslemere); 3, J. W. F. Hughes (Roehampton); 4, C. A. Roffe (Horsham). W: 1, J. Randall (Haslemere); 2, D. A. G. Stokes (Havant); 3, W. Woodward (North Kent); 4, B. Sayers (Brighton). Xb-m: 1, H. B. Connolly (Gosport); 2 and 3, A. E. Noronha (Orpington); 4, Mrs. P. Newbury (Gosport). Xot: 1, 2, 3 and 4, Mr. Usher (Doncaster).

THIRTY EIGHT members of the **Stroud A.S.** went by coach to this year's B.A.P. Also at the October meeting the fish were Dario Deurzio's and the winners were: 1, C. Hodges; 2, J. Willey; 3, G. Tindell. The table show was for coldwater. Results:—1, C. Hodges; 2 and 3, R. Amor. A member from Bath A.S. formed a panel to answer questions on general fish keeping.

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News

from AQUARISTS' SOCIETIES

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

ENTRIES for the Bishop Cleeve A.S. open show totalled 356. Best fish in the show was a whiptail catfish entered by C. Turner. Results were: Guppy Male: 1, J. Ferguson; 2, D. W. Parry; 3, D. Curtis; 4, P. J. Greenwood. Guppy Female: 1, G. V. Ludlow; 2, D. & R. Clark; 3, D. Curtis; 4, P. J. Greenwood. Platies: 1, C. Turner; 2, Mrs. K. Martin; 3, D. Curtis; 4, F. Timmins. Swordtails: 1 and 2, P. J. Greenwood; 3, G. W. Roan; 4, A. & M. Smith. Mollies (Velifera and Lattipina): 1, J. Douglas; 2, J. Ferguson; 3, B. Holder; 4, Mrs. K. Martin. Mollies (A.O.V.): 1, Mrs. J. Hawkins; 2, C. Jackson; 3, T. Taylor. Barbs (under 3-in.): 1 and 3, Mr. and Mrs. K. Hodges; 2 and 4, F. Timmins. Barbs (over 3-in.): 1, D. Wing; 2, M. Bibb; 3, J. F. Edwards; 4, B. R. Goll. Danos, Minnows: 1, M. Strange; 2, C. Turner; 3, H. Davis; 4, J. J. Edwards. Rasboras: 1, C. Turner; 2 and 3, D. & R. Clark; 4, A. & M. Smith. Botia, Loaches, Sharks, Flying Fox: 1, F. Timmins; 2, D. Parry; 3, H. Chick; 4, K. Owen. Hyphestrichon, Hemigrammus, Cheiridon: 1, H. Chick; 2, C. Turner; 3, J. Douglas; 4, Mr. and Mrs. K. Hodges. Nannostomus and Poeciliabrycon: 1, Mrs. Strange; 2, T. Taylor; 3, B. R. Goll; 4, Mr. Lawrence. A.O.V. Characins: 1, D. & R. Clark; 2 and 3, C. Turner; 4, J. F. Edwards. Dwarf Cichlids, Agostogramma, Nanaos, Pelmatochromis: 1, F. Timmins; 2, R. Towler; 3, P. J. Greenwood. Large Cichlids A.O.V.: 1 and 4, J. W. F. Hughes; 2, J. V. Walton; 3, P. Tanner. Angels: 1, J. Taylor; 2, M. Rodgers; 3, M. Durbin; 4, J. J. Edwards. Siamese Fighters: 1, B. Toose; 2, J. Shapcott; 3, D. Curtis. Anabantus A.O.V.: 1, F. Timmins; 2, D. & R. Clark; 3 and 4, Mark Freshney. Corydoras and Bionchis: 1 and 3, P. J. Greenwood; 2, T. Taylor; 4, G. V. Ludlow. Catfish A.O.V.: 1 and 2, C. Turner; 3, K. R. Baker; 4, Mr. Whitaker. A.O.V. Livebearers: 1, Mr. and Mrs. K. Hodges; 2, N. Wing; 3, M. Bishop; 4, A. & M. Smith. A.O.V. Egglayer: 1, Mr. Lawrence; 2, J. Ferguson; 3, J. Douglas; 4, F. Timmins. Killifish: 1, F. Timmins; 2 and 4, B. Toose; 3, R. A. Poots. Sexed Pairs (Livebearers): 1, R. A. Poots; 2, Mr. Whitaker; 3, D. F. C. Kenwood; 4, F. Timmins. Sexed Pairs (Egglayers): 1, R. A. Poots; 2, S. Jones; 3, Mrs. Timmins; 4, J. W. F. Hughes. Breeders (Livebearers): team of four: 1 and 4, M. Bishop; 2, C. Turner; 3, Mr. Lawrence. Breeders (Egglayers): team of four: 1, C. Turner; 2, B. Toose; 3, M. Strange; 4, R. A. Poots. Junior A.V. Fish: 1, Master S. Owen; 2, Mark Freshney; 3, O. Small; 4, P. Atwood. Shubunkins: 1, M. Bishop; 2, C. Giller. Single and Twin-tailed Goldfish: 1, M. Rogers; 2, M. Bishop; 3, B. R. Goll; 4, P. Roml. A.O.V. Pond or River Fish: 1, Mr. Lawrence; 2, B. R. Goll; 3 and 4, M. Bishop. A.V. Marine: 1, 2 and 3, W. Martin.

THE Killingworth Aquarist Association held its third Annual General Meeting in October and the new committee was formed as follows:—President: D. Renton, Chairman: D. B. Hickman. Secretary: W. Kidd, 75, Hartlands, Bedlington, Northumberland. Show Secretaries: B. Davison and T. Wynn. Trophy Secretary: H. Sparham. Librarian: Mrs. J. Wynn. T.T.A.A. representative: Mr. Chadband. Breeders Book and Junior Representative: Miss W. Davison.

FINAL Show of the year for the **Midland Aquarist League**, took place in October and the show was well supported with 222 entries, but despite a strong challenge by the Leamington Society, they were unable to take the overall lead away from the Coventry Society. Although the league finished financially even for the year, plans are being formed to revise the shows for next year, in an attempt to combat rising costs. Best-in-Show was awarded to Mr. and Mrs. Chamberlain (Leamington) for a Fire Eel, 80 pts. League points for the year (three shows):—Coventry Pool & A.S. 98 pts; Leamington D.A.S. 75 pts; Hinckley D.A.S. 67 pts; Bedworth A. & P.S. 50 pts; Loughborough D.A.S. 36 pts; Rugby Fishkeepers 19 pts; Goodyers End A.S. 15 pts. Individuals gaining the most points for the year were:—Mr. and Mrs. Short of the Hickley Society with 58 pts, and they were awarded the R. and R. Tedds Trophy. Special thanks were expressed to the M.A.A.S. Judges for their services during the year.

RESULTS of the Haslemere and District A.S. Open Show were as follows:—Ag: 1, G. M. Rushbrooke (Reading); 2, R. J. Hard (Haslemere); 3, R. Paine (Haslemere); 4, Mr. and Mrs. W. Beattie (Godalming). Ak: 1, M. Bellingham (T.D.A.S.); 2, A. Talm (Godalming); 3, L. P. Budgen (Godalming); 4, Mr. and Mrs. W. Beattie (Godalming). B: 1, T. Burvill (Basingstoke); 2, M. Carter (Southampton); 3, M. Dore (Reading); 4, R. Paine (Haslemere). Ca: 1, Mrs. P. Newbury (Gosport); 2, R. Onslow (Kingsclere); 3, T. Burvill (Basingstoke); 4, B. Sayers (Brighton). Cr: 1, P. Rushbrooke (Reading); 2, B. Sayers (Brighton); 3, R. and T. Tester (Mid Sussex); 4, C. and J. Richards (Sudbury). Da: 1, R. J. Canning (Newbury); 2, R. Onslow (Kingsclere); 3, Mr. Usher (Doncaster); 4, Mrs. P. Newbury (Gosport). Db: 1, Mrs. R. Houghton (Brighton); 2, M. Carter (Southampton); 3, Mrs. P. Newbury (Gosport); 4, K. Groves (Horsham). Dz: 1 and 4, Mrs. R. Houghton (Brighton); 2, K. R. Connelly (Gosport); 3, A. S. Gibson (Reading). Ea: 1, Mr. Carter (Southampton); 2 and 4, O. Sandford (Reigate and Redhill); 3, C. Richards (Sudbury). E: 1, P. Brown (Southampton); 2, D. Langford (Haslemere); 3, A. Chaplin (Basingstoke); 4, R. J. Hard (Haslemere). F: 1, P. Brown (Southampton); 2, R. J. Canning (Newbury); 3, C. and J. Richards (Sudbury); 4, D. Reilly (Runnymede). G: 1, D. Reilly (Runnymede); 2, R. J. Canning (Newbury); 3, R. J. Shankland (Brighton); 4, A. Chaplin (Basingstoke). H: 1 and 2, K. E. Taylor (Havant); 3, A. Chaplin (Basingstoke); 4, T. Watson (Haslemere). J: 1, A. I. Feast (Tonbridge); 2, Mrs. P. Newbury (Gosport); 3, A. Chaplin (Basingstoke); 4, T. Burvill (Basingstoke). K: 1, R. Onslow (Kingsclere); 2, Mrs. P. Newbury (Gosport); 3, S. Bartlett (Sudbury); 4, L. P. Budgen (Godalming). L: 1 and 2, K. Groves (Horsham); 3, A. E. Noronha (Orpington); 4, K. A. Hillier (Newbury). M: 1, K. B. Connolly (Gosport); 2, R. Onslow (Kingsclere); 3, D. Reilly (Runnymede); 4, Mrs. M. Shirley (Haslemere). Nb-m: 1, Mr. Foxlee-Brown (Roehampton); 2, K. B. Connolly (Gosport); 3, C. J. Richards (Sudbury); 4, Mrs. P. Newbury (Gosport). No-t: 1, 2 and 3, Mr. Usher (Doncaster); 4, T. LeGurist (Roehampton). O: 1, C. and J. Richards (Sudbury); 2, H. J. Foxlee-Brown (Roehampton); 3, L. Rossi

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Anabantids: 1, Mr. Blundell (Doncaster) (section winner); 2, Mr. and Mrs. Tyson (South Humberside); 3, Mr. and Mrs. Green (Castleford). Danio Rasbora and Minnows: 1, Mr. and Mrs. Robson (Eboracum); 2, S. White (Retford and District); 3, Mr. and Mrs. Feasey (Doncaster). Sharks and Foxes: 1, Mr. and Mrs. Green (Castleford) (section winner); 2, Bustfield and Cross (Barnsley); 3, Mr. Short (Sheaf Valley). Top Spawning Killifish: 1 and 2, Mr. and Mrs. Brett (Retford and District); 3, Mr. and Mrs. Richardson (Scarborough). Bottom Spawning Killifish: 1, Mr. and Mrs. Blades (Bassetlaw) (section winner); 2, Mr. and Mrs. Brett (Retford and District); 3, Mr. and Mrs. Chester (Retford and District). Breeders and egglayers 1-10: Mrs. Toyne (Sheaf Valley); 2, B. J. Brown (Huddersfield); 3, B. Jackson (Doncaster). Breeders egglayers 11-20: 1, Mr. and Mrs. Blades (Bassetlaw) (section winner); 2 and 3, P. Buxton (Aireborough). Breeders livebearers 1-10: 1 and 2, D. P. Birdsall (Aireborough) (section winner); 3, B. Jackson (Doncaster). Breeders livebearers 11-20: 1 and 2, Mr. and Mrs. Feasey (Doncaster); 3, Mr. and Mrs. Richardson (Scarborough). Pairs (Egglayers): 1, Mr. and Mrs. Richardson (Scarborough) (section winners); 2, S. White (Retford and District); 3, Mr. and Mrs. Holmes (Castleford). Pairs Livebearers: 1, D. P. Birdsall (Aireborough); 2 and 3, Mr. and Mrs. Robson (Eboracum). A.O.V. Tropical: 1, Mr. Morgan (Castleford) (section winner); 2, Mr. and Mrs. Copley (Doncaster); 3, D. P. Birdsall (Aireborough). Fancy Goldfish: 1, and 3, Mr. and Mrs. Hopkinson (Darfield) (section winner); 2, J. S. Hall (Aireborough). A.O.V. Coldwater: 1, Mr. and Mrs. Feasey (Doncaster); 2, Mr. Short (Sheaf Valley); 3, Mr. Blundell (Doncaster). Junior A.V.: 1, Master S. Green (Castleford) (section winner); 2, Master D. Frisby (Hull); 3, S. Michals (Aireborough). The club meets on the second Wednesday of each month at the Sheaf Inn, Racecommon Road, Barnsley at 7.30 p.m. and any new members would be most welcome.

In October the British Discus Association held their first London meeting at the Richmond Community Centre. There was a good attendance and many new members were enrolled. Among those present were many novice discus keepers who were able to seek advice and exchange points of view with such experts as the new President Mr. Eberhardt Shultz, in addition to many other experts of long standing.

The first half of the meeting was taken up with a general discussion on water chemistry, and its importance to the well-being of discus. After a break, members split up into smaller groups to discuss individual problems.

The main business at the Taunton & District A.S. meeting was the livebearers table show which comprised the following classes:—Guppies: 1, 2, 3 and 4, Mrs. Carol Vellacott. Platies: 1 and 2, E. Barnshaw. Mollies: 1, S. Pincombe; 2 and 4, Mrs. Carol Vellacott; 3, L. Pincombe. Swordtails: 1, Mr. L. Pincombe; 2 and 3, D. Fleetwood; 4, C. Stockdale. Livebearers Breeders Classes: 1, M. Tratt; 2 and 3, Mrs. Carol Vellacott; 4, D. Fleetwood. Egglayers Breeders: 1 and 2, M. Bray. It was also decided that the club should offer to maintain the Mungrove Park Hospital tanks as necessary.

The following committee was elected at the annual general meeting of the Middleton and District A.S.—Chairman: E. Ward; Vice-Chairman: D. Grundy; Treasurer: P. Wolstenholme; Secretary: Mrs. M. A. Ward; Show Secretary: L. Dean; Catering: Mrs. D. Crowley;

Publicity: K. Smith; and other committee members, R. Dronfield and R. Poryth.

NEW officers for the following year of the Swillington A.S. are as follows:—President: J. A. Tiffany; Secretary: P. Campling, 4, Edinburgh Place, Garforth Leeds (Tel. Garforth 88605); Treasurer: R. Hilsop (Sen.).

MEMBERS elected at the October meeting of Kingston & District A.S. to serve as officers and committee members for the ensuing year were as follows:—Chairman: D. W. Ellis; Vice-Chairman: B. J. Pawley; Treasurer: Mrs. D. Ellis; Secretary: Mrs. B. West; Show Secretary: D. J. Mackay; Assistant Show Secretary: B. West; Trophy Secretary: M. West; Social Secretary: Mrs. E. Winslade; P.R.O.: R. Cooper; Committee: R. Winslade. Meetings are held on the first and third Thursday of each month at St. Luke's C. of E. Primary School, Elm Road, Kingston-upon-Thames, Surrey. The society would welcome new members who are invited to contact the secretary Mrs. M. West, telephone 01-549 3385.

THE Society of Aquarist for South Staffs are now holding their meetings at the Crown and Anchor, Colmore, Walsall on alternate Wednesdays. Recent activities have included slide shows, a talk on livebearers and also a visit to the British Aquarist Festival at Belle Vue. New members are always welcome, both adult and junior.

RECENTLY the Bracknell A.S. held their annual general meeting when Mr. L. Jones was elected chairman. Mrs. Pat Sharp treasurer and Mr. A. Cockett 15, The Larches, Warfield Park, Bracknell, secretary. L. Jordan, a founder member of the club was elected president and his wife Natalie was presented with a certificate for honorary life membership. Throughout the year the club had enjoyed a varied programme of speakers and tape and slide shows from the F.B.A.S. and had supported the three counties. It was in fact in the lead in the Three Counties Quiz. The Joint Show held with the other Three Counties members had been a small success as too had been the Tea-house and Market Stall and raising ventures. Membership was falling and any new members are welcome at the club room on the second and fourth Mondays in the month at the Red Lion commencing 8 p.m.

THERE was a good attendance at the October meeting of the New Forest A.S. and also five prospective new members. The main item and one which proved very interesting was a colour slide lecture entitled "Fate of a Fish." This told in pictures the story of catching tropical fish in foreign lands until their arrival in the petshops. Table Show Results: Comet Tailed Goldfish: 1, R. Travers, Tropical Breeders Trophy: 1 and 2, B. Higginson.

OPEN show results of the Hoylake A.S. were as follows: Guppies: 1, A. Dawson (Heywood); 2, Mr. and Mrs. Warburton (Heywood); 3, Mr. and Mrs. Jervis (Sandgrounders). Swordtails: 1, Mr. and Mrs. Muckle (Sandgrounders); 2, Mr. and Mrs. Burton (Sandgrounders); 3, Mr. and Mrs. Norton (Sandgrounders). Mollies: 1, Mr. and Mrs. Poulton (Northwich); 2, Master N. Rimmer (Sandgrounders); 3, J. Ridley (Heywood). Platies: 1 and 3, Mr. and Mrs. Positons (Northwich); 2, C. Norton (Sandgrounders). Fights: 1, G. Taylor (M.A.S.); 2, T. E. Davies (Heywood); 3, G. Warner (Vale Royal). Gouramis: 1, K. Sey (M.A.S.); 2, Mr. and Mrs. Gogh (Wrexham); 3, Mr. and Mrs. Baldwin (Sandgrounders). A.O.V. Anabantids: 1, Mr. and Mrs. Goddard (Macclesfield); 2, C. Norton (Sandgrounders); 3, W. A. Bennett (Unattached). Small Barbs: 1, T. Hamton (M.A.S.); 2, Mr. and Mrs. Goddard (Macclesfield); 3, D. Laking (Hoylake). Dwarf Cichlids: 1 and 2, T. Hamton (M.A.S.); 3, D. Morris (Hoylake). Large Cichlids: 1, G. Taylor (M.A.S.); 2, G. Robinson (Hoylake); 3, W. A. Bennett (Unattached). Angels: 1, B. Dawson (Heywood); 2, Mr. and Mrs. Newton (Black-

burn); 3, Mr. and Mrs. Muckle (Sandgrounders). Breeders (egglayers): 1, Mr. and Mrs. J. Ridley (Wrexham); 2 and 3, D. Avery (M.A.S.). Breeders (egglayers hard): 1, Mr. Kryger (Wrexham); 2, G. Wolstenholme (Heywood); 3, J. Ridley (Heywood). A.V. Fish: Junior: 1 and 2, Miss A. Taylor (M.A.S.); 3, Master A. Waser (Vale Royal). A.V. Fish (ladies): 1, Mrs. Muckle (Sandgrounders); 2, Mrs. Warner (Vale Royal); 3, Mrs. Pugh (Unattached). Rift Valley Cichlids: 1, S. Wolstenholme (Heywood); 2, S. Hooton (Sandgrounders); 3, K. Sey (Dunlop). Characins C.A.: 1, Miss S. Goodard (Macclesfield); 2, Mr. and Mrs. Newton (Blackburn); 3, E. Jones (Wrexham). Characins C.B.: 1, H. Warner (Vale Royal); 2 and 3, Mr. and Mrs. Baldwin (Sandgrounders). Characins C.C.: 1, J. G. Waterhouse (Sandgrounders); 2, Mr. and Mrs. Gough (Wrexham); 3, T. Hamton (Dunlop). Rasbora: 1, J. G. Waterhouse (Sandgrounders); 2, N. M. Rimmer (Sandgrounders); 3, C. Norton (Sandgrounders). Danios and Minnows: 1, Mr. and Mrs. Burton (Blackburn); 2, T. Hamton (Dunlop); 3, Mrs. Winstanley (Runcorn). Egg-laying Toothcarps: 1 and 2, K. Kryger (Wrexham); 3, T. T. Wayles (Hoylake). Sharks: 1, P. Halewood (Unattached); 2, K. Sey (Dunlop); 3, D. Laking (Hoylake). Corydoras: 1, J. G. Waterhouse (Sandgrounders); 2 and 3, Mr. and Mrs. Baldwin (Sandgrounders). A.O.V. Cat Fish: 1, F. Mulla (M.A.S.); 2, Mr. and Mrs. Gough (Wrexham); 3, D. Laking (Hoylake). Loaches and Botias: 1, and Best in Show, Mr. and Mrs. Newton (Blackburn); 2 and 3, Mr. and Mrs. Muckle (Sandgrounders). Pairs (livebearers): 1, R. Lamb (Sandgrounders); 2, M. Poulton (Northwich); 3, P. Warburton (Heywood). (Pairs) Egglayers: 1, K. Sey (Dunlop); 2, F. Sanders (Hoylake); 3, Mrs. Jervis (Sandgrounders). Common Gold Fish: 1, B. Dawson (Heywood); 2, B. Newport (Runcorn); 3, Mr. Harvey (Sandgrounders). Moons and Veiltails: 1 and 2, Mrs. Jenkins (St. Helens); 3, Mrs. B. Harvey (Sandgrounders). A.V. Coldwater: 1, B. Dawson (Heywood); 2, Mr. and Mrs. Newton (Blackburn); 3, D. Harvey (Sandgrounders). Marines: 1 and 2, Mr. and Mrs. Davies (Dunlop); 3, D. Neave (Hoylake). A.O.V.: 1, Mr. and Mrs. Baldwin (Sandgrounders); 2, R. Lamb (Sandgrounders); 3, B. Dawson (Heywood). Furnished Aquaria: 1, T. Jones (Hoylake); 2, Masters Sherbrook and Jenkins, (Hoylake); 3, Mr. Chapman (Hoylake).

AT the second open show of the Scunthorpe and District A.S. the Best Fish in Show award went to G. White of Scunthorpe and District A.S. with a Knife fish which gained 81 points. The complete show results were as follows: Guppies: 1, P. Smith (Scunthorpe). Platies: 1, Mr. Clayton (Immingham); 2, Mr. and Mrs. Bradshaw (Sheaf Valley); 3, Mr. and Mrs. Brett (Retford). Swordtails: 1, Mr. and Mrs. Tyson (S. Humberside); 2, Mr. Clayton (Immingham); 3, H. Thorpe (Doncaster). Mollies: 1, Mr. and Mrs. Kennington (S. Humberside); 2, G. R. Allen (S. Humberside); 3, W. E. Neville (Grantham). A.O.V. Livebearer: 1, Mr. and Mrs. Feasey (Doncaster); 2, B. Jackson (Doncaster); 3, A. Oatlow (Loughborough). Small Characins: 1, G. Storr (Scunthorpe); 2, Mr. and Mrs. Tyson (South Humberside); 3, Mr. and Mrs. Chester (Retford). Large Characins: 1, H. Thorpe (Doncaster); 2, Mr. and Mrs. Bradshaw (Sheaf Valley); 3, Mr. and Mrs. Feasey (Doncaster). Dwarf Cichlids: 1, W. E. Neville (Grantham); 2, Mr. and Mrs. Chester (Retford); 3, Mr. and Mrs. Lake (South Humberside). Rift Valley Cichlids: 1, J. R. Hughes (Grimsby & Cleethorpes); 2, Mr. and Mrs. Bradshaw (Sheaf Valley); 3, Mr. and Mrs. Brett (Retford). Angels: 1, Mr. and Mrs. Lancaster (Retford); 2, K. Gosling (Immingham); 3, H. Thorpe (Doncaster). A.O.V. Cichlids: 1, Mr. and Mrs. Bradshaw (Sheaf Valley); 2, G. White (Scunthorpe); 3, G. and B. Wressell (Scunthorpe). Small Barbs: 1, Mr. and Mrs. Bradshaw (Sheaf Valley); 2, Mr. and Mrs. Lake (South Humberside); 3, Mr. and Mrs. Tyson (South Humberside). Large Barbs: 1, Mr. and Mrs. Tyson (South Humberside); 2 and 3, W. E. Neville (Grantham). Corydoras:

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1, Mr. and Mrs. Lake (South Humberside); 2, Mr. and Mrs. Campbell (Scunthorpe); 3, A. Hodgson (Grimsby and Cleethorpe). Catfish: 1, H. Thorpe (Doncaster); 2, Mr. and Mrs. P. Berry (Scunthorpe); 3, Mr. and Mrs. Calam (Lincoln). A.O.V. Catfish: 1, G. White (Scunthorpe); 2, Mr. and Mrs. Barr (Scunthorpe); 3, Mr. and Mrs. Kennington (South Humberside). Top and S. Killifish: 1, Mr. and Mrs. Morrissey (Immingham); 2, G. White (Scunthorpe); 3, Mr. and Mrs. Brett (Retford). Bottom Spawning Killifish: 1, G. White (Scunthorpe); 2, Mr. and Mrs. Chester (Retford); 3, Mr. and Mrs. Brett (Retford). Small Anabantids: 1 and 2, Mr. Clayton (Immingham); 3, Mr. and Mrs. Lake (S. Humberside); Single Colour Fighters: 1 and 3, Mr. and Mrs. Chester (Retford); 2, Mr. and Mrs. K. Berry (Scunthorpe). Multi Colour Fighters: 1, Mr. and Mrs. Davey (Scunthorpe). A.O.V. Anabantids: 1 and 2, Mr. and Mrs. Barr (Scunthorpe); 3, Mr. and Mrs. Feasey (Doncaster). Loaches: 1, Mr. and Mrs. Calam (Lincoln); 2, W. and D. Jordan (South Humberside); 3, M. Toyn (Scunthorpe). Sharks and Foxes: 1, Master S. Neville (Grantham); 2, Mr. and Mrs. Brett (Retford); 3, M. Woods (Thorne). Rasbora: 1 and 3, A. Onalov (Loughborough); 2, Mr. and Mrs. Watts (S. Humberside). Danios and Minnows: 1 and 2, N. Kershaw (Grimsby and Cleethorpe); 3, Master S. White (Retford). A.O.V. Tropical up to 8 in.: 1, Master G. K. Allen (S. Humberside); 2, Mr. and Mrs. Feasey (Doncaster); 3, Mr. and Mrs. Corringham. A.O.V. Tropical over 8 in.: 1, G. White (Scunthorpe); 2, Mr. and Mrs. Barr (Scunthorpe); 3, Miss K. Feasey (Doncaster). Coldwater: 1, Mr. and Mrs. Feasey (Doncaster); 2 and 3, G. Steers (Scunthorpe). Pairs (Livebearers): 1, B. Jackson (Doncaster); 2, N. Kershaw (Grimsby and Cleethorpe); 3, Mr. and Mrs. Davey (Scunthorpe). Pairs (Egglayers): 1, Mr. and Mrs. Tyson (South Humberside); 2, Master S. White (Retford); 3, Mr. and Mrs. Feasey (Doncaster). Breeders (Livebearers 1-10): 1, B. Jackson (Doncaster). Breeders (Livebearers 11-20): 1, Mr. and Mrs. Feasey (Doncaster); 2, H. Thorpe (Doncaster). Breeders (Egglayers 1-10): 1, Mr. Breakwell (Thorne); 2, H. Thorpe (Doncaster); 3, Mr. and Mrs. Lankashire (Doncaster). Breeders (Egglayers 11-20): 1, Mr. and Mrs. Bradshaw (Sheaf Valley). Novice Livebearer: 1, T. Tidwell (Grimsby and Cleethorpe); 2, Mr. Moody (Scunthorpe Museum); 3, A. Gibbs. Novice Egglayer: 1, N. F. Kershaw (Grimsby and Cleethorpe); 2, Mr. Moody (Scunthorpe Museum); 3, Mr. and Mrs. Calam (Lincoln). Female Livebearer: Mr. and Mrs. Feasey (Doncaster); 2, B. Jackson (Doncaster); 3, S. Harrison (Grimsby and Cleethorpe). Female Egglayer: 1, B. Jackson (Doncaster); 2, Mr. and Mrs. Chester (Retford); 3, Mr. and Mrs. Feasey (Doncaster). Meetings of the Scunthorpe and District A.S. are held every second and fourth Monday of each month at St. Pauls Church Hall, Ashby High Street, Scunthorpe. Meetings begin at 7.30 p.m.

WINNERS at the Hfracombe & District A.S. Open Show in the following classes were:—B: 1, J. P. Edwards; 2, 3 and 4, B. Ley. C: 1, C. Turner; 2, J. F. Edwards; 3 and 4, A. Bligh. C: 1, B. Riste; 2, J. F. Edwards; 3, R. McDonald; 4, J. Paul. Da: 1, A. Morgan; 2 and 3, J. Wright; 4, F. Orsman. Db: 1, A. Bligh; 2, R. Holmes; 3, Pat Crome; 4, Mrs. J. Taylor. D: 1, Pat Crome; 2, B. Ley; 3, C. Lipcombe; 4, P. C. New. Ea: 1, and 2, F. Orsman; 3, J. Mayne. E: 1, Mrs. K. Paul; 2 and 4, Miss A. Corner; 3, J. Edwards. F: 1 and 3, D. J. Jackson; 2 and 4, H. Bligh. G: 1, C. Turner; 2, J. Edwards; 3, A. Bligh; 4, Pat Crome. H: 1, D. Lee; 2, Mrs. B. Cox; 3, Mrs. J. Griffiths; 4, Pat Crome. J: 1, C. Turner; 2, J. Edwards; 3, Mrs. K. Paul; 4, J. Mallabone. K: 1, A. Bligh; 2, P. C. New; 3, J. F. Edwards; 4, R. Bond. L: 1 and 3, A. Bligh; 2, C. Turner; 4, B. Riste. M: 1, R. Bond; 2, C. Turner; 3, G. Well-Burr; 4, J. F. Edwards. N: 1, Mrs. K. Paul; 2, Mrs. B. Gale; 3, J. F. Edwards; 4, D. J. Jackson. O: 1 and 3, J. Wright; 2 and 4, Miss A. Corner. P: 1, Mrs. C. Vellacott. Q: 1, G. Wells-Burr; 2, Mrs. J. Griffiths; 3, J. Wright; 4, Miss A.

Corner. R: 1, C. Turner; 2, 3 and 4, Mrs. J. Griffiths. S: 1 and 4, Mrs. C. Vellacott; 2, G. Wells-Burr; 3, Mrs. B. Gale. T: 1, J. Edwards. U: 1 and 4, Mrs. J. Griffiths; 2, and 3, D. S. Langdon. V: 1 and 2, Mrs. J. Griffiths. W: 1, R. Porth; 2, J. Mayne. Xb-m: 1 and 3, A. Bligh; 2, C. Turner. Xc-1: 1 and 2, C. Turner; 3, J. Wright; 4, F. Orsman. A.D.F.: 1, Mr. and Mrs. G. Cox; 2, Mrs. B. Mallabone. The number of entries was 283 and the Best Fish in the Show award went to D. J. Jackson.

RESULTS of the Hedworth A.P.S. open show were as follows: Male Guppy: 1 and 3, K. Payne (North Warwick); 2 and 4, R. Marshall (Northampton). Female Guppy: 1, E. Sandercock (Goodyers); 2, J. Male (Chelmsley); 3, A. Bailey (North Warwick); 4, S.M.I.N. (Nuneaton). A.V. Molly: 1, D. Wilson (M.T.A.); 2, Mr. and Mrs. Crew (W.A.D.A.S.); 3, J.M. (Unattached); 4, M. Nethersell (River-side). A.V. Platy: 1, M. Nightingale (T.K.A.G.); 2 and 3, K. Payne; 4, J. Male. A.O.V. Livebearer: 1, 2 and 3, S.M.I.N.; 4, Mr. and Mrs. Redfern (Hinckley). Characin H. and H.: 1, M. Nethersell; 2, Mr. and Mrs. Chamberlain (Leamington); 3 and 4, C. Mitchelson (Goodyers Road). A.O.V. Characin: 1, Mr. and Mrs. Sutton (T.K.A.G.); 2, D. and H. (Unattached); 3, B. Bailey (North Warwick); 4, W. and S. (Barnbury). Barbos (named): 1, Mr. and Mrs. Smith (Wednesbury); 2, Mrs. D. Cruickshank (Ealing); 3, W. and S. 4, Mr. and Mrs. Chamberlain. A.O.V. Barb: 1, Mrs. D. Cruickshank; 2, B. Dews (M.T.A.); 3, B. F. Hurst (Coventry); 4, A. Simonds (Coventry). Cichlids A.P.: 1, Mr. and Mrs. Redfern; 2, W. and S.; 3 and 4, D. and H. Angels; 1, J. M. (Unattached); 2, R. Marshall; 3, W. and S.; 4, Mr. and Mrs. Crew. Cichlids M. and T.: 1, C. Chamberlain (Leamington); 1, C. Chamberlain (Leamington); 2, D. Wilson; 3, N. Coleman (W.A.D.A.S.); 4, M. Nightingale. A.O.V. Cichlid: 1, D. and H.; 2, M. Nethersell; 3, M. Nightingale; 4, J. M. Fighter; 1 and 2, J. M.; 3 and 4, N. Coleman. A.O.V. Anabantid: 1, Mr. and Mrs. Crew; 2, 3 and 4, Mr. and Mrs. Chamberlain. Corydoras: 1, G. Baston (M.T.A.); 2 and 3, M. Nethersell; 4, T. A. Cruickshank (Ealing). A.O.V. Catfish: 1, M. Nethersell; 2, J. Male; 3, M. Nightingale; 4, R. Phillips (M.T.A.). A.V. Loach: 1 and 3, R. Phillips; 2, M. Beambridge (Jones and Ship); 4, A. Bailey. Killifish: 1, G.V.S.R. (Chelmsley); 2, B. and F. Hurst; 3, S.M.I.N.; 4, W. and S. Rasbora: 1 and 3, D. and H.; 2, C. Mitchelson; 4, Mr. and Mrs. Redfern. Danio W.C.M.M.: 1, T. A. Cruickshank; 2, 3 and 4, B. Hughes (M.T.A.). Egglayer (pairs): 1 and 2, W. and S.; 3, R. Phillips; 4, Mr. and Mrs. Chamberlain. Livebearer (pairs): 1 and 3, S.M.I.N.; 2, M. Butler (Halesowen); 4, R. Marshall. Breeders (egglayer): 1, R. Phillips; 2, K. Payne; 3, J. Male; 4, A. Bailey. Breeders (livebearers): 1, M. Beambridge; 2, B. and F. Hurst; 3, W. and S.; 4, Mr. and Mrs. Redfern. A.O.V. Tropical: 1, M. Nightingale; 2, Mahoney (T.K.A.G.); 3, Mr. Fuller (Uttoxeter); 4, D. and H. Goldfish (single tail): 1 and 3, T. Salisbury (Hedworth); 2, Mr. and Mrs. Sutton; 4, M. Coleman. Goldfish (twin tail): 1 and 4, Mr. Night, Jones and Shipman; 2, Mr. Taylor (Coventry); 3, C. Pratt (Bedworth). A.O.V. Coldwater: 1, C. Pratt; 2 and 4, S.M.I.N.; 3, Mr. and Mrs. Crew. Best in Show: Best Catfish: G. Baston. Best Livebearer: M. Nightingale. Best Barb: Mrs. D. Cruickshank.

AFTER the usual proceedings at the October meeting of the **Horsforth & District A.S.** there was a slide show, lent by Mr. Ray Hampson, operated by Mr. Malcolm Barker, and with the notes being read by Mr. Peter Smith the show was much enjoyed. The slides were on Livebearers, specifically Swordtails. The specified class at the table show was for pairs, the other of course being A.O.V. Three new members were welcomed to the Society.

MEMBERS attending the October meeting of the **Gloucester A.S.** heard a talk on the difficulties in classifying and judging livebearers given by Mr. N. Binding. Business discussed included the proposed move by the Club to

new premises at the Chequers Bridge Leisure Centre and the Christmas Party to be held for members' children. It was agreed that the Club will move to the new venue for the meeting in January and that meetings will be held on the first Tuesday of the month instead of the first Wednesday as at present.

The monthly table was well supported especially by T. Jones who entered nine fish. In the end however, he was beaten for first place by one point, the final result being—1, G. Perkins; 2, 3 and 4, T. Jones.

THE monthly table show of the **Mid-Sussex A.S.** was judged by C. West, who had the largest number (160) of fish, on the bench for some time. Results: Novices: 1, R. Stanger; 2, D. Ancombe; 3, E. Stanger; 4, D. Isted. Plants: 1, D. Soper; 2, B. Burtles; 3 and 4, E. and T. Tester. Breeders (livebearers): 1 and 2, D. Soper; 3, C. Bottoms; 4, D. Soper. Breeders (Egglayers): 1, 2, 3, and 4, D. Soper. Fish of the year: 1, 2 and 4: Mr. and Mrs. Houghton; 3, T. Ramshaw.

The next meeting will be the annual Inter-club, at Ockley Lodge, Ockley Lane, Hasocks; on 13 November, when the table show classes will be: G, H, J, K, and T. It is hoped that eight clubs will be represented. Following meetings will take place at the Fox and Hounds and information concerning the society may be obtained from the Secretary, B. Slade, "Sandown," Balney Road, Anrpe. Phone: H. Heath 53747.

A change of officers is reported from **Sudbury A.S.** as follows:—Chairman: R. Walsh, 11 Wykeham Hill, Wembley Park. Show Secretary: J. Richards, 6, Verney St., Neasden, N.W.10 (Tel. 450-6745).

AT the recent annual general meeting of the **British Cichlid Association**, the following were elected as committee members for 1975/1976:—Secretary: I. Sellick 88 King's Drive, Bishopston, Bristol, BS7 8JH. Chairman: D. Goodall, 7 Meadow, Riverdale Park, Redcar TS10 4QW. Treasurer and Membership Secretary: H. Parrish, 18 The Barons, Twickenham, Middlesex TW1 2AP.

THE October assembly of the **Cymru National Aquarists' Association** was held at the headquarters of the Merthyr Tydfil A.S. and 130 delegates and members were present. There were 91 fish in the usual two class table show which were judged by "A" P. Jordan and "C" J. Liff, both of Newport A.S. While the judging was taking place there was the usual lively discussion, the most important point being that due to the non-availability of "A" or "B" Class Cold Water Judges in South Wales the Judges Panel of the C.N.A.A. have agreed to allow "A" Class Tropical Judges to judge coldwater fish in inter-club and table shows for a trial period of twelve months. Table Show results were:—Class O to T: 1, C. Turner (C); 2, C. Morrison (P.T.); 3, A. V. Reed; 4, G. Best (P.T.). A.O.V. K.O.: 1, T. Gardener (C); 2, Mrs. V. Bruce (A); 3, C. Turner (C); 4, C. Morrison (P.T.). The next assembly which is the annual general meeting will be held at the Red Dragon Club, R.A.P. St. Athan on 9 Dec.

ENTRIES for the Coldwater Open Show of the **Bristol A.S.** totalled 315 and came from far afield. The main prizes were taken by the following competitors. Best Exhibit, B. M. Rothwell; Highest number points: F. Orme; Best fancy fish: A. E. Roberts; Best Shubunkin: exhibited by a member; R. Ouznam. Other results were:—Goldfish 5 in. Limit: 1 and 3, R. J. Pincock; 2, S. Lloyd; 4, Miss Rupert.

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Bristol Shubunkins (3 in. Limit): 1 and 3, H. J. Whiting; 2, A. J. Churchill; 4, R. J. King. Bristol Shubunkins (over 3 in. not exceeding 5 in.): 1, D. S. Langdon; 2 and 3, G. J. Jennings; 4, H. J. Whiting. Veiltails: 1, 2, 3 and 4, P. Orme. Moors: 1, 2, 3 and 4, A. E. Roberts. Telescopes (other than Moors), Lionheads Celestials Bubble Eyes: 1 and 3, S. Lloyd; 2 and 4, F. Orme. Orandas: 1, S. Lloyd; 2 and 4, D. Headford; 3, G. Becker. Nymphs, Comets and London Shubunkins: 1 and 3, W. Leach; 2 and 4, Mrs. P. Whittington. Fantails Scaled: 1, W. H. Ramsden; 2 and 4, G. E. Herring; 3, R. Davis. Fantails Calico: 1, C. R. Packer; 2, Miss Rupert; 3, G. H. Herring; 4, R. J. Pincock. Koi, A.O.V. Pond or River Fish (9 in. Limit): 1, L. Menhennet; 2, C. R. Packer; 3, V. Cole; 4, Miss Rupert. Bristol Shubunkins Bred 1975: 1, R. Oxenham; 2, B. M. Rothwell; 3 and 4, G. J. Bell. Moors Bred 1975: 1 and 2, A. E. Roberts. A.O.V. Fancy Fish Bred 1975: 1, 2, 3 and 4, P. Orme. Breeders Class Team of Four Bred 1975 Bristol Shubunkins: 1 and 2, B. M. Rothwell; 3 and 4, V. Cole. Breeders Class Team of Four Bred 1975 Veiltails Moors Fantails: 1 and 3, R. J. King; 2, P. Orme; 4, K. R. Forward. Bristol Shubunkins Matched Pairs (5 in. Limit): 1 and 3, H. J. Whiting; 2, D. S. Langdon; 4, A. J. Churchill. Novice Class Bristol Shubunkins (5 in. Limit): 1, V. Cole; 2, R. J. Benson; 3, D. C. Barnes; 4, C. Summers. Furnished Aquaria: 1, G. J. Bell.

MEMBERS of the Brize Norton A.S. wish to thank Mr. C. Osbourn and Mr. D. Bunkell, both of Abingdon A.S. for a very enjoyable and informative slide show, and lecture on fish photography and all-glass tank construction. Mr. B. James gave an extremely good lecture to a combined meeting of Brize Norton and Abingdon A.S.'s. The topic was growing and cultivating aquatic plants, and the speaker, who is a director of Everglades Aquatic Nurseries is very well versed on the subject of aquatics and delivers an ideal lecture. He also answers all questions put by members very concisely. The next meeting is to be held at the usual venue, The Leed Kitchener, Cambridge, Oxon., on Tuesday 9 December and the programme includes a slide show by Hendon A.S. entitled "Judging." Any fish enthusiast is very welcome to come along to one of the meetings and further information can be obtained from D. Tovey 28, Northolt Road, Carterton, Oxon.

NEW members would be welcomed by the Corringham and District A.S. (C.A.D.A.S.) They meet on the second and fourth Tuesday in the month at the Red Cross Hall, Corringham Road, Stanford-le-Hope, Essex, between 8-10 p.m. Further details can be obtained from the Secretary R. Smith, S-1-L-H, 3768. The third and final meeting of the Inter-Club Contest between East London, Southend and Corringham was held in October at Corringham. The Speaker was Mr. Maurice who gave a talk on Fishes B.C. to A.D. The final results were as follows:—H.L. 3691; S.L.A.D.A.S. 3399; C.A.D.A.S. 3844.

THE Diss and District Fish Keepers Club held their annual general meeting in October, when the officers elected were as follows:—President: R. Thirlwell; Chairman: M. G. Boyce; Vice-Chairman: M. Butcher; Secretary: R. Cobb; Treasurer: S. Poinson; Show Secretary: P. Hartley; Show Judges: J. Hughes; D. Laughlin; P.R.O.: B. Hawes; Committee Members: D. Gissing; A. Burridge. The Club meets once a month at the White Horse, Market Place, Diss, on the third or fourth Thursday of the month at 8 p.m. New Members are assured of a warm welcome.

CHANGE OF ADDRESS

Fancy Guppy Association (North Western Section): G. W. Blades, 32, Blackburn Road, Church, Accrington, Lancs. BB5 0DG. Mr. Blades is also the Overseas secretary of the F.G.A.

VENUE CHANGE

THE Mid-Herts A.S. now meet in the committee rooms of the Royal British Legion, 85, Verulam Road, St. Albans, Herts. The meetings will still be held on the fourth Friday of every month.

Forthcoming attractions, lectures on general fish keeping, egg-laying toothcarp, tropical plants, plus a table show each month. For further details ring Mr. S. Birch, Park Street, 72425.

The Bishop Auckland A.S. now held their fortnightly meetings in the King James I, Community Centre, Bishop Auckland.

SECRETARY CHANGES

Sosethwick & District A.S.: W. Timmins, 52, Shenstone Road, Edgbaston, Birmingham B16 0NT. Tel. 021-558 8454.

Kettering A.S. secretary: R. Shatford, 77, Fuller Street, Kettering, Northants.

Bury & District A.S.: G. Barnes, 12, Springfield Road, Holcombe Brook, Bury, Lancs.

Chingford & District A.S.: R. E. Harvey, 54, Kenilworth Avenue, Walthamstow, London E17 4PE.

SHOW CANCELLATIONS

We have received complaints from members of the public who have gone to an advertised show to find that it has been cancelled at short notice. No card has been displayed or reason given and no member of the promoting club has been outside the venue to give any explanation.

We feel that it is the duty of any society who find themselves in this position to at least make some sort of an effort to explain the position to any visitor who has made a fruitless journey to a show which is not being held.

AQUARIST CALENDAR

6th December: Federation of British Aquatic Societies Annual General Meeting, Conway Hall, Red Lion Square, Holborn, London, W.C.1. 2.30 p.m.

10th April: Yate & District A.S. Open Show at King Edmunds School, Stanthorpe Yate in Bristol. Schedules from Mr. C. Stickland,

20, Bursage Close, Chipping Sodbury nr. Bristol. (Schedules from 10th March).

11th April: Taunton A.S. annual open show. 24th April: Rhondda A.S. Open Show to be held at the Y.M.C.A., Porth, under F.B.A.S./C.N.A.A. rules. Postal entries 3p per entry. On day of show 10p. For further information please contact: Show secretary, A. Smith, 121, Glannant Street, Pen-y-graig, Rhondda.

2nd May: Medway A.S. Open Show at Medway and Maidstone College of Technology, Oakwood Park, Tunbridge Road, Maidstone, Kent. Schedules and details from Mr. C. A. Elliott, Beechwood, 72, Dargers Road, Walderslade, Chatham, Kent ME5 8BL.

2nd May: Ocean A.S.

9th May: Bournemouth Annual Open Show to be held on Sunday at Kinson Community Centre, Parkham Park, Kinson, Bournemouth. Show secretary, J. V. Jeffery, 30, Braemar Avenue, Southbourne, Bournemouth BH6 6JF.

22nd May: Mearby A.S. open show.

27th June: South Humberston A.S. Memorial Hall, Cleethorpes.

4th July: Grantham and District A.S. seventh annual open show.

28th August: The third Welsh National open show to be held at the Sophia Gardens Pavilion, Cardiff. Further details available from: C. Turner, 146 Arran Street, Roath, Cardiff. Tel.: Cardiff 498982. M. Guthrie, 4 Nuston Close, Rhosne, Glamorgan. Tel.: Rhosne 710649.

12th September: Harlow A.S. open show.

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CHAMPION OF CHAMPIONS

Competition Results



1st
V. Davison
Northumbrian

2nd
P. J. Whelan
Blackburn A.S.

3rd
D. Fleet
Billingham
Community Centre

RESULTS OF OTHER FESTIVAL COMPETITIONS

Best Society Tropical Furnished Aquaria: 1, Bury 74 pts.; 2, Northumbrian 73 pts.; 3, Northwich 63 pts. Best Society Coldwater Furnished Aquaria: 1, Northwich 59 pts.; 2, Bury 58 pts.; 3, N.G.P.S. 55 pts. Best Individual Tropical Furnished Aquaria: 1, Mrs. S. Glen (Bury) 77 pts.; 2, J. Robertson (Northumbrian) 75 pts.; 3, A. P. Vaisiere (Merseyside) 67 pts. Best Individual Coldwater Furnished Aquaria: 1, A. Mills (Bury) 65 pts.; 2, D. J. Thorne (Northwich) 61 pts.; 3, R. Wagstaff (N.G.P.S.) 51 pts. Best Aquascape: 1, B. Wilson (Merseyside) 72 pts.; 2, H. Penhall (Oxram) 70 pts.; 3, B. Cliff (Middleton) 51 pts. Best Novelty Aquascape: 1, H. Haslam (Belle Vue) 70 pts.; 2, S. Seymour (Merseyside) 66 pts.; 3, E. Seymour (Merseyside) 64 pts. Best Common Goldfish and Comets: 1, L. Baxter (N.G.P.S.) 71 pts.; 2, H. Penhall (Oxram) 70 pts.; 3, Mr. and Mrs. Wolstenholme (Heywood) 59 pts. Shubunkins (Bristol and London) 1, 2, and 3, B. M. Rothwell (N.G.P.S.) 70 pts.; 67 pts.; 65 pts. Moors: 1 and 2, W. H. Ramsden (N.G.P.S.) 70 pts.; 69 pts.; 3, C. Wallbank (N.G.P.S.) 68 pts. Veiltails: 1, B. M. Rothwell (N.G.P.S.) 73 pts.; 2, R. Rich (Basingstoke), 65 pts.; 3, W. H. Ramsden (N.G.P.S.) 61 pts. A.O.V. Fancy Goldfish: 1, J. S. Hall (Aireborough) 72 pts.; 2, H. Penhall, (Oxram) 69 pts.; 3, W. H. Ramsden (N.G.P.S.) 68 pts. A.D.V. Coldwater: 1, Mr. and Mrs. K. Blades (Bassetlaw) 77 pts.; 2, H. Penhall (Oxram) 65 pts.; 3, J. S. Hall (Aireborough) 59 pts. Guppy (Single): 1, A. Dawson (Heywood) 77 pts.; 2 and 3, J. Hutchinson (F.G.A.) 71 pts., 67 pts. Guppy (Pairs): 1, S. Richardson (Lanarkshire) 62 pts.; 2, Mr. and Mrs. Poulton (Northwich) 61 pts.; 3, J. Hutchings (F.G.A.) 59 pts. Livebearer A.V.: 1, J. Robertson (Northumbrian) 71 pts.; 2, Mr. and Mrs. Muckle (Sandgrounders) 68 pts.; 3, S. Richardson (Lanarkshire) 66 pts. Livebearer A.V. (Pairs): 1, J. Robertson (Northumbrian) 68 pts.; 2, D. P. Birdall (Aireborough) 67 pts.; 3, Mrs. J. Beavers (Hartlepool) 60 pts. Angel (Single): 1, K. Davies (Northwich) 73 pts.; 2, A. Dawson (Heywood) 67 pts.; 3, Mr. and Mrs. K. Ellis (Bassetlaw) 66 pts. Angel (Pairs): 1, Mrs. B. Newall (Glossop) 59 pts.; 2, Mr. and Mrs. Greenhalgh (Bury) 58 pts.; 3, Mr. and Mrs. P. Bull (Bassetlaw) 50 pts. Dwarf Cichlids (Single): 1, Mr. and Mrs. Chester (Retford) 77 pts.; 2, R. Walton (Hartlepool) 71 pts.; 3, Mr. and Mrs. Agar (Aireborough) 70 pts. Dwarf Cichlids (Pairs): 1, P. Wolstenholme (Middleton) 62 pts.; 2, Mr. and Mrs. McBride (Aireborough) 59 pts.; 3, E. Brown (Blackburn) 58 pts. A.O.V. Cichlids (Single): 1, P. Batchelor (Loyne) 82 pts.; 2, R. Atherton (Hartlepool) 80 pts.; 3, G. Brown (Northumbrian) 75 pts. A.O.V. Cichlids (Pairs): 1, R. Atherton (Hartlepool) 72 pts.; 2, S. Wolstenholme (Heywood) 66 pts.; 3, J. Brook (Huddersfield) 54 pts. Fighter (Single): 1, R. Payne (Merseyside) 76 pts.; 2, T. Davies (Heywood) 67 pts.; 3, Mr. and Mrs. Chester (Retford) 65 pts. Gouramies and Paradise A.V. (Single): 1, J. Taylor (Merseyside) 74 pts.; 2, Mr. and Mrs. K. Blades (Bassetlaw) 69 pts.; 3, Mr. and Mrs. Newton (Blackburn) 68 pts. Gouramies A.V. and Paradise (Pairs): 1, R. Tomkinson (Glossop) 74 pts.; 2, G. Walker (Castleford) 72 pts.; 3, J. Taylor (Merseyside) 67 pts. Barbs A.V. (Single): 1, R. Tomkinson (Glossop) 88 pts.; 2, R. Jenkinson (Huddersfield)

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